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REMOTE STORAGE

THE RELATION OF CHOKED DISK TO THE TENSION OF THE EYEBALL

AN EXPERIMENTAL STUDY *

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DETROIT

In presenting the subject which I have chosen for your consideration today, I shall depart somewhat from the traditions of the section, and invite your attention to a purely medical topic.

Some years ago in an effort to collect a large number of tonometric readings in order to determine the average normal tension of the eyeball, I had the tension taken of the eyes of all the patients in the hospital and outpatient department, whenever possible. Among this number were six cases of brain tumor. Some time later when compiling the histories of the brain tumor cases, I observed that when the amount of the choked disk was the same in the two eyes, the tension was equal or nearly so, and when the swelling was greater in one eye than in the other, the tension was different in the two eyes, being least in the one showing the greater amount of swelling.

I reported these observations before the Ophthalmological Society in 1911, and have since been able to verify, in several cases, the conclusions there drawn.

During the past year I have been carrying on a series of experiments on dogs and monkeys to prove, if possible, the relation between choked disk and the tension of the eyeball, in the case of artificially increased intracranial pressure.

It is not my intention to review in detail all the hypotheses that have been advanced to explain the occurrence of choked disk in association with cerebral tumors. It is essential, however, to refer briefly to the most important of these theories, in order to make clear the reasons for our experimentation.

In general there are three principal theories advanced to account for the causation of choked disk, namely, the inflammatory, the toxic or chemical, and the mechanical. These three factors alone or in combination have been urged as the possible cause of the swelling of the disk in cases of increased intracranial pressure.

The mechanical theories of the causation of choked disk depend variously on increased intracranial pressure, increased intravaginal pressure, disturbance of return blood flow, and obstruction of lymph flow from the vitreous through the intravaginal to the subarachnoid space. The exact sequence of events, however, has not been determined. Whether or not the increased intracranial pressure must be associated with increase in the amount of the cerebrospinal fluid is still in dispute. Likewise, whether the pressure in the nerve sheath first compresses the veins and second the lymph spaces, or in the reverse order, is in doubt. Assuming that the venous engorgement occurs first, there are at least four possible points where the vein may receive its maximum compression, namely, at the lamina cribrosa, in its intraneural portion, where the vein leaves the nerve, and in the intravaginal space. Clinical and experimental evidence has been produced to influence the various authors to advance a theory as to the most important point of pressure, but there is no agreement as to the point most often attacked.

The original theory of von Graefe,[1] that the increase of intracranial pressure, caused by a tumor, acted to compress the cavernous sinus, and that this gave rise to an engorgement in the ophthalmic vein, was disproved by Seseman, who showed that the ophthalmic vein had such free connection with the facial that an obstruction to its flow into the sinus could not produce a choked disk.

The discovery by Schwalbe[2] that the intravaginal space at the optic nerve communicates with the subarachnoid space of the brain, led Schmidt-Rimpler[3] to advance the theory that when there was an increase of the intracranial pressure, a quantity of cerebrospinal fluid was pressed into the lymph space of the sheath of the optic nerve, where it produced a papilledema and a secondary venous congestion.

Manz[4] could not confirm the claim of Schmidt-Rimpler that a system of canals in the lamina cribrosa communicated with the arachnoid space, but added to the Schmidt-Rimpler theory the suggestion that, by the means of hydrops of the sheath, the intracranial pressure caused compression of the vessels in the end of the optic nerve as they pass through the lamina, which pressure resulted in an edematous swelling and infiltration. Since that time this has been known as the Schmidt-Manz theory, and according to Gowers is generally accepted in Germany as offering the most satisfactory explanation of choked disk.

Saenger holds that the sheath is first distended by cerebrospinal fluid, and as the intravaginal pressure rises, the optic nerve is compressed and the communication of its sheath with the intracranial cavity is cut off by pressure of the brain on the dural fold that surrounds the nerve at its entry into the canal. In this way, the flow of lymph in the nerve is obstructed and a choked disk results.

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* This work was done with the assistance of Dr. George M. Waldeck, in the laboratories of and with material furnished by Parke, Davis & Co.

* Chairman's address, read before the Section on Ophthalmology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Von Graefe: Arch. f. Ophth., 1860, vii, 58.
2. Schwalbe: Arch. f. Mikroscop. Anat., 1869.
3. Schmidt-Rimpler: Arch. f. Augenh., 1888.
4. Manz: Deutsch. Arch. f. klin. Med., 1871, ix, 339.

Behr[5] assumes that in addition to compression of the nerve in its foramen, the lymph stasis that results compresses the vein in the nerve, and this produces the venous congestion and engorgement of the fundus.

Henderson[6] suggests that choked disk is due to the difference between the pathologically raised intravenous tension and the normal intra-ocular tension.

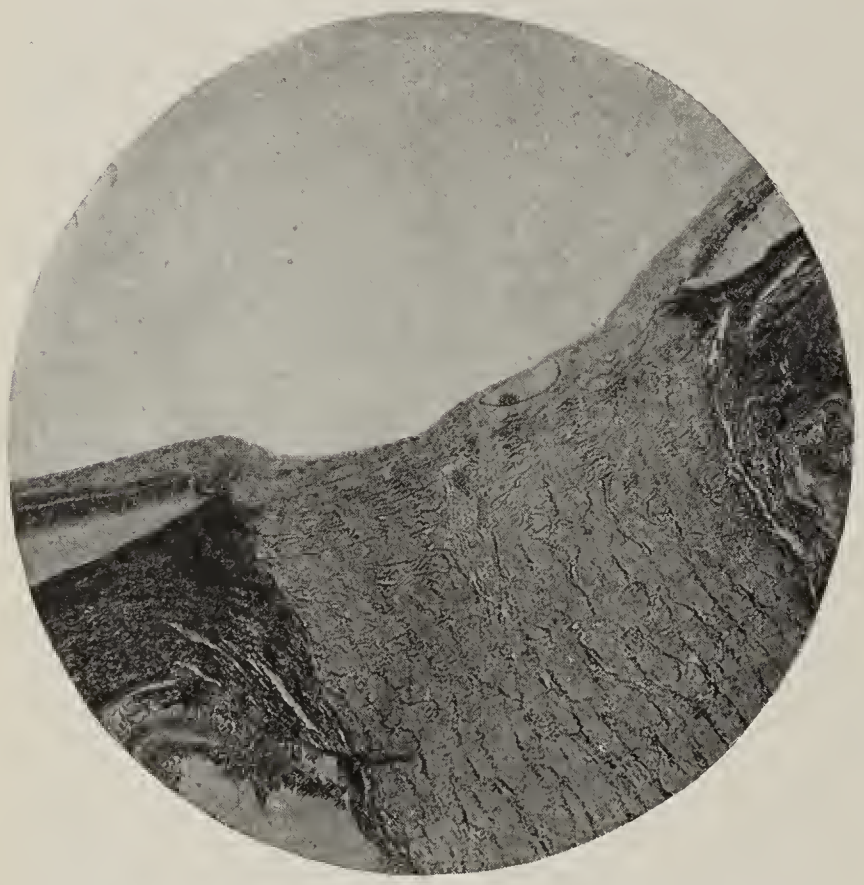

Fig. 1.—Photomicrograph of optic nerve of dog. Normal.

Levinsohn[7] has attempted to prove experimentally that an obstruction to the flow of the lymph in the intravaginal space compresses those lymph passages which run in the optic nerve, and that engorgement of the fluid coming from the vitreous chamber into the distal section of the optic nerve is produced in this way.

Schieck[8] maintains that the increased sheath pressure obstructs the lymph drainage along the central vessels, producing edema and swelling of the disk, and by pressure on the central vessels a secondary venous engorgement.

Parinaud[9] adhered to the mechanical theory and claimed that choked disk is present in cases of brain tumor only when the latter is complicated by hydrocephalus and edema of the brain; while Kreuchman thinks that in addition to increased pressure, the papilledema is produced by an autogenous substance set free by the destruction of the tumor cells. On the other hand, Hughlings Jackson thought that a tumor of the brain acted to a certain degree as a foreign body and excited optic neuritis by its irritating influence, and Gowers thought that it was produced through products of inflammation.

While most observers believe the mechanical theory plays an important part in the causation of choked disk, many are inclined to take the middle ground and believe that no one theory can explain all the clinical facts. This theory is well expressed by Paton and Holmes.[10] They believe the edema of the papilla that constitutes tumor papilledema is in the first place due to the venous engorgement that results from the rise of intravenous pressure that is necessary in order that circulation should be maintained in the intravaginal portion of the vein where this is subjected to an increased sheath pressure. The increased sheath pressure is also the origin of the second factor, the obstruction of the lymph drainage from the papilla.

Cushing and Bordley believe that the changes are due, first, to mechanical, and second, to toxic or inflammatory causes.

De Schweinitz says:

> In general terms, it is probable that choked disk is produced by a combination of factors. In this combination increased intracranial tension or pressure is most prominent, and the mechanical theory of its pathogenesis affords the most satisfactory explanation.

EXPERIMENTAL

The results obtained from experimentally produced intracranial pressure are as varied as the theories of the causation of papilledema in cases of brain tumor.

Levinsohn injected fluid into the subdural or subarachnoid space and observed a slight stasis in the anterior segment of the nerve, with venous hyperemia and retinal hemorrhages. He claimed the fluid never found its way along the axial trunk, even with greatly increased pressure.

Manz conducted a series of experiments on animals to determine the effect of increased intracranial pressure on the vaginal distention. Injection into the subdural space passed into and distended the sheath, and caused fulness of the retinal veins, and in some cases transient redness and swelling of the papilla.

Schieck concluded from the results obtained from his experiments that choked disk could not be caused in monkeys by placing tents in the skull; that the injection of paraffin did not cause choked disk, but when normal saline solution was injected under pressure choked disk developed. He concluded that mere rise of pressure within the skull could not cause choked disk; there must be an increased secretion of the cerebrospinal fluid.

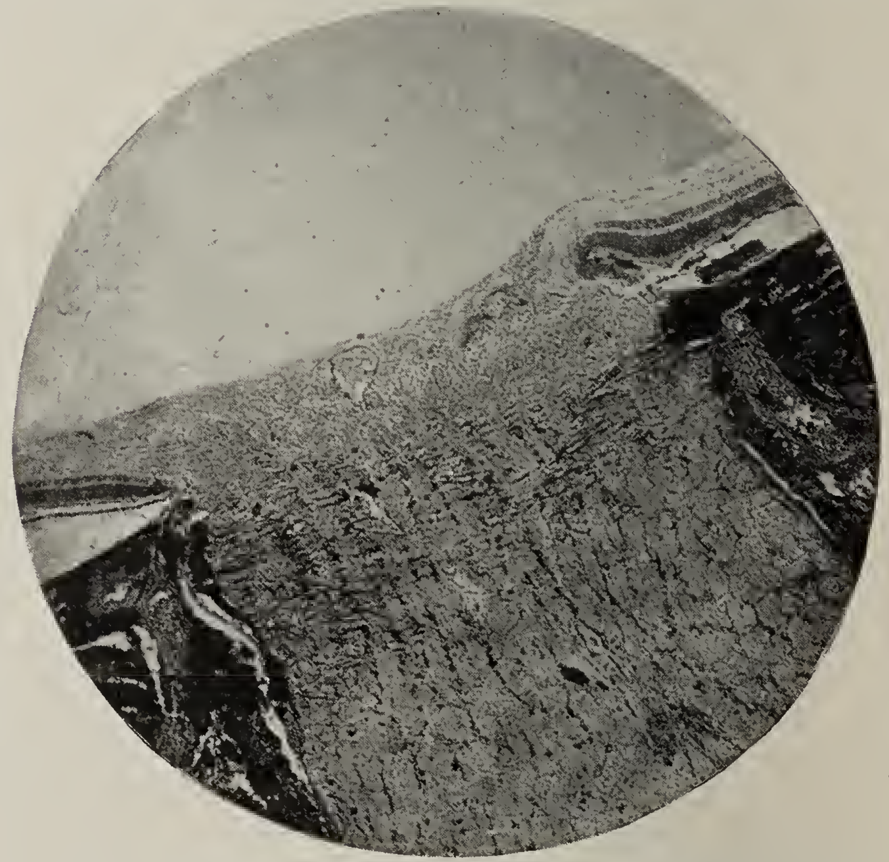

Fig. 2.—Photomicrograph of the optic nerve of untrephined eye of dog showing choked disk. Intracranial pressure produced by digital pressure.

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5. Behr: Neurol. Centralbl., 1911, xxx, 66.
6. Henderson: Glaucoma, 1910, p. 216.
7. Levinsohn: Ber. d. Ophth. Gesellsch., Heidelberg, 1911.
8. Schieck: Ber. d. Ophth. Gesellsch., Heidelberg, 1910.
9. Parinaud: Ann. d'ocul., 1879, xxxii, 5.
10. Paton and Holmes: Brain, xxxiii, 427.

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Schmidt[11] found that a colored liquid injected into the sheath passed into the lymph space in the nerve at the lamina cribrosa, and he suggested that neuritis is produced not by the simple pressure outside the nerve, but by the influence, perhaps irritation, of the liquid passing into the lymph spaces.

Cushing and Bordley induced artificial intracranial pressure by the introduction of normal salt solution in the subarachnoid space, by direct digital pressure on the dura, and by the introduction of fragments of sponge tents between the bone and dura. They concluded that a neuroretinal edema with marked elevation of the papilla may accompany conditions which raise the intracranial pressure, whether from the introduction of a new fluid under tension, or from transmission of tension to the fluid already present.

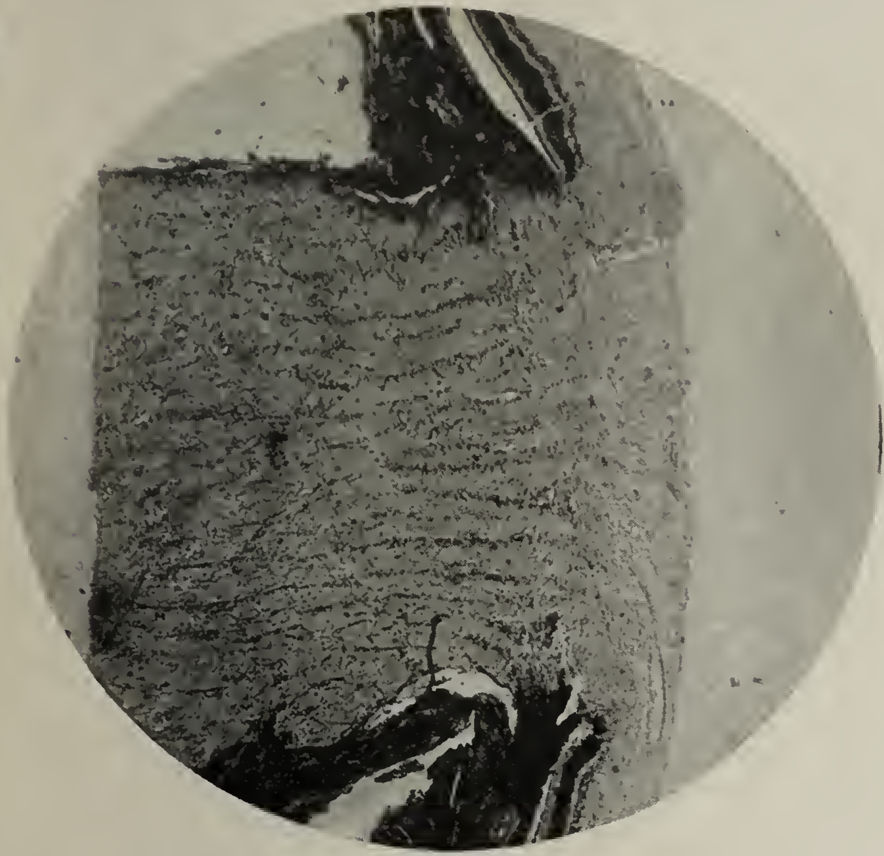

Fig. 3.—Photomicrograph of the optic nerve of trephined eye of dog showing choked disk. Intracranial pressure produced by digital pressure.

It will thus be seen that the whole subject of the etiology of choked disk, like the origin and ultimate disposition of the cerebrospinal fluid, is somewhat chaotic.

With a view of determining the effect that a difference in tension in the two eyes might have on the initial appearance, or amount of choked disk in cases of increased intracranial pressure, the following experiments were conducted:

The tension in one eye was diminished by performing the sclerocorneal trephining operation of Elliot. After recovery from the operation the intracranial pressure was increased and the effect on the two eyes observed.

The experiments were conducted on dogs and monkeys, twenty of the former and three of the latter being employed.

The details of the experiments were as follows:

The refraction of each eye was determined with the ophthalmoscope and the tension taken with a Schiötz tonometer. The intra-ocular tension of one eye was reduced by the trephining operation. After recovery from the effects of the operation a second ophthalmoscopic examination was made and again the tension recorded. Artificial intracranial pressure was induced (1) by the use of direct digital pressure; (2) by the injection of normal salt solution under registered pressure; (3) by the distention under registered pressure of an air bag introduced between the skull and dura; (4) by the injection of paraffin through a brass cannula screwed into the skull and perforated with an opening made to fit the tip of the paraffin syringe; (5) by the introduction of sea tangle tents between the bone and dura, and (6) by the introduction of sponge tents between the skull and dura.

The results will be reported in groups arranged according to material employed to produce the intracranial pressure.

GROUP I.—DIGITAL PRESSURE

Digital pressure was made on the dura, through a trephine opening. Three dogs were experimented on. In one dog, the disk in each eye was reported markedly swollen, but as the animal died before I had an opportunity to make an ophthalmoscopic examination, the result is not included in this report. In the second experiment the dog died before any marked swelling had developed. In the third experiment, the results were definite and I shall report them in detail.

A black spaniel dog, weighing 12 kg., was put under chlorbutanol anesthesia. Estimated refraction + 1.00 D. each eye, tension 18 mm. Hg. Left eye was trephined and tension reduced so low that with the 5 mg. weight the indicator on the tonometer remained to the right of the scale. Here, as in all subsequent experiments, this condition is indicated as Tn. — negative. A ¾ inch disk was removed from the right side of the skull, well back, and digital pressure applied.

At the end of five minutes' time the disk in the right eye was swollen 1 D. and in the left, the trephined eye, 7 D. with tremendous engorgement of the veins. At the end of fifteen minutes, right eye was swollen 4 D., left eye 8 D. On release of pressure for thirty-five minutes, the edema subsided to right eye 0, left eye 3 D. Fifteen minutes after the pressure was reapplied, the edema increased in right eye to 3 D., left eye 7 D. (O. D., Fig. 1; O. S., Fig. 2).

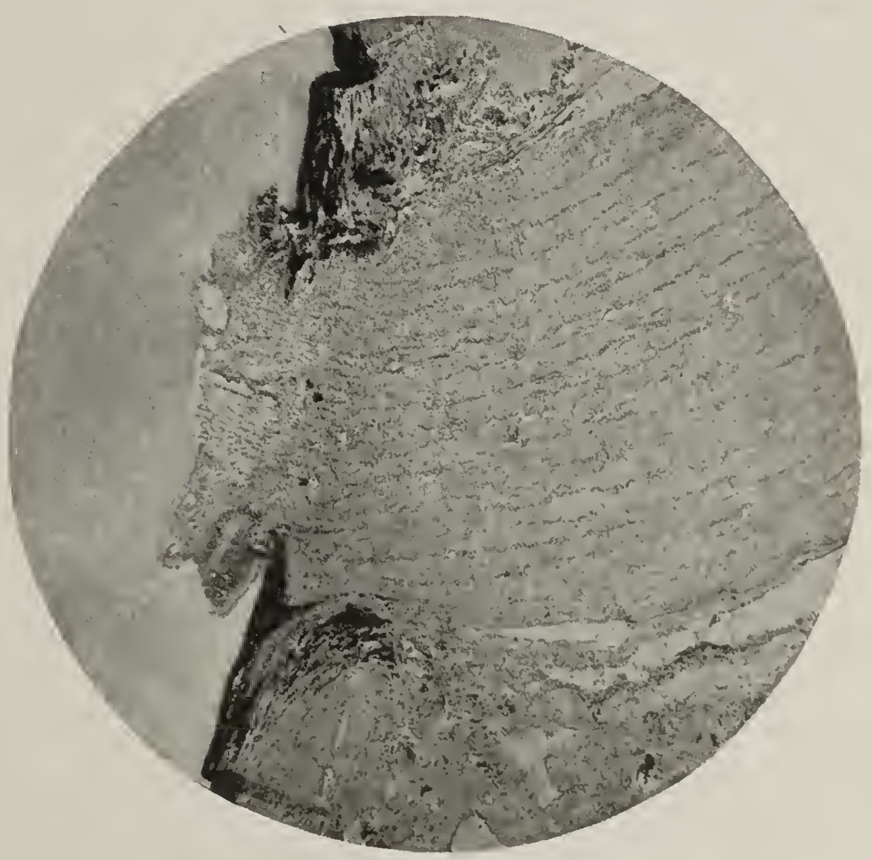

Fig. 4.—Photomicrograph of optic nerve of dog showing choked disk after intracranial injection of saline solution.

GROUP II.—A SALINE SOLUTION

A saline solution under registered pressure was injected through the trephine opening after the dura and arachnoid had been divided.

The tension in the left eye was made negative by a sclerocorneal trephining operation. At a pressure of 30 mm. of mercury, the right disk was swollen 2 D., the left 3 D. At 55 mm. pressure, each eye was swollen 6 D. At a pressure of 80 mm. an exophthalmos developed in the right eye, and, at the same time, a tremendous edema of the nerve and retina in the left eye, but no proptosis appeared. At a pressure of 110 mm. the dog died. There was practically no difference in the amount of swelling in either eye at any stage of the experiment.

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[11] Schmidt, in Gowers: Ophthalmoscopy, p. 76.

Note: I am unable to explain the difference in the appearance of the two eyes unless the lack of resistance in the trephined eye permitted the fluid to escape into the globe, whereas in the eye with normal tension the excessive engorgement in the sheath and veins led to the proptosis.

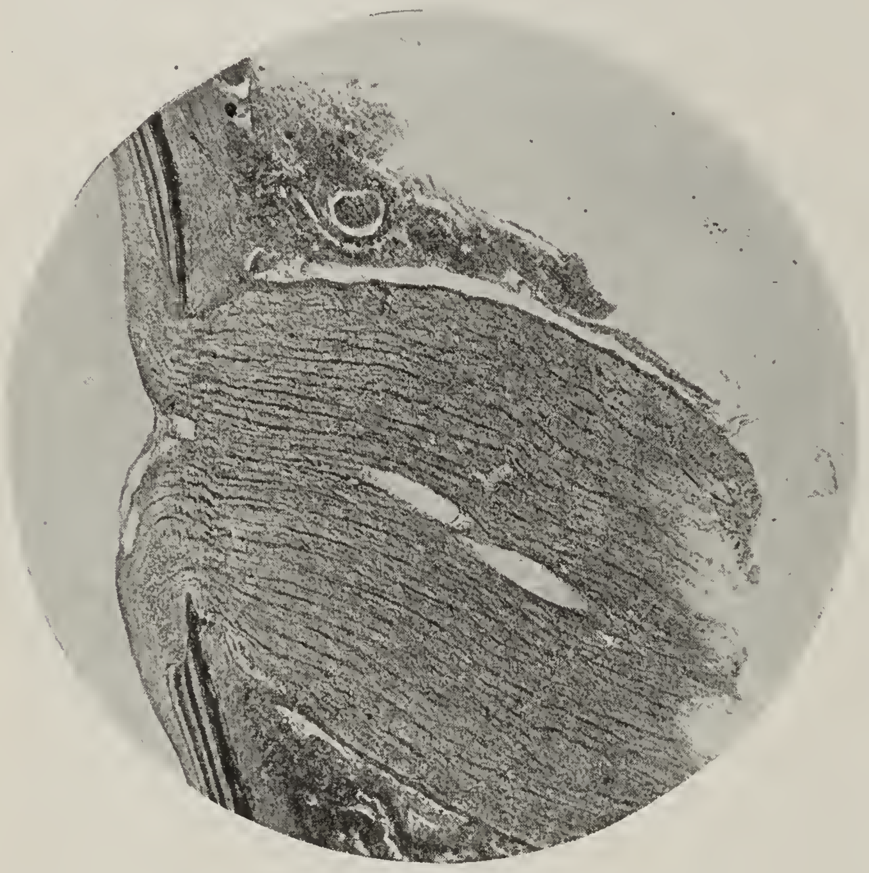

Fig. 5.—Photomicrograph of optic nerve of untrephined eye of monkey. Intracranial pressure produced by sponge tent.

GROUP III.—AIR BAG

Pressure was made by means of an air bag attached to the end of a tube which closely fitted the trephine opening and the pressure applied under control by the means of a mercury manometer.

Three experiments were made under chlorbutanol anesthesia. The refraction was + 5.00 in Dog 1, + 7.00 in Dog 2, and + 8.00 in Dog 3. The tension was right eye 15, left eye 18 mm. in Dog 1, 15 mm. in each eye in Dog 2, and not taken in Dog 3. In two instances the tension was reduced in the right eye by passing a suture through the cornea into the anterior chamber.

In the first case, under a pressure of 20 mm., both disks became engorged, this condition appearing first in the right or trephined eye. Under a pressure of 60 mm. the disk in the trephined eye was swollen 6 D. and in the left 2 D. Under a pressure of 90 mm. the swelling in both disks increased to 7 D., and at a pressure of 280 mm. when the dog died, the swelling did not increase above 8, and was equal in the two eyes.

Note.—The resistance at the disk is apparently increased with the amount of edema, the amount of the swelling being limited to about 8 D. While this maximum amount of swelling is reached more quickly in the eye with diminished tension, it does not go above a certain amount. This result corresponds to clinical observations.

Dog 2 died from too much chloretone.

In Dog 3, control, tension was not reduced in either eye. At a pressure of 10 mm. Hg the veins showed slight engorgement in both eyes; at 65 mm. both nerve heads became edematous. No measurable swelling appeared at 90 or 200 mm. pressure, at which pressure the dog died. Result, failure to produce choked disk.

GROUP IV.—SEA TANGLE TENT

Six experiments were made. As the early work was undertaken to develop our technic, neither eye was trephined in the first five cases. One dog died fifteen hours after the tent was introduced without reexamination. Two dogs died on the third day. One showed edema of both nerves, and the other a swelling of 1 D. in the right and 2 D. in the left disk. The fourth dog lived twelve days when examination showed a swelling of 1 D. in the right disk and 2 D. in the left. The fifth dog on the seventh day showed a swelling of 2 D. in the right disk, and 3 D. in the left.

The right eye was trephined in the sixth dog, and two pieces of sea tangle tent were introduced under the skull in the left occipitoparietal region. On the second day the disk in the trephined eye showed a swelling of 6 D. and in the left eye 3 D. Dog died same day. Postmortem examination revealed severe injury to the brain and its membranes with marked evidence of hemorrhage.

Note.—The sea tangle tent is harder and does not expand to the same degree as the sponge tent.

GROUP V.—PARAFFIN

Paraffin was injected through the cannula screwed into a trephine opening in the skull. The opening through the cannula contained a thread which corresponded to that on the tip of the syringe, so the melted paraffin could be forced directly into the brain cavity. Three tests in all were made, without opening the dura. The quantity of paraffin used varied from 3.85 to 4.42 c.c.

In each experiment the left eye was trephined and the tension made negative. The paraffin was injected on the opposite side well back (that is, in reference to the trephined eye the tumor was contralateral). In the first instance, in which 4.42 c.c. of paraffin were injected, the edema manifested itself almost immediately in the trephined eye, and not until this disk was choked 2 D. did the edema appear in the right eye. Later the venous engorgement in both eyes was intense and the edema extended to the retina. Dog died within twenty-four hours. Evidently too large a quantity of paraffin had been used.

In the second case, 3.85 c.c. of paraffin were injected. On the following day the right disk was edematous but not swollen, while the left showed a swelling of 3 D. On the eighth day right eye was swollen 1 D., left eye 4 D. On the tenth day, right eye, no swelling, left eye 3 D. Dog died on the eleventh day.

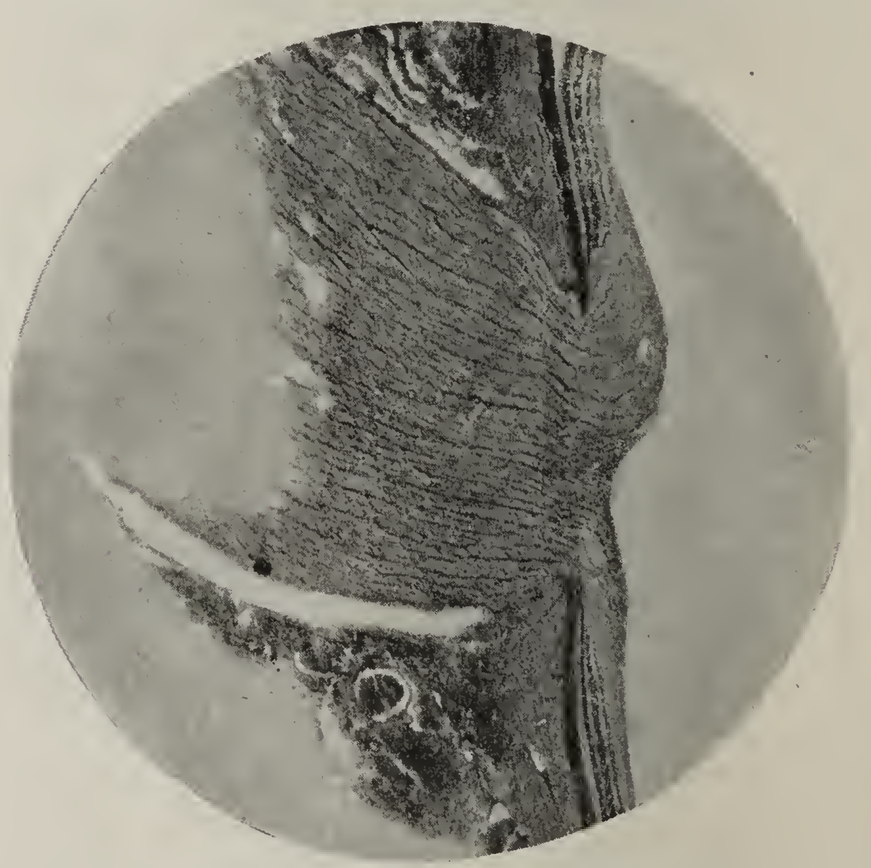

Fig. 6.—Photomicrograph of optic nerve of trephined eye of monkey. Intracranial pressure produced by sponge tent.

In the third case, 3.85 c.c. of paraffin were injected. On the third day the right disk showed marked edema but no measurable swelling, while the left disk in the trephined eye was swollen 3 D. Dog died on the fourth day.

On the whole, the paraffin was unsatisfactory. The edema of the disk was never greater than 3 D. and subsided in a few days.

GROUP VI.—SPONGE TENTS

Four observations were made. The tension was reduced in one eye in three instances. One was run as a control, the tension being normal in both eyes. The tension in the right eye was reduced in the first dog, and that in the left eye in the other two dogs. In each instance the tent was inserted on the side opposite the eye with least tension.

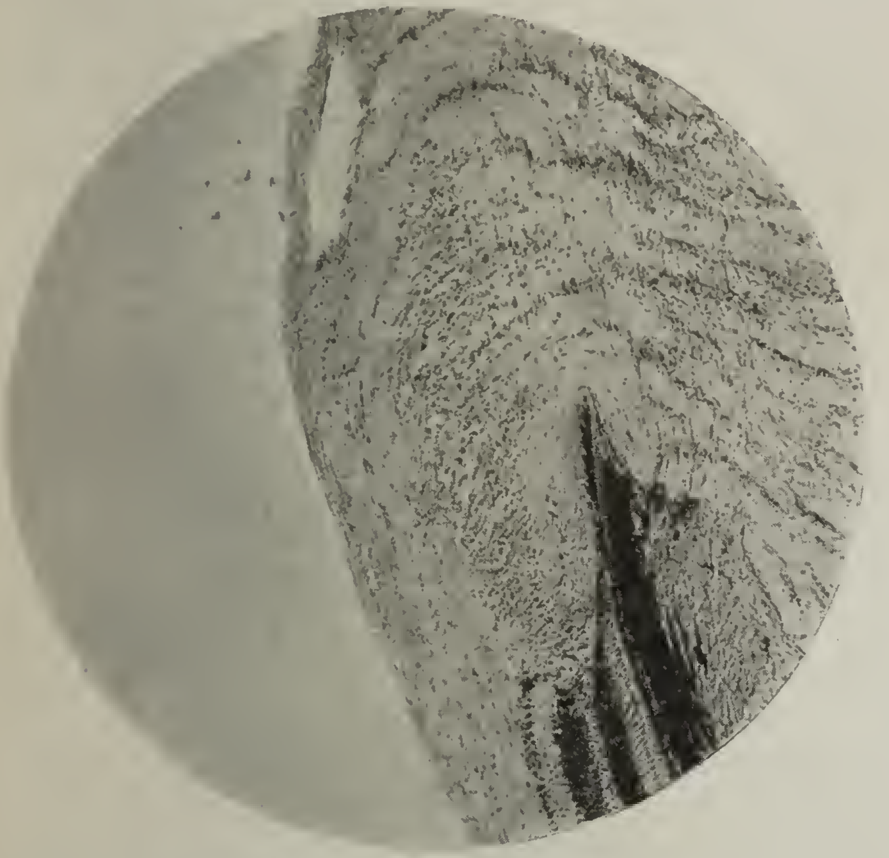
Fig. 7.—Photomicrograph showing hemorrhage in nerve shown in Figure 4.

The first dog on the second day showed edema in the left disk and a swelling of 3 D. in the right. Dog died on third day. The second dog on the second day, right eye, no swelling, left eye, + 3.00, died third day.

In the third dog, a much smaller piece of tent was inserted. On the third day, the disk in the right eye showed marked congestion, but no measurable swelling; the disk in the left, or trephined eye, swollen 3 D. On the fifth day, disk, right eye edematous, left eye swollen 3 D. On the sixth day, no change. Seventh day, disk right eye 1 D., left eye 5 D. Eighth day, same. Ninth day, disk right eye swollen 3 D., left eye 6 D. Tenth day, disk right eye 0, left eye 3 to 4, difficult to measure. Twelfth day, disk right eye 0, left eye 2 D. There was little change until the twenty-third day, when the edema in the left eye was reduced to 1 D. On the twenty-seventh day nothing but a congestion remained in the disk in either eye. On the forty-fifth day, both nerves were apparently normal.

In the fourth dog, control, tension not reduced in either eye. Estimated refraction + 2.00 each eye. Tension 25 mm. each eye. A cone of sponge tent 28 mm. high with diameter of base 9 mm. was inserted in two pieces between the bone and dura in the occipitoparietal region on the right side. On the second day the disk in each eye was congested but no measurable swelling present. On the third day the disk in the right eye was swollen 2 D., and in the left 3 D. On the fourth day the swelling had increased to 4 D. in the right and 5 D. in the left eye. Died on fourth day.

Note.—The results obtained by the use of sponge tent were the most satisfactory.

SUMMARY

In the nine instances in which there was a marked difference in the tension of the two eyes, there was a choked disk in both eyes in five dogs, and in the trephined eye only in four dogs. In each instance the swelling appeared exclusively or was greater in the eye of least tension.

As has been emphasized by Parsons, the return blood from the eyes in dogs is radically different from that in man, so that deductions from experiments on the canine might not be applicable to the human. It was necessary therefore to repeat the experiments on monkeys.

Profiting by our experience in the dog experimentation, we decided to subject the three monkeys we had at our disposal to the sponge tent test.

The tension in one eye was reduced by the Elliot trephine operation and in each case the tent was put in on the side opposite the eye with the least tension.

Monkey Experiment 1.—Small Brazilian monkey, estimated refraction emmetropic, tension each eye 18 mm. Trephine operation performed on right eye. Tension after operation 6 mm. Under ether anesthesia the skull was trephined over the left occipitoparietal region and a piece of sponge tent 8 by 7 by 3 mm. was introduced between the bone and the dura.

On the second day there was a marked edema of the right disk, the left remaining normal. On the sixth day the tension was 15 in the trephined eye and all evidence of edema had disappeared. On the seventh day the trephine operation was repeated on the right eye. On the fourteenth day a second piece of sponge tent 11 by 8 by 2 mm. was introduced in the region of the first operation. On the second day thereafter, the disk in the right eye was swollen 2 D., left normal. On the fourth day the right disk was swollen 4 D., left still normal. The papilledema in the right eye remained stationary at 4 to 5 D. for ten days, and then gradually receded until the fifth day it was 2 D. While the left eye showed slight edema there never was present a measurable swelling of the disk. At this time the tension was right eye 19, left eye 25. Twenty-seven days after the last implantation, the trephine operation was repeated. Tension lowered to 3 mm.

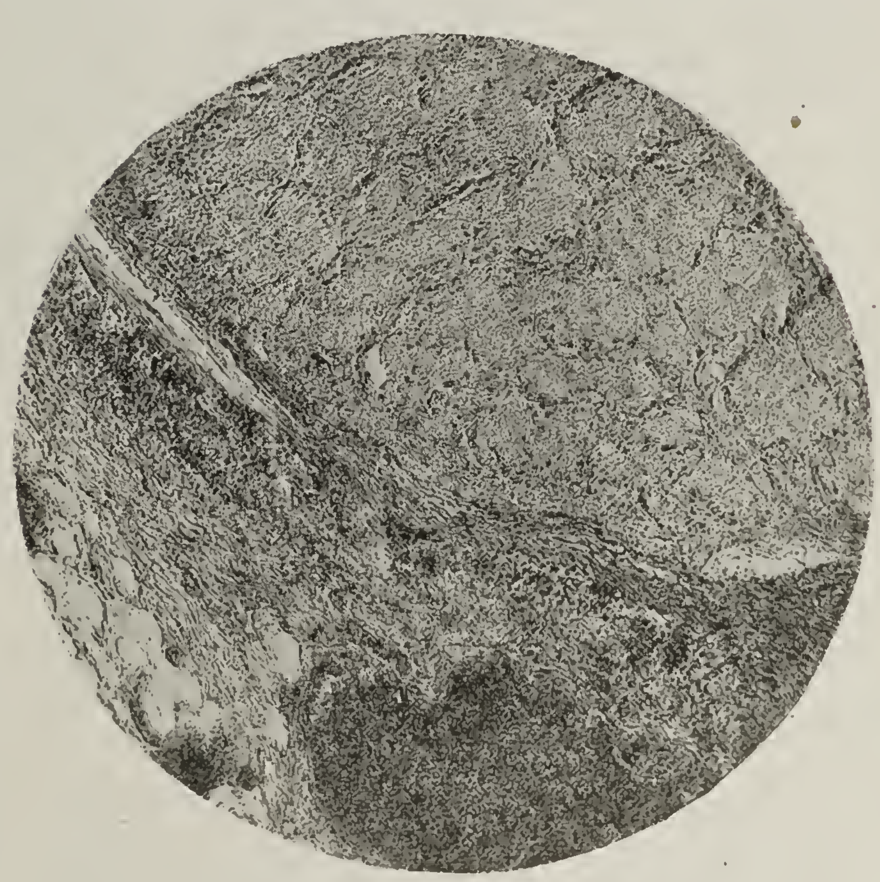
Fig. 8.—Photomicrograph showing round-cell infiltration of sheath.

Five days thereafter, without further implantation, the disk in the trephined eye again reached 4 D., while that of the left was at 0, where they still remain.

Monkey Experiment 2.—Brazilian monkey. Estimated refraction emmetropic. Tension right eye 21 mm., left eye 21 mm. Trephine operation performed on left eye. Tension after operation negative. Under ether anesthesia the skull was trephined and a piece of sponge tent 11 by 8 by 2 mm. was introduced between the skull and dura in the occipitoparietal region. On the second day the disk in the right eye was normal and in the left it was swollen 2½ D. On the third day, right eye edematous, left eye swollen 3 D. On the fifth day right eye 1 D., left eye 4 D. On the seventh day, right eye 2 D., left eye 6 D. Tension, right eye 21, left eye 6 D. This condition remained stationary until the fourteenth day, when the swelling began to recede, and on the seventeenth day the disk was swollen 2 D. in each eye, when the tension was 21 mm. in the right and 18 mm. in the left eye. Two days later the tension in the left eye had risen to 21 mm. Whether the recession of the choked disk was dependent on the return to normal tension in the left eye or not I am unable to say. The tension remained the same until fifteen days later, when the left eye was again trephined and the tension reduced to 0. Without further implantation the swelling in the left eye rose to 4 D. in nine days, when hemorrhages appeared on and about the disk. Tension, right eye 22 mm., left eye 3 mm. On the sixteenth day the swelling in the left eye was 5 D., right eye 0. On the seventeenth day the swelling in the left eye was 2 D., right eye 0, hemorrhage still present.

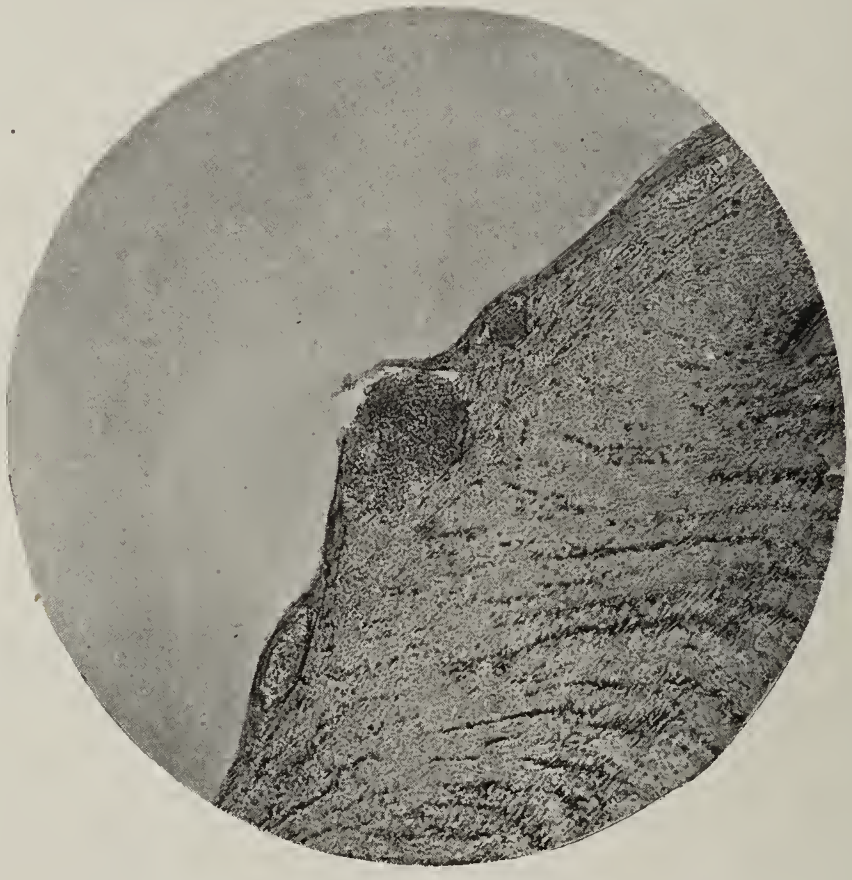

Fig. 9.—Photomicrograph showing marked venous engorgement in eye of dog. Intracranial pressure produced by sponge tent.

Monkey Experiment 3.—Large Brazilian monkey. Estimated refraction S + 2.00 in each eye. Tension in each eye 21. Left eye trephined under chloroform anesthesia; a large cone of sponge tent 23 mm. high and 9 mm. diameter at the base was introduced between the bone and dura in the right parietal region. On the second day the disk in the right eye was edematous, tension 21 mm. Disk in the left eye swollen 2 D., tension 2 mm. On the third day, the right disk was swollen 1 D., tension 20, left 2 D., tension 10 mm. On the fourth day right disk was swollen 2 D., left 5 D. Monkey died on fourth day (O. D., Fig. 3; O. S., Fig. 4).

In each experiment the intracranial pressure was made on the side opposite the eye in which the tension had been reduced. In not a single instance did the choked disk appear first on the side of the tumor but always in the eye with the least tension.

The results obtained in the dog and monkey being identical cannot, in view of the difference of the venous circulation in the two animals, but suggest the possibility that the return blood flow may not be as important a factor in the causation of choked disk as we now believe it to be.

CONCLUSIONS

1. Choked disk can be produced in the dog and monkey by artificially increasing the intracranial pressure. The most satisfactory results are obtained by the use of sponge tents.

2. When the intracranial pressure is increased by artificial tumors placed in the occipitoparietal region, one element in determining which disk will be affected first is the tension of the eyeball.

3. When the intracranial pressure is increased by artificial tumors placed in the occipitoparietal region, the nerve in the eye of least tension is the first to show the choked disk.

4. When the intracranial pressure is increased by artificial tumors placed in the occipitoparietal region, there is no direct relation between the location of the tumors and the eye first affected.

1025 David Whitney Building.

ABSTRACT OF DISCUSSION

Dr. James Bordley, Baltimore: It has always been believed that some anatomic reason accounted for one eye swelling before or more than the other. It has also been clearly understood that as a diagnostic point in the localization of brain tumors we could not go to the eye in which there was the greatest swelling. The tumor is not always located on the side of the greater choked disk. I have studied twelve cases. I have found that where the ocular tension was equal, the side of the tumor was the side of the first swelling. Where there was a difference in the intra-ocular tension the side of the first swelling was the side of the least intra-ocular tension. This corresponds with what Dr. Parker found experimentally. In this group of cases we had one case of glaucoma. It was a one-sided glaucoma and the glaucomatous side never developed a choked disk. Of course, in considering the greatest height at the time of the examination we must also consider the condition of the choked disk; because if we examine a case in the late stages where changes have taken place in the optic nerve, it is quite possible that the side of the eye with the least tension may be the side with the greatest choked disk, because pathologic changes have taken place in the eye which have changed the condition of things.

Dr. John E. Weeks, New York: It has been held in years gone by that inflammatory processes were accountable for choked disk in some degree in all cases, and in some cases entirely so. Microscopic examination in five cases led me to conclude that a true inflammation was seldom the cause of choked disk, but that it must be due to a mechanical process, such as intracranial tension. I compiled a large number of cases observed by men in different parts of the world in regard to the difference in the degree of choked disk in the two eyes. As we all know, a great deal of speculation has been indulged in as to whether the increase in tension or increase in swelling in one eye was in any way indicative of the side on which the tumor was located. The statistics that I was able to get together showed that no dependence could be placed on that particular sign. Dr. Parker's work explains in a large degree the reason why one eye presents papilledema more than the other, namely, a difference in the intra-ocular tension.

Metabolism of the Milch Cow.—Liberal milk production, on common practical winter rations fed in quantities sufficient to maintain the live weight and to cause regular nitrogen and sulphur storage, caused consistent losses of calcium, magnesium and phosphorus from the cows' skeletons. These losses occurred in spite of liberal supplies of these nutrients in the food. The limited response of the cows to increase in the intake of these elements showed that their utilization of these nutrients, on a profitable plane of food consumption and milk production, was surprisingly inefficient.—Forbes and Beegle, *Bull. Ohio Agricultur. Exper. Sta.*, April, 1916.

REPORT OF FIVE CASES OF TERTIAN MALARIA TREATED WITH DIARSENOL INTRAVENOUSLY [*]

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Since 1911 various writers have published reports of the use of synthetic arsenical preparations in the different forms of malaria, which was attended usually by satisfactory results in the tertian type, but proved of little value in other types of infections. Only a few children so treated have been reported, and the writer wishes to add the brief observation of five children in the Kansas City General Hospital.

Case 1.—Mrs. T. and her three children were admitted to the hospital on March 15, 1916. The oldest child, Gertie T., aged 11, had been ill since June, 1915, infected during residence in Oklahoma. Had chills on every third day and had had quinin treatment without permanent results. On admission to the hospital on March 15, spleen was found greatly enlarged, reaching half way to the pelvis. A thin smear of the blood showed tertian plasmodia, about one to every eight or ten fields, mostly half-grown parasites. On March 22, 0.2 gm. of diarsenol was given intravenously. No further chills or fever occurred thereafter for twenty-three days. By palpation and radiographs, the spleen showed definite reduction in size, and no organisms were found in thick smears of the peripheral blood. On March 29, 0.25 gm. diarsenol was given because of the previous small dose administered. Neither injection caused reaction. On April 15, organisms were found in the smear and on April 18, 0.4 gm. diarsenol was given. Since that time the child has gained in weight, has been symptom free, the blood sterile, though spleen is still palpable below the costal border.

Case 2.—Jessie T., aged 9 years, sister of the preceding patient, received her infection at the same time, June, 1915; at first had attacks about every fifteen days, later chills appeared every other day. Coming under our observation, March 15, child appeared well nourished, hemoglobin 80, spleen two fingers below ribs, recently had had quinin treatment. No organisms were found in thin smears, temperature was normal for five days preceding administration of diarsenol, 0.15 gm. on March 22, and a second dose of 0.2 gm. on March 29. Child has remained afebrile and the blood sterile until the present date, June 3, 1916. This patient had been actively malarial until entering the hospital, but has showed no symptoms except the enlarged spleen since then. The spleen has receded, but not entirely disappeared.

Case 3.—Josie T., aged 5, sister of the preceding patients, had had attacks every week since infection in the summer of 1915, with chills every other day. No results from quinin treatment. On examination, spleen tender and reaching to brim of the pelvis. Chills occurred every other day until March 22, when diarsenol, 0.1 gm., was administered, when no more chills occurred; a second dose of 0.15 gm. was given on March 29. Spleen became diminished in size. Symptoms absent thereafter until April 14, when fever and headache and organisms appeared. April 18, 0.2 gm. diarsenol was given with immediate subsidence of all symptoms. The peripheral blood was sterile six weeks later, the spleen reduced in size, but still markedly large.

Case 4.—Maggie W., aged 10, one of five actively malarial sisters, entered the hospital April 15, 1916, suffering since June, 1915, with fever and chills on alternate days, with relapses in spite of quinin treatment. Spleen markedly enlarged, blood contained numerous adult tertian parasites, temperature every third day slightly above normal, diarsenol, 0.3 gm., was given on April 18, with subsidence of temperature; peripheral blood sterile until May 6, when organisms were again found in the blood. No further opportunity was given for treatment, as family left the city.

Case 5.—Beatrice W., aged 7 years, sister of the preceding patient, also has been infected since summer of 1915; has had chills, fever and enlarged spleen ever since. This child had tertian parasites on admission to hospital April 15, 1916, spleen about twice the normal size. April 16 and 18 temperature rose to 104.5, accompanied by chills. Diarsenol, 0.2 gm., was given on April 18, with no further symptoms. The peripheral blood became sterile and patient left hospital. May 6, spleen could be felt two fingers below ribs, malarial organisms abundant, temperature 101. As all members of the family were infected and had become indifferent to the disease, they would not give consent to remove the children to the hospital for further treatment.

That there is room for improvement in the treatment of malaria is evident when one observes how resistant the disease often is to permanent cure by the universally administered quinin. Disappearance of chills and fever is frequently taken as evidence of a cure. If the patient feels well he will probably not return for treatment or observation.

A remedy that will cause not only an immediate disappearance of symptoms, but will sterilize the entire blood stream, reduce permanently the size of the spleen to the normal and reach what has been described as the blocked capillaries of the spleen and other internal organs and the bone marrow, will be of the greatest benefit. From the efforts of great numbers of clinicians to find such a drug, it is doubtful if many men experienced in the treatment of long-standing malarial infection believe that quinin alone can do this. Barlow[1] has recently summarized this prevalent opinion.

Soon after the discovery of salvarsan and neosalvarsan, experiments were begun with their employment in malaria, based on the fact of the common protozoal nature of the malarial and syphilitic organisms, the arsenobenzol preparations being germicidal for both.[2]

Among the cases reported in the literature in which observation has been extended over a sufficient length of time to be conclusive is one by Captain Reasoner[3] of the army who reported a subtertian malarial infection lasting twelve years, during which symptoms were present every month and quinin had been routinely administered. Following the administration of 0.4 gm. salvarsan the patient gained 8 pounds in weight within thirty days and there was no return of the malarial symptoms during subsequent observations. Goldthwaite[4] reported one case which did not yield to intramuscular injections of quinin which promptly recovered following one injection of salvarsan. Reed[5] had one patient who had had three relapses under quinin treatment, but remained cured at the end of a year following a single dose of salvarsan. Baermann[6] reports four patients with tertian malaria treated with salvarsan who were free of the organisms at the end of two months. Werner[7] and Iversen and Tuschinsky[8] observed similar results from neosalvarsan to those observed with the older preparation of arsenic when used in corresponding doses.

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[*] Diarsenol is the Canadian preparation of salvarsan.

[*] Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Barlow: Am. Jour. Trop. Dis., May, 1916, p. 581.

[2] Sheard, Charles, Jr.: London Ont. Canad. Pract. and Review, 1913, xxxviii, 591.

[3] Reasoner: The Military Surgeon, 1912, xxix, 294.

[4] Goldthwaite, Lieut. R. H.: Salvarsan and Malaria, Mil. Surgeon, 1912, xxxi, 455.

[5] Reed, E. U.: U. S. Nav. Med. Bull., 1913, vii, 255.

[6] Baermann: Experimental Use of Salvarsan in Malaria, München. med. Wchnschr., 1916, lxi, 1.

[7] Werner: Ueber Neosalvarsan bei Malaria, Deutsch. med. Wchnschr., 1912, xliv, 2068.

[8] Iversen and Tuschinsky: München. med. Wchnschr., 1912, xxix, 16.

COMMENT

Two of the author's patients received only one injection of the drug. This was insufficient, as organisms again appeared at the end of three weeks. In the 10-year-old child one dose of 0.3 gm. was given and in the 7-year-old 0.2 gm. was given. No opportunity was permitted for further treatment, as the parents refused to bring the children back to the hospital.

Three of the patients received from two to four injections and at one interval of three weeks organisms were again found in two children, following which the only large dose was given. These three children have since gained markedly in weight and have been continuously well. On June 3, 1916, at the last observation, the children were still free of organisms, six weeks following the last dose of the drug. All these patients had had quinin for eight months before entering the hospital. No quinin was given thereafter. The spleens have never reached normal size, but have become from one half to two thirds smaller. Because of the still definitely enlarged spleens, we do not feel that the patients can be said to be permanently cured.

Only one preparation of arsenic, diarsenol, was used, as at the time we were unable to obtain salvarsan. The dosage was probably too small, but we hesitated to employ larger doses because of the possibility of toxicity from their use. However, no reactions occurred nor any manifestation which would contraindicate the employment of such a remedy. Whether our patients would have done better on salvarsan or neosalvarsan is impossible to say.

From such a limited number of cases and a short period of observation, one cannot draw any conclusions as to the permanent curability of chronic malaria with diarsenol. Against its use in children with malaria is the somewhat greater immediate cost, the technical difficulties of administration, the fear of untoward effects, the apparent necessity for repeated doses, and in our cases, the persistence of an enlarged spleen in spite of such doses as we used. In its favor are the rapid cessation of general symptoms, the sterilization of the peripheral blood, the marked gain in weight and in health. There is a necessity for a remedy which is a parasiticide for strains of malarial organisms that are quinin fast or are not accessible to quinin. What might be accomplished with larger doses over a longer period of time, using quinin as an adjuvant, would be of interest in these cases.

The Health of Workingmen.—The United States Bureau of Mines, which heretofore has been mainly interested in the reduction of deaths by accidents among men connected with the mine industries, has broadened its scope to include the health of the men and has issued a report on health conservation at steel mills. This report contains advice of direct value to every laborer and employer of labor in the United States. The efficiency of the workmen is a subject which no operator can afford to ignore. The prevention of conditions productive of ill health is a plain business proposition. The workingman has a right to demand that he be not required to work beside men who are physically or mentally diseased. Medical supervision is necessary in order to prevent the introduction and spread of infectious or contagious diseases. Such supervision will also show defects of which employees are unaware. Large corporations should employ a full-time physician who should devote his entire attention to the study of efficiency problems. By care along these lines the average loss of time due to illness among 30,000,000 workers in the United States, estimated at nine days a year, or a loss of nearly $880,000,000, may be materially decreased.

BRONCHIECTASIS OF THE UPPER LOBES

WITH REPORT OF FIVE CASES WITH NECROPSIES *

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AND
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From etiology to treatment, the various problems which arise in connection with bronchiectasis are often a cause of difficulty. There are numerous theories as to its etiology, while as concerns the diagnosis, the figures of occurrence suggest that it is recognized twenty times more frequently by the pathologist than by the clinician. The difficulties of diagnosis are increased by the frequent association of bronchiectasis with conditions which may obscure, modify or conceal its features. But notwithstanding this, we should recognize bronchiectasis more often than we do.

SITE OF BRONCHIECTASIS

The older writers believed that the apex was the commonest site, but many modern authorities consider this erroneous and due to an imperfect differentiation of tuberculous and bronchiectatic lesions. Lebert, in a series of fifty-two cases, found unilateral upper lobe involvement in only 11 per cent. King found among the nontuberculous bronchiectases 33 per cent. unilateral and 67 per cent. bilateral, and among the tuberculous bronchiectases 46 per cent. unilateral and 54 per cent. bilateral. These figures indicate that while the tendency is to a bilateral involvement, the tuberculous cases show a greater number of unilateral cases. He found also that unilateral lesions were much more frequent on the right side than on the left. Of our unilateral cases, one was on the right and the other on the left side. King found that for all types of bronchiectasis, tuberculous and nontuberculous, unilateral and bilateral, there is a marked preponderance of cases involving all the lobes of one lung except in tuberculous unilateral cases, in which he found no example of whole lung involvement. This is interesting in connection with our Case 3, in which unilateral involvement of the entire left lung was noted. When a single lobe was involved it occurred in the upper lobe only in a small percentage of cases of pure bronchiectasis, and in a somewhat greater percentage in the tuberculous cases. In other words, according to King, lower lobe involvement predominates strikingly in all types of cases, though to a less marked degree in tuberculous bronchiectasis. This is controverted by the necropsy figures of the Phipps Institute, Philadelphia, in which upper lobe involvement predominates in tuberculous cases. Our experience leads us to believe that while lower lobe involvement predominates in nontuberculous bronchiectasis, nevertheless, in tuberculous cases, upper lobe involvement is not infrequent.

The five cases here reported are unusual in the distribution of the bronchiectasis. They came to necropsy within a period of five months, and represent the only instances of bronchiectasis in eighty consecutive necropsies from the service of the Department for Diseases of the Chest of the Jefferson Medical College.

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* Read before the Section on Practice of Medicine at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Bronchiectasis involving the upper lobes alone is not common, and only slight reference to it is found in literature. These cases illustrate particularly some of the problems of diagnosis.

REPORT OF CASES

Case 1.—*Extensive bronchiectasis with fibrosis limited to and involving the right upper lobe. Confusion with pulmonary tuberculosis. Differentiation. Death due to lobar pneumonia.*

H. D., No. E 4437, man, white, machinist, aged 62, was admitted March 30, 1915, and died Dec. 10, 1915. His past history was negative. There was no history of syphilis. During the last ten years he had suffered with a "winter cough."

Present Illness.—This dated to one year before, when he had a severe attack of bronchitis, which occurred in the middle of winter and gradually subsided in the summer, to recur during the winter prior to his coming under our observation. Shortly after the onset he brought up 2 ounces of blood during a paroxysm of coughing. The cough on admission was moderately severe and productive, during both the day and night, of a moderate amount of thick yellowish sputum. He never had any pain in the chest, but dyspnea occurred quite constantly on exertion. He had no chilliness, fever or night sweats. His best weight was 220 pounds at the time of onset, and the present weight 174 pounds. Coincident with the loss of weight there had been a gradual diminution in strength.

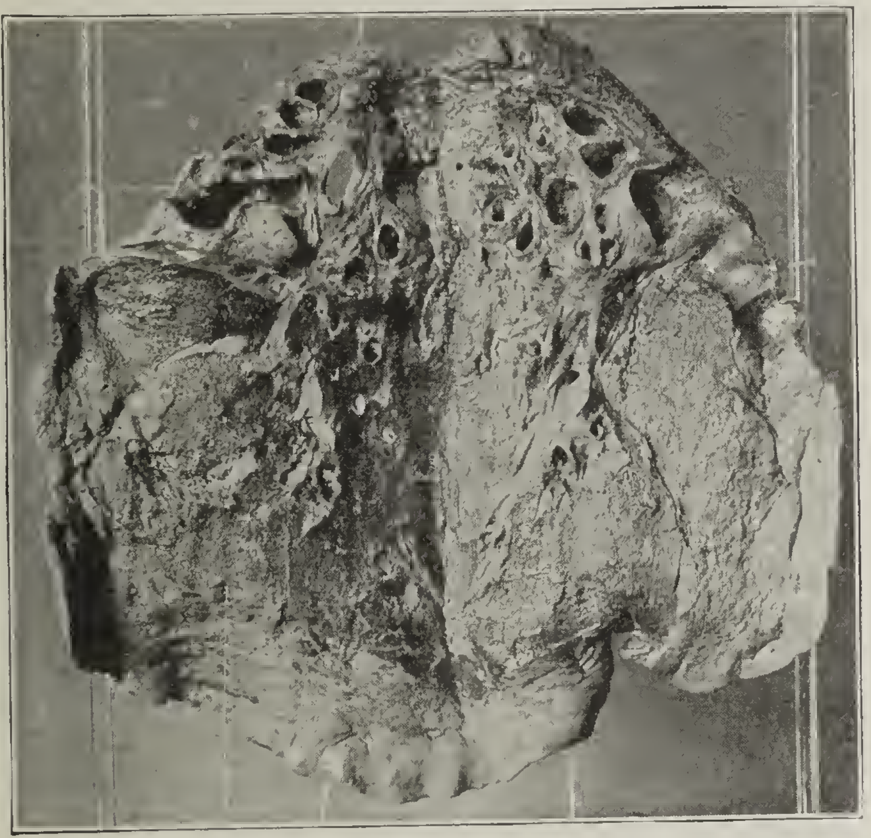

Fig. 1 (Case 1).—Right lung cut open. The sharp line of demarcation between the bronchiectatic upper lobe and the normal lung tissue of the lower lobe is the interlobar fissure. The upper lobe has been converted into a series of cavities as a result of multiple saccular dilatations of the bronchial tubes. Between the dilated bronchi the lung tissue is largely replaced by densely firm fibrous tissue. Very little air-containing pulmonary structure remains. No gross evidence of pulmonary tuberculosis could be found. The lower portions of the lung show passive congestion and slight edema. The opposite lung shows the lobar pneumonia from which the patient died.

Physical Examination.—He was fairly well nourished. The chest showed some flattening of the upper right half anteriorly with slight drooping of the shoulder. The superficial veins over the right upper chest and anterior surface of the right shoulder to the middle third of the arm were dilated and tortuous. Expansion on the right side was distinctly limited. The percussion note was dull anteriorly on the right side from the apex to the third rib and posteriorly to the fourth vertebral spine. The breath sounds were generally harsh except over the area of dulness where, although their intensity was diminished, there was a distinct tubular quality. Vocal fremitus and resonance were increased, and sibilant and crackling râles were heard over the same area. There was distinct clubbing of the fingers and, to a less extent, of the toes.

The blood showed: hemoglobin, 87 per cent.; red cells, 4,700,000, and leukocytes, 14,000. The differential counts gave polynuclears from 55 to 60 per cent. and mononuclears 32 to 40 per cent. The Wassermann test was negative. The urine showed nothing of note, and the functional test gave 58 per cent. of phenolsulphonephthalein excretion in two hours. Repeated sputum examinations did not show tubercle bacilli. The Roentgen-ray report (Dr. Manges) was: "The right upper lobe shows a dense fibrous mass with possibly a cavity or a small amount of lung tissue left."

Progress.—Immediately after admission to the hospital the patient began to improve. The cough became less severe, expectoration lessened, his weight increased (12 pounds in two months) and his strength returned so that he was able to be up during the entire day. He had no elevation of temperature, except for occasional rises to 99 and 100. He was discharged on request and admitted to a sanatorium during the following summer months, where the diagnosis of *advanced tuberculosis* was made. He was readmitted under our care in the autumn considerably improved, afebrile, but still suffering from a distressing cough and considerable expectoration. The physical examination was identical with that of previous admission. It was our opinion that he suffered with a localized nontuberculous fibrosis of the right upper lobe with perhaps some bronchial dilatation giving rise to signs of cavity. The opposite lung was clear. He was feeling particularly well when an attack of lobar pneumonia with involvement of the left lung supervened from which he died in three days.

Remarks.—The principal reasons for excluding tuberculosis were the apparent freedom from involvement of the left lung in the presence of so well marked a lesion in the right upper lobe and the absence of tubercle bacilli in the sputum. He had been in three sanatoriums; in each the diagnosis of advanced tuberculosis was made. In one sanatorium no examination of the sputum was made.

Necropsy (Dr. Dry. Only the relevant findings are reported in this and subsequent cases).—Lobar pneumonia of left lung. The right pleura was thickened and densely adherent over the upper lobe only. The upper right lobe showed marked fibrous change and cavities throughout due to multiple saccular dilatation of the bronchi. No evidence of tuberculosis.

Case 2.—*Bronchiectasis involving the upper portions of both lungs, associated with a chronic ulcerative tuberculosis of the same area with small cavities. The bronchiectatic dilatations were in excess of the tuberculous cavities. The impossibility of diagnosing bronchiectasis under these conditions.*

L. S., No. D 5237, man, white, pedler, aged 58, was admitted May 27, 1914, and died Jan. 24, 1916. The past history was negative. He denied having had syphilis.

Present Illness.—Ten years ago he applied to a local hospital for treatment for "bronchial trouble" characterized by a constant annoying cough with expectoration which at times was blood streaked. Since then he had never been entirely free from cough except for very short intervals, usually in the summer months. He had been a patient in various hospitals and sanatoriums with the diagnosis of tuberculosis. At the time of admission to our care his cough was moderately severe and productive, especially at night, of a large amount of yellowish sputum. Blood spitting occurred on numerous occasions, never amounting to more than streaked sputum and rarely lasting more than a day or two. Hoarseness was present at various times. The appetite had been fair, but digestion poor. His best weight was 124 pounds at the time of onset ten years ago, his lowest weight 99 pounds six months ago, and present weight 104 pounds. He had generally lost strength, although feeling better at times; on admission he was quite weak.

Physical Examination.—He was poorly nourished and pale. The thorax was somewhat rounded and emaciated. The right side was smaller than the left and flattened anteriorly over the upper half. The percussion note was hyperresonant over the entire chest anteriorly except below the right clavicle to the second rib; posteriorly resonance was impaired from the apexes to the spine of the scapulae on both sides and over the right base from the angle of the scapula downward. The breath sounds were generally tubular throughout except below the fourth rib anteriorly, where they were bronchovesicular, and posteriorly below the angles of the scapulae, where they were distant, especially on the right side and corresponding to the area of dulness. The breath sounds on the left side in the upper half were of a typical amphoric quality. Abundant râles of all types were heard throughout the entire pulmonary area, with greatest predominance in the upper lobes, especially on the right side. Vocal fremitus and resonance were quite distinct over the upper chest, especially in the right side and diminished at the right base. The extremities did not show clubbing.

The blood showed: hemoglobin, 70 per cent.; red cells, 4,400,000; leukocytes, 11,000 to 18,000. The polynuclear count varied from 64 to 76 per cent., and the mononuclears from 24 to 36 per cent. Wassermann test was negative. The urine had a low specific gravity with albumin and hyaline casts. Phenolsulphonephthalein output varied from 29 to 40 per cent. in two hours. The sputum contained large numbers of tubercle bacilli.

Temperature Record.—Except for a few months, he was under constant observation from May, 1914, to January, 1916, when he died. For the greater part of this time he was afebrile, except for an occasional week when he would have a slight afternoon rise in temperature for several hours, not exceeding 99 to 100, and, still more rarely, an acute "flare up" to 101 or 102 for several afternoons. The third hour temperature during the last month of life was rarely above normal, and during the last two weeks was subnormal with diurnal oscillations of 2 and 3 degrees. The bedside chart stood in marked contrast with those of fellow patients manifesting the irregular fever so frequently found in advanced tuberculosis.

Progress. — The clinical course was one of progressive weakness until the final month of life, when he was generally confined to bed. The cough was at all times distressing and productive. Blood streaked sputum was frequent and transient in duration. His death, though not unexpected, occurred rather suddenly.

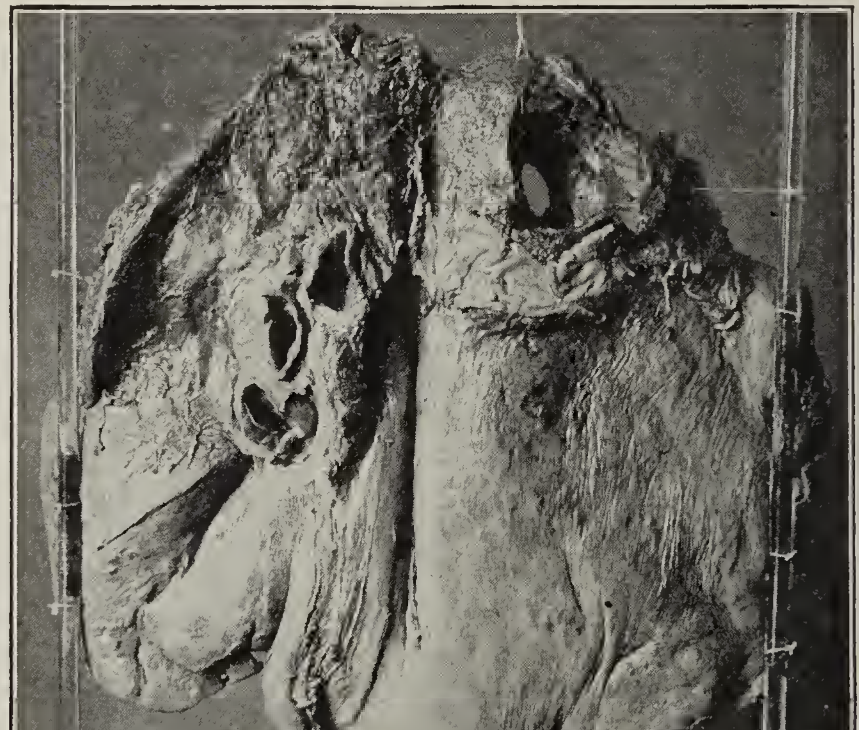

Fig. 2 (Case 1).—External view of same lung as in Figure 1. In the upper portion is seen a trap door of tissue cut in the posterior wall of the largest saccular dilatation exposing to view the interior and the distal wall with the opening of the bronchus therein. The pleura over the upper lobe is thickened and was densely adherent, causing some laceration of the lung tissue during removal. The pleura over the lower lobe is smooth, glistening and apparently normal.

Necropsy (Dr. Dry).—Marked thickened adherent pleura on both sides. Cavities throughout the upper portions of both lungs with marked fibroid changes. The bronchiectatic were in excess of the tuberculous cavities.

Case 3.—*Extensive bronchiectasis and tuberculosis limited to the left lung. A large cavity in the upper lobe with saccular bronchiectasis of the upper and lower lobes. The question at necropsy as to whether the large apical cavity was tuberculous or bronchiectatic decided only after a careful study by the pathologist. Diagnosis of bronchiectasis suspected during life.*

V. D., No. D 2425, woman, white, mill-worker, aged 20, admitted Nov. 6, 1913, died Feb. 29, 1916. There was a family history of tuberculosis. The previous history was negative.

Present Illness.—The onset was about two years ago with cough and weakness. She was sent to a state sanatorium where she remained for six weeks. She kept house until one year ago when she returned to work in a mill, where she continued until one month ago, when she stopped because of cough and hemorrhages from the lung. The cough of late had become more and more severe and productive of considerable yellowish white sputum which was often blood streaked. The first hemorrhage amounted to a "basinful." She had no pain, but there was dyspnea on exertion. Chilliness and fever were frequent, and night sweats occurred every now and then. Her best weight was 107 pounds three months ago, weight at present 72 pounds.

Physical Examination.—An ill nourished, emaciated, pallid young adult woman. She had moderate dyspnea with slightly cyanotic lips. The chest was flat and emaciated with accentuation of the bony prominences and depressions. The respirations were rapid and shallow with general limitation, especially of the left side. Bronchial fremitus was distinctly felt over the entire left lung. Percussion revealed a slight quality of tympany on the right side anteriorly and posteriorly to the fourth thoracic spine, below which the note was impaired; on the left side dulness extended from the apex to the fourth rib anteriorly, and there was impaired resonance over the entire surface posteriorly, except from the second to the fourth rib, where it approached tympany. Breath sounds were loud and tubular over the entire pulmonary area, especially on the left side, where from the clavicle to the third rib anteriorly and between the second and fourth spine posteriorly, they were distinctly amphoric. Scattered râles of all types were found throughout the lung, especially on the left side. The extremities did not show clubbing.

The blood showed: hemoglobin, 65 to 70 per cent.; red cells, 5,400,000 to 4,300,000; leukocytes, 14,000 to 18,600. The polynuclears varied from 66 to 80 per cent. and mononuclears 18 to 28 per cent. The Wassermann test was negative. The urine was clear. The sputum contained tubercle bacilli.

Progress.—After staying in the hospital under observation for eight months the patient felt slightly better and was transferred to a sanatorium in the country. The cough, expectoration and fever remained unchanged. Hemoptysis was frequent, usually in the form of blood-streaked sputum, but on several occasions it was so profuse as to be alarming. The third hour temperature record showed constant afternoon elevations to from 101 to 103 with rapid pulse. After the lapse of one year she returned in about the same condition, but physical examination showed that the left lung was more extensively involved and the right lung considerably improved. We could not account for these changes in the physical signs, except that possibly many of the previous findings in the right lung were due to an associated nontuberculous process which had cleared. We were at a loss to explain the signs of extensive involvement with cavity formation on the left side and so little involvement on the right side. In the ward classes it was pointed out that "perhaps an associated unilateral bronchiectasis" was present. The patient became weaker and had arthritis of the left knee in the last three months of life. The hemoptyses, so frequent on the first admission, were entirely absent. The temperature showed marked diurnal oscillations. Death resulted from lobar pneumonia of the right lung on the second day of its course.

Necropsy (Dr. Dry).—Lobar pneumonia of the right lung, which showed no signs of tuberculosis. The pleura was thickened and adherent over the whole of the left side. The upper lobe of the left lung showed a large cavity with a fibrous wall at the apex and numerous smaller cavities due to bronchiectasis. At necropsy it was not possible to say whether the large cavity was tuberculous or bronchiectatic. The subsequent studies in the pathologic department by Dr. Coplin established its tuberculous nature. Throughout the remainder of the upper lobe and through the lower lobe there was a diffuse, saccular and cylindric bronchiectasis. The lung showed no gross evidence of tuberculosis, although microscopic sections from numerous areas revealed chronic caseous tuberculous bronchitis, fibrocaseous peribronchitis, caseous pneumonia, incomplete atelectasis, and fibrosis. Many of the bronchi showed a deficiency or absence of cartilaginous tissue suggesting faulty bronchogenesis.

Case 4.—*Well marked acute tuberculosis of recent onset involving both lungs. No signs of cavity formation, yet necropsy revealed a bilateral bronchiectasis of limited extent in both upper lobes.*

E. D., No. F 2055, man, white, farmer, aged 27, was admitted Oct. 21, 1915, and died March 10, 1916. An abscess of the neck (tuberculous glands?) had been opened two years before. There was no history of syphilis.

Present Illness.—The onset was two months before with pain in the throat, hoarseness and cough. These increased in severity; the cough was productive of a considerable quantity of blood streaked sputum. He had lost 42 pounds in weight. On admission he complained of chilliness, fever and night sweats.

Physical Examination.—He was pale and emaciated. The larynx was red, and cords swollen and extensively ulcerated (tuberculous). The chest was flat and emaciated with limited expansion. The percussion note was generally clear, except above the right clavicle and over the same apex posteriorly, where it was distinctly impaired. The breath sounds were generally harsh with prolonged expiration, most marked in the upper part of the lungs. Distinct cogwheel breathing was audible over the left base posteriorly. Scattered crackling râles were heard over the upper halves of both lungs. The extremities showed beginning clubbing of the fingers and toes.

The blood showed: hemoglobin, 67 per cent.; red cells, 4,700,000, and leukocytes 16,000. The polynuclears were 88 per cent. and mononuclears 12 per cent. The Wassermann test was negative. The urine showed albumin and hyaline casts. The sputum did not contain tubercle bacilli.

Progress.—From the time of admission the course was progressively downward with weakness, irregular fever, night sweats, pain in the throat, hoarseness, shortness of breath and difficulty in swallowing. He died as the result of progressive asthenia.

Necropsy (Dr. Dry).—There was marked pleural thickening over the apexes of both lungs, more marked behind. Both upper lobes showed fibrosis and many dilated bronchi. Throughout both lungs there were many miliary tubercles. There was a tuberculous cavity at the left apex.

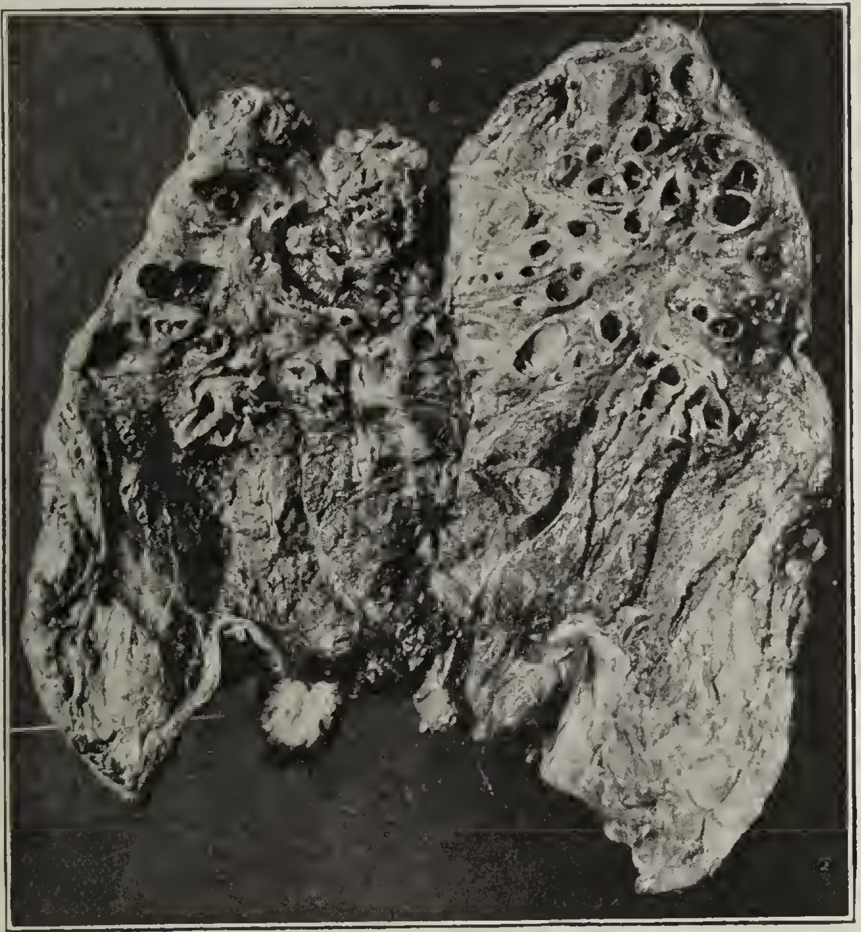

Fig. 3 (Case 2).—Right lung. The upper half of lung shows advanced bronchiectasis. The dilatations are for the most part saccular, although cylindric in some areas, as illustrated on the left side, where the bronchus has been split in its long axis. The bronchial walls are not only dilated, but at points markedly thickened. The lesion corresponds probably to the type described as dilatation with thickening in contradistinction to dilatation with thinning. The intervening tissue is dense and firm, and here and there can be found small fibrocaseous areas, not only throughout the bronchiectatic area, but also in the lower lobes. A small tuberculous cavity can be seen in upper right of specimen at apex. The pleura overlying the upper half of the lung was densely adherent and irregularly thickened.

Case 5.—*Bilateral apical bronchiectasis associated with bilateral ulcerative tuberculosis. Adhesive pleuritis with fibrosis of the lungs. The recognition of both conditions during life.*

M. B., No. F 2060, man, white, aged 30 years, was admitted Oct. 29, 1915, and died May 17, 1916. One brother, at present in good health, was treated for tuberculosis some years ago. The past history was negative.

Present Illness.—The onset occurred two years ago with an attack of pleurisy, since which time he has had a moderately severe cough with expectoration of moderate amounts of mucopurulent sputum, at times blood streaked. He is frequently dyspneic, especially on exertion. He has been losing strength gradually, until at present he is unable to work. His best weight was 120 pounds five years ago, and his present weight is 104.

Physical Examination.—The chest was markedly emaciated and showed a deep depression of the lower sternum and right half. The expansion was generally limited, especially on the right side. The percussion note approached tympany above and below both clavicles. The breath sounds were generally harsh with prolongation of expiration and at both apexes anteriorly and posteriorly distinctly cavernous in character. There were numerous râles of all types over the entire chest, especially at the apexes. The extremities did not show clubbing.

The blood showed: hemoglobin, 74 per cent.; red cells, 4,510,000, and leukocytes, 13,600; lymphocytes, 22 per cent.; polynuclears, 76 per cent.; eosinophils, 2 per cent. The urine showed a trace of albumin with a few hyaline and granular casts. The sputum was positive for tubercle bacilli. The Wassermann test was negative.

The Roentgen ray (Dr. Borzell) showed extensive bronchiectasis involving both upper lobes with marked fibrosis. On the right side as far down as the seventh rib the pleura was very much thickened; considerable infiltration of the right lower lobe.

Progress.—For six months the condition remained unchanged. He was discharged on request and readmitted May 4, suffering from a profuse hemoptysis. The hemorrhage gradually ceased, but he became progressively weaker, and died, May 17. The diagnosis of chronic pulmonary tuberculosis with bilateral cavity formation with associated bronchiectasis was made both by the clinician and the roentgenologist and confirmed by necropsy.

Necropsy (Dr. Dry).—Both pleural cavities were completely obliterated by adhesions, especially dense over the apexes. In removing the lungs, apical adhesions caused tearing of pulmonary tissue. The lungs showed extensive fibrosis in the upper lobes with numerous small cavities, which mostly were saccular bronchiectases; in each upper lobe there was a distinct tuberculous cavity about 3 cm. in diameter.

BRONCHIECTASIS IN RELATION TO SYPHILIS AND TUBERCULOSIS

Syphilis was long considered an important factor in the "pneumopathies" until Laennec showed the unity of the anatomic lesions of tuberculosis. Thereafter tuberculosis assumed the greater importance. Recently Tripier and other French writers have argued on anatomic and clinical grounds that syphilis is the cause of the majority of cases of bronchial dilatation. They exclude those cases due to foreign bodies or stenosis and the group with cylindric dilatation generalized in one or both lungs which is observed in infants and more rarely in young subjects under the influence of repeated attacks of coughing and following various lesions causing compensatory dilatation. Abecassis[1] reported thirteen instances of bronchial dilatation associated with other syphilitic lesions such as aortitis, aneurysm, tabes, etc. Garin and Laurent[2] found the Wassermann reaction positive in five cases which they studied. In our five cases the histories were entirely negative, no evidences of syphilis were present, and the Wassermann tests were negative. We have not been able to find in the literature any reference to the finding of the *Spirochaeta pallida* in this type of pulmonary lesion. While syphilis is a possible factor in some cases, most students of the disease are of the opinion that it is not the important factor which the French writers emphasize.

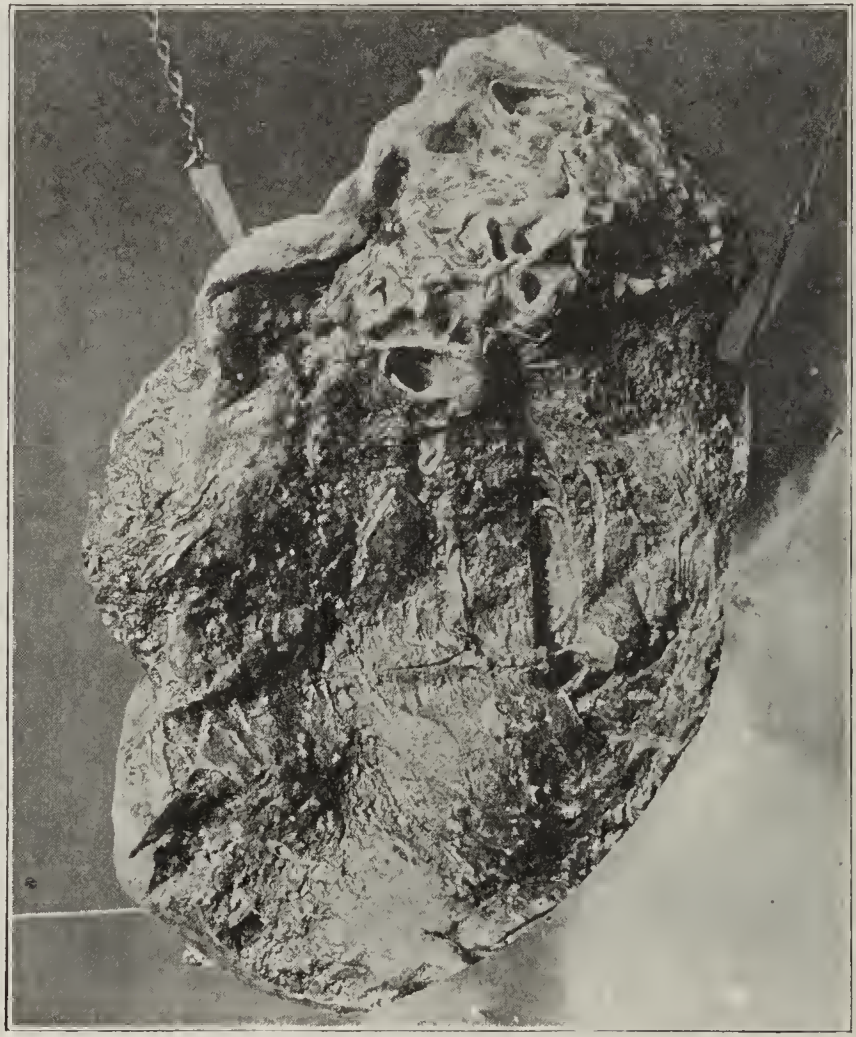

Fig. 4 (Case 2).—Left lung. The bronchiectasis is of the same character as in the right lung (Fig. 3), though not quite as extensive. Its sharp limitation to the upper portions of the lung is striking. On the right side of specimen where hook is inserted a rather large cavity is seen, the wall of which presents the usual appearance of a tuberculous lesion. In the lower portions of the lung are numerous conglomerate tubercles. The pleura overlying the upper lobes is thickened and at time of necropsy was quite firmly adherent.

With regard to the relation of tuberculosis to bronchiectasis, we have the extreme views of Rokitansky, who considered the two diseases almost incompatible, and Trojanowsky and King, who found tuberculosis in twenty-one out of sixty-eight, and in twenty-five out of seventy cases, respectively. In our five cases, tuberculous lesions were associated in four instances. King[3] classified seventy cases of bronchiectasis occurring at the Brompton Hospital as follows: (1) "pure bronchiectasis," those associated with tuberculosis, thirty-six cases; (2) "traumatic bronchiectasis," those resulting from aneurysm, tumor, foreign bodies, syphilitic stricture, nine cases; (3) "tubercular bronchiectasis," those associated with tuberculosis, twenty-five cases. Expressed in percentage, nontuberculous bronchiectasis occurred in 66 per cent. and tuberculous bronchiectasis in 34 per cent. of the seventy cases. With regard to the "tuberculous bronchiectasis," King is of the opinion that all of these cases were primarily tuberculous.

Moderate degrees of bronchial dilatation are not infrequently found associated with pulmonary tuberculosis at necropsy; but clinically the association can be demonstrated only rarely, even when fairly well marked. A probable explanation is found in the fact that when bronchiectatic lesions exist with tuberculosis, they are most frequently found in the upper lobes, and are confused with signs due to tuberculous excavation. A comparison of the clinical and pathologic reports of the Phipps Institute, Philadelphia, is interesting in this connection. Among 3,551 patients with tuberculosis, only 5 were complicated with bronchiectasis; among 320 necropsies, bronchial dilatation was frequently found and distributed throughout the lungs as follows: left upper lobe, 40; right upper lobe, 48; right middle lobe, 31; left lower lobe, 28; right lower lobe, 24. The etiologic relationship of the two lesions is emphasized by the relatively greater frequency of involvement of those portions of the lungs where tuberculosis usually has its initial and most extensive lesion.

In the cases here reported it is important to decide, if possible, whether there is any clue to the etiology. So far as the histories are concerned, in no case did the disease seem to follow any severe infection. Certain causes seem unlikely to be of importance, especially those which affect the whole of the lung structure. Thus the mechanical pressure of secretion, increased air pressure, atrophy of the bronchial wall, alteration of nutrition, paralysis of the fibers, nervous causes, do not seem likely to operate so locally. But certain other causes may have a definite influence. Among those are pneumonia, tuberculosis, extrabronchial traction, most often caused by pleural adhesions to the thoracic wall and fibroid changes in the lung, a local inflammation of the bronchi, and bronchial stenosis (from a foreign body, pressure of aneurysm or tumor, gumma of a bronchus). In general we must agree with Ewart that there must be some elementary factor common to all varieties, and this is obstruction in some form. Traction on the bronchial wall may arise from a peribronchitis or from a chronic adhesive pleurisy which extends inward. In either case if the process extends so that there is a connection between the bronchial and chest wall, dilatation may follow.

Certain of these possibilities seem to be definitely excluded in all and others in some of our cases. A foreign body, aneurysm or tumor, gumma or syphilis in any form are ruled out. The possibility of pneumonia is difficult to exclude in any case merely from the history, but changes resulting from pneumonia are more important than the pneumonia itself. Tubercu-

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1. Abecassis: Lyon thesis, 1910.
2. Garin and Laurent: Jour. physiol. et path. gén., 1910, xii, 553.
3. King: Scot. Med. and Surg. Jour., 1904, xiv, 42, 481.

losis was present in four of our cases. However, what seems most important in this series was the condition of the pleura. In all but one the adhesions were limited to the lobe or lobes with bronchiectasis. This must be regarded as an important etiologic factor. However, it should be said that some regard the fibrosis and pleurisy as secondary phenomena to the bronchiectasis. In any event the frequent association of bronchiectasis and fibrosis is agreed on, and as fibrosis is recognized more frequently, its presence should always suggest careful study of the possibility of bronchiectasis.

CLINICAL FEATURES AND DIAGNOSIS

The features of the marked general cases are usually such that a diagnosis should be made readily enough. The problem is a more difficult one in cases of local bronchiectasis. The history may be of help, especially in any detail which suggests the possibilities of a foreign body having gained entrance to a bronchus, but of particular importance is a history of a chronic cough for a long period with considerable expectoration *without marked constitutional disturbances,* especially if the sputum is fetid. The cough being paroxysmal and often induced by change in position is also suggestive. Too much stress should not be placed on the odor of the sputum; in four of our cases there was no marked fetor of the sputum. This may be due to the fact that in apical bronchiectasis there is better drainage and consequently not the degree of retention common in basal bronchiectasis. The presence of blood in the sputum is not diagnostic, as it occurs with the same frequency in tuberculosis. It was present in all our cases. The sputum in a marked case is usually characteristic in amount and character, but in our cases it was not distinctive except at times in Case 1. Dyspnea is common, especially on exertion, and is most marked in cases with considerable fibrosis.

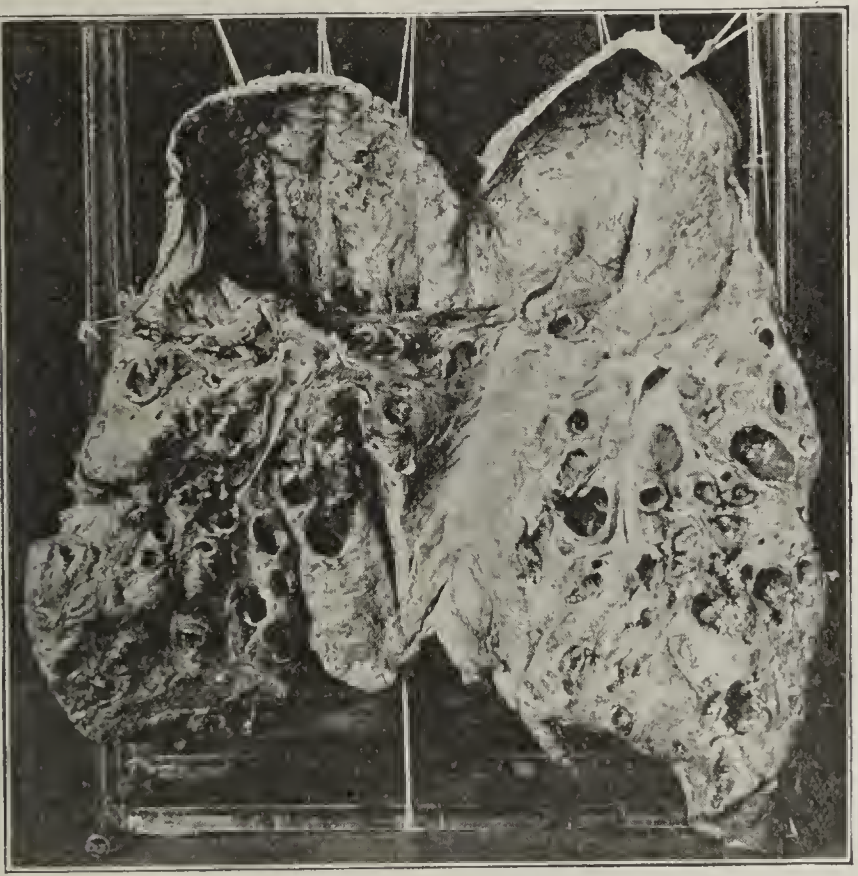

Fig. 5 (Case 3).—Left lung. The apex of the upper lobe is converted into a single cavity with a thin, densely firm fibroid wall composed largely of thickened pleura. Microscopic sections of the wall are largely fibrous tissue. The lower portion of the upper lobe and all of the lower lobe are transformed into a series of cavities which intercommunicate in a remarkable fashion. These cavities are bronchial dilatations. The opposite lung showed a lesion of lobar pneumonia at necropsy, and was free from tuberculosis. A discussion as to the character of the large cavity, whether tuberculous or bronchiectatic, or both, is contained in the text.

The problem of diagnosis of these upper lobe cases of bronchiectasis is largely that of differentiation from tuberculosis. When the two exist together, a diagnosis of bronchiectasis is practically impossible and, if made, an exact diagnosis as to how much of the change is due to this condition and how much to tuberculosis is still more difficult. The nontuberculous cases are often regarded as tuberculosis, an error which can be made only through carelessness. The sputum of a patient with advanced pulmonary lesions due to tuberculosis always contains tubercle bacilli. If this was recognized, we would not miss so many cases of chronic nontuberculous lung conditions and call them tuberculous. It would be interesting to know how many such there are in tuberculosis sanatoriums today, with a diagnosis of advanced pulmonary tuberculosis but no tubercle bacilli in the sputum. The first case here reported is an example (the patient was in several sanatoriums with an invariable diagnosis of tuberculosis). It sounds elementary, but evidently requires emphasis to insist that when symptoms and signs point to advanced pulmonary tuberculosis, and repeated sputum examinations do not show tubercle bacilli, the condition is not tuberculosis.

Another point which may aid in diagnosis is the disproportion between the signs in the lungs and the constitutional symptoms (likely to be present if the condition is tuberculosis). This is not invariable, for many tuberculous patients show the same thing; but when present over a long period, it should suggest careful study of the possibility of bronchiectasis. This was a striking point in Case 1.

The belief that in the diagnosis between a tuberculous and a bronchiectatic cavity the apical position of one and the basal position of the other may be considered as almost positive evidence cannot be accepted. We believe that too much importance has been given to this because bronchiectasis with tuberculosis is perhaps more often apical than basal, and because apical nontuberculous bronchiectasis, either unilateral or bilateral, is probably more common than the usual teaching suggests.

Roentgenographic study, particularly by the stereoscopic method, should be practiced in every case with the hope that in the future this diagnostic aid may be developed. At the present time, however, most students of the disease have the opinion that the Roentgen ray is of comparatively little value in the diagnosis of bronchiectasis. In the demonstration of foreign bodies, aneurysm, etc., it has a distinct field of usefulness.

Treatment is largely palliative. The adoption of a semierect or erect posture facilitates drainage in the apical cases. After intratracheal injections the patient should be placed in a recumbent posture. Autogenous vaccines may be tried, although their value is undetermined. The general measures are those usually applied to improve the nutrition of the patient.

SUMMARY

1. In five cases of apical bronchiectasis, the distribution was: right upper lobe, one; right upper and lower lobe, one; both upper lobes, three.

2. Tuberculosis was associated in four cases, three of which were bilateral.

3. Syphilis was apparently excluded as an etiologic factor.

4. Pleural thickening over the site of the bronchiectasis was extreme in all and limited to the area of bronchiectasis in four. This suggests an important etiologic influence.

5. There was marked evidence of pulmonary fibrosis in the bronchiectatic areas.

6. The diagnosis is difficult, but possible more frequently if looked for in the presence of fibrosis or tuberculosis with which it is not uncommonly associated. Advanced apical bronchiectasis unassociated with tuberculosis may be mistaken for tuberculosis, which error can be avoided by careful sputum examination.

7. The absence of fetid sputum in these cases was probably due to the fact that drainage is more thorough in upper lobe cases.

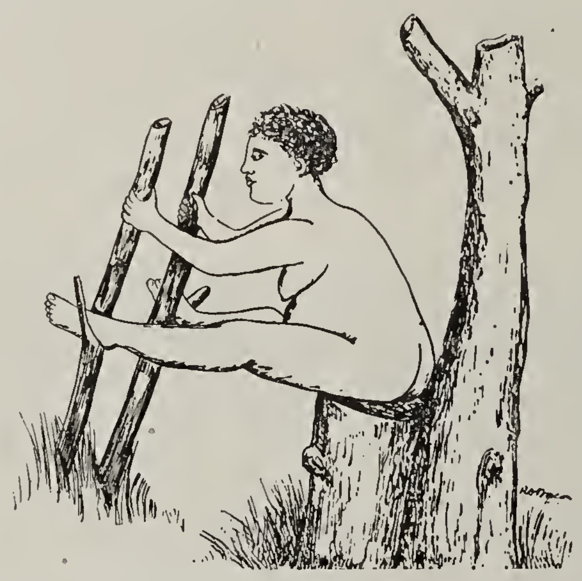

Fig. 1.—Primitive obstetric chair used by native African women. (This and the following eight illustrations are taken from G. T. Witkowsk's "Histoire des accouchements chez tous les peuples," 1887.)

ABSTRACT OF DISCUSSION

Dr. Frederick T. Lord, Boston: As regards the pathology, bronchiectasis is a striking feature at necropsy and the impressive picture it presents may lead us to consider it of primary importance, but we should think of it, as close examination of the lungs almost invariably shows, as a relatively insignificant part of a more or less extensive bronchopulmonary involvement. Concerning the diagnosis: It is at times very difficult to distinguish between bronchiectasis and chronic abscess, and it must be acknowledged that we cannot always make this differentiation. In the presence of such extensive bronchopulmonary lesions as we have seen illustrated in the photographs shown, this is of less importance than in other clinical cases in which the lesions are of limited extent, as indicated by physical signs and Roentgen examination. In such cases a decision between bronchopulmonary infection leading to bronchiectasis and chronic pulmonary abscess may be the deciding factor between nonoperative and operative treatment. The presence in the sputum of elastic tissue with alveolar arrangement indicates involvement of the lung tissue and a loss of pulmonary substance but does not exclude a complicating bronchiectasis.

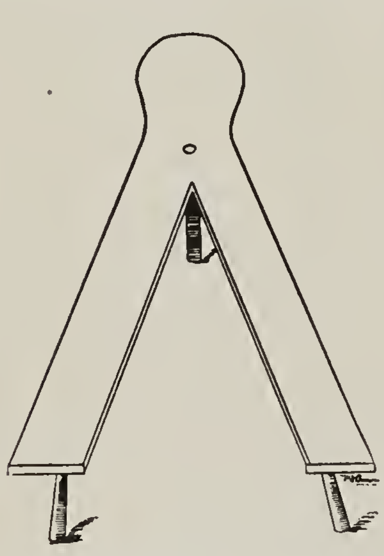

Fig. 2.—Chair after model of Savonarole, 1747.

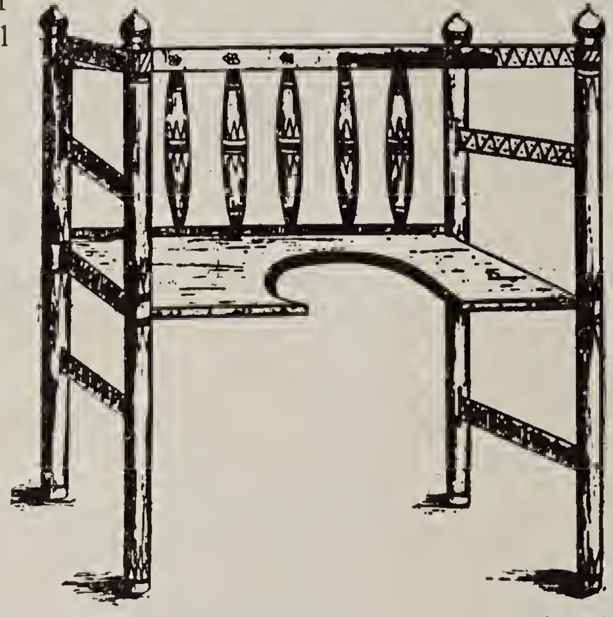

Fig. 3.—Obstetric chair used in Oriental countries.

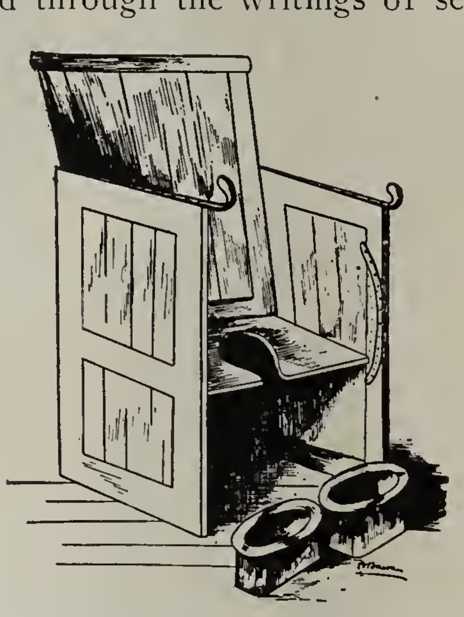

Fig. 4.—Obstetric chair of Deventer, 1800.

When the differential diagnosis cannot be established it seems best in the presence of limited and circumscribed involvement to give the patient the benefit of the doubt and consider operative interference.

POSTURE IN OBSTETRICS *

J. W. MARKOE, M.D.
NEW YORK

Stimulated by a most interesting paper on the "Significance of Posture in Obstetrics" by the late Dr. Albert F. A. King of Washington, I began in 1909 the study of its effect in the different stages of labor. Up to that time I had been in the habit of having my patients grasp the foot of the bed or the back of a firm chair with both hands, and then during the pain squat down so that the knees pressed against the side of the uterus and the entire weight of the contents of the uterus was directed on the dilating cervix. In the more intelligent class of patients this was comparatively easy to accomplish, but in the less intelligent and highly nervous type, they either refused to assume the position or sank down on the floor. It therefore came to me that if I could provide a suitable chair I would gain my point of bringing the weight of the uterine content so that it would exert its force to the best advantage in dilating the cervix and parturient canal. Before beginning the construction of this first chair I looked up the literature on the subject and found it so interesting that I shall give a brief abstract of what I found.

The antiquity of the obstetric chair, according to the opinion of Fugelmann, is that the earliest possible reference to it in our possession dates back to Moschion, a Greek physician of the second century. Comments on the use of the obstetric chair are scattered through the writings of several Greek physicians, such as Aetamidoe, Aëtius, Toranus of Ephesus, and Paulus of Aegina. The latter states that the time has come for the mother to be placed on the chair when palpation has shown the uterus to be open and when the infant is about to be born.

Until its reappearance in the middle ages, there is a gap in the history of the obstetric chair, which is again

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

encountered in the writings of Albertus Magnus, in the thirteenth century.

Eucharius Rhodion relates that the midwives of France and Germany had special seats, rather low, with an empty space to allow the child's passage, and a rounded support to receive the back of the extended mother. This chair was packed and stuffed with linen from behind, for after the patient had taken her seat, the midwife was to have free space to do her work on either side of the seat. Since the middle of the sixteenth century, this chair was in common use in Germany, but was not recommended for stout women, for whom the kneeling posture was considered more desirable.

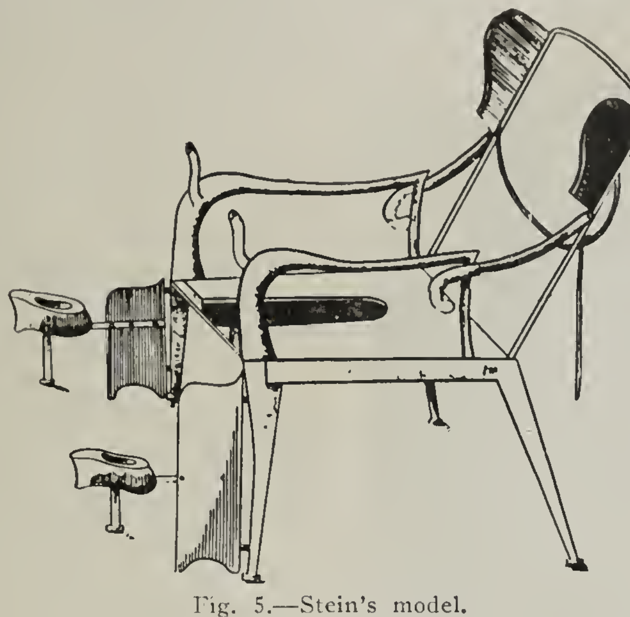
Fig. 5.—Stein's model.

An obstetric chair built after the model of Rhodion's chair was recommended by Rueff in Switzerland ("De Conceptu et Generatione Hominis," 1554). Many years later, this book was translated into English, "For the General Good and Benefit of this Nation":

> Let the stoole be made compassewise, underpropped with four feet, the stay of it being behind bending backward, hollow in the midst, covered with a blacke cloth underneath, hanging down to the ground, by that means that the laboring woman may be covered and other women sometimes apply their hands in any place, if necessity requires. Let the stoole be furnished and covered with many cloths and clouts at the back and other parts, that the laboring woman receive not hurt, or the infant anywhere, strongly kicking and striving because of the pains, stirrings and motions of the mother.

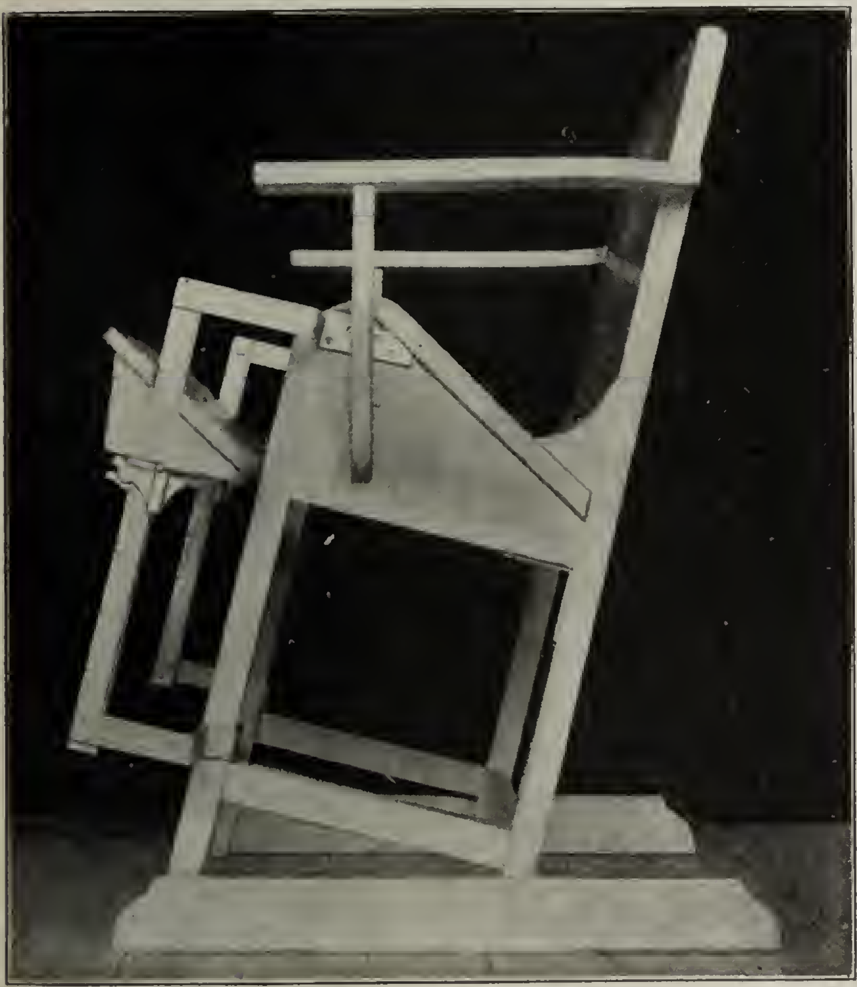
Fig. 6.—Obstetric chair.

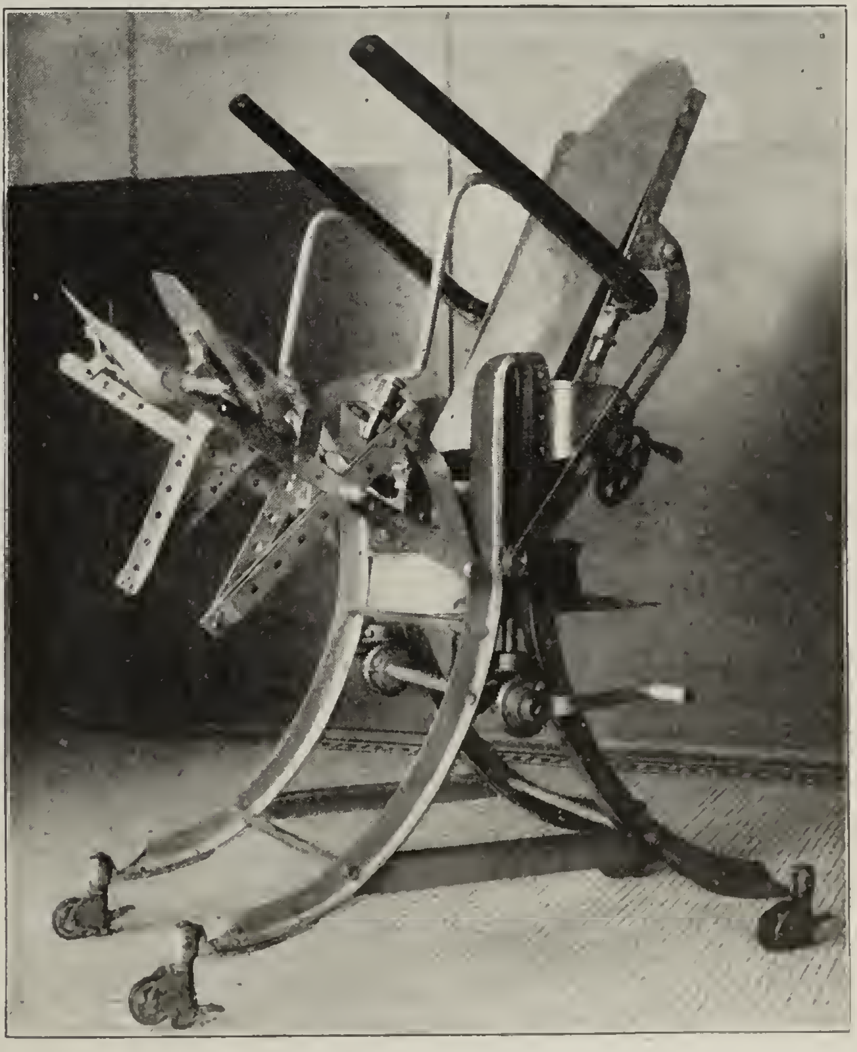
Fig. 7.—Operating chair.

Favorable mention of the obstetric chair is also made by Ambroise Pare, who in his "Œuvres" (1564) points out that its usefulness should not be underrated:

> The chair should not be higher than two feet above the floor. The pregnant woman reclines in it on her back, so that her inspirations are free. The sacrum and coccyx are exposed and in no way separated. The same is true for the pubes, the thighs being spread apart, which moreover facilitates the manipulations of the midwife seated in front of the pregnant woman. A cushion should be placed in the hollowed back of the chair, and some padding under the thighs to contribute to the woman's comfort.

The seventeenth century finds the obstetric chair installed in an honorable place in the center of medical erudition. As an auxiliary in childbirth, Jacques Duval (1612) recommends a chair of moderate height, 1½ to 2 feet, open both in front and behind, so that the midwife has unhindered access to the parturient woman. This chair should have a sloping pillow, on which the patient can recline at ease and rest during the intervals between her pains; it should be upholstered or stuffed with cushions, so that the seat and thighs are comfortable. In front of the chair should lie a large cushion for the woman to kneel on when the pains begin; she may rest her hands on the chair and clasp it tightly while she holds her breath, thereby endeavoring to push the child down.

The obstetric chair was frequently employed by Flemish women in Belgium, in the eighteenth century, and the leading accoucheurs vied with one another to construct a chair of their own invention. The model of Dr. Herbiniant, about 1780, was distinguished by a foot board attached to the chair by leather straps, and a woolen insert which could be fitted into the concavity of the obstetric chair, after this had served its particular purpose. In Holland, the employment of the obstetric chair was at one time so entirely customary that this useful article formed part of the outfit for all fairly well equipped brides. Englishwomen, in the eighteenth century, made use of a specially constructed wooden chair, with a seat scooped out in front, to facilitate the passage of the child.

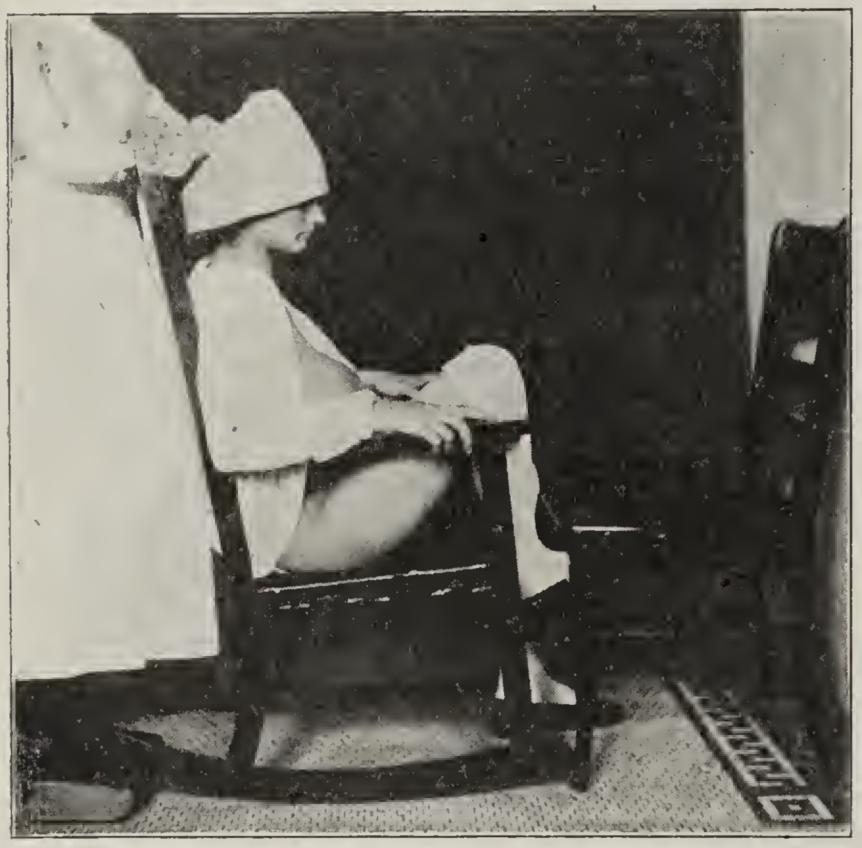

Fig. 8.—Rocking chair.

From an originally simple piece of furniture, the obstetric chair was developed, in the eighteenth century, into more complicated contrivances by Deventer, whose so-called perforated chair was at one time very popular. This adjustable but somewhat clumsy chair was even provided with an arrangement to keep the occupant's feet warm, by means of hot ashes and sand bags. Heister, in the eighteenth century, recommended the use in labor of seats analogous to Rhodion's obstetric chair. Stark, in 1791, advocated a model devised by himself. Stein, in Marburg, Germany, toward the end of the eighteenth century, extolled a rather complicated structure, of his own invention, which had separate parts united by hooks and hinges so that it could be taken entirely apart. All the pieces, including the pads, could be packed in a medium sized chest, to be carried about or sent to a distance. This chair could be adjusted at different heights, by means of iron bars held in place with screws. It was provided with arm pieces or handles, and had a sloping footboard. The entire arrangement was such that the flexed legs of the seated or reclining occupant of the chair necessarily formed an acute angle with the thighs, thus enabling her to move and propel an extraordinary weight with a minimum expenditure of strength.

In the Western hemisphere the obstetric chair gradually fell into disuse, although it survived some time in rural communities of various countries. At the present writing, the nations of the East are its patrons, and it is found in Japan, China, Greece, Turkey and also Syria, Egypt and Palestine. In the last named country, according to Engelmann, it is still an honored institution, often seen in the humble form of an old fashioned armchair. In Syria, all self-respecting midwives own their obstetric chairs, built on the plan of a rocking chair, with arms and a seat scooped out in front, about 2 feet above the rockers, and cut out in a semicircle. The women of the Orient are also delivered in a special chair, the separate parts of which fold up like ordinary folding chairs. Among the wealthy these seats are made of ebony and inlaid with mother of pearl. The midwife does her work kneeling in front of the parturient woman. Among the modern Egyptians, the midwife makes use of a chair which is covered with a shawl or an embroidered napkin; and some flowers of the Henna tree, or roses, are tied with an embroidered handkerchief to each of the upper corners of the back; thus ornamented the chair is conveyed before the midwife to the house.

In several villages of Africa, a delivery chair is found, consisting of a block of wood which rests against a tree, at a height of about 3½ feet above the ground. Two stilts are driven into the ground on either side to serve as foot rests, and the woman makes her efforts at expulsion while taking a firm hold of the ends of the stilts with both hands. It would seem to the author that this might almost be taken as the type of the primitive chair. Thus it is seen that for many centuries the use of some sort of device for maintaining the upright posture has been used throughout the world. With the introduction of forceps the necessity of posture was gradually lost sight of, so that at the present time but little is said in its favor, and the pendulum has swung so far to the other extreme that we are in danger of having our women all delivered by operative procedure of one sort or another. Forceps and other operations are resorted to daily by many practicing obstetrics with but little more reason than that the patient has been in labor longer than appears necessary.

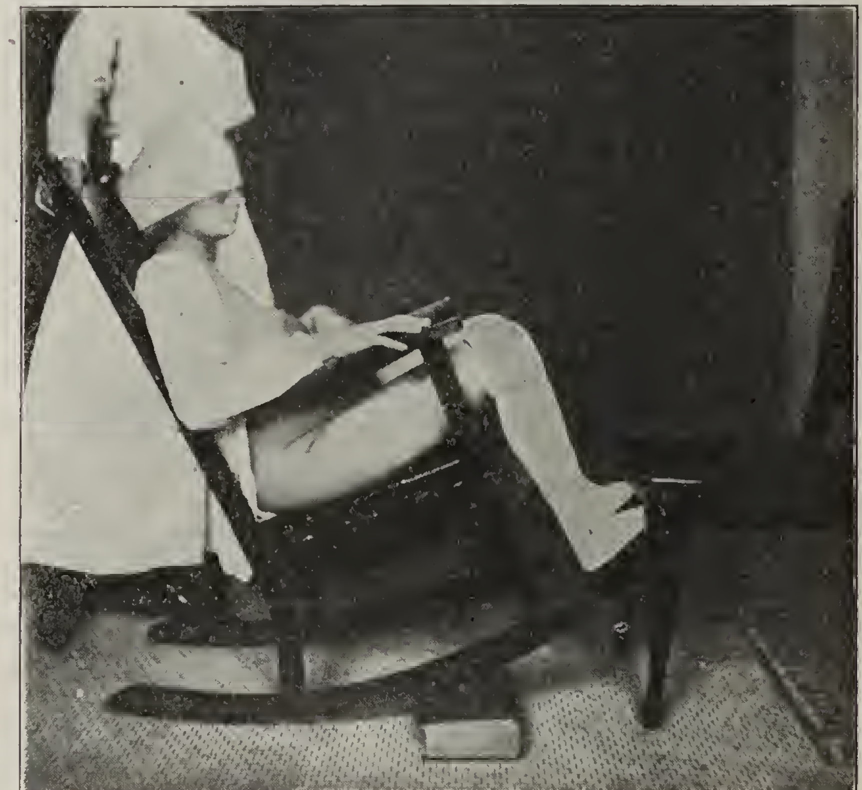

Fig. 9.—Rocking chair.

I would strongly urge that the first stage of labor be observed more carefully than it has been in the past and that obstetricians, both in hospital and private practice, exert their efforts to making this stage as short as is comfortable with perfect safety to both mother and child; for by so doing much suffering will be spared the mother, and the accoucheur will husband his time, first by instructing the woman how to make the best use of her pains, instructing her to hold her breath and bear down when the pains are weak and ineffectual or in case of a strong rapidly recurring uterine contraction to open the mouth and use as little as possible the auxiliary muscles of expulsion. In both of these the use of posture will be of great assistance. In the weak pains the sitting posture will allow the weight of the uterine contents to bear steadily on the cervical zone, slowly dilating the parts by the force exerted by the bag of waters, whereas in the case in which the contractions are severe the patient may possibly recline to better advantage than by walking about or sitting in the chair. Again, in moderate degrees of pelvic contractions the chair will be of great advantage, allowing full dilatation to take place before the patient has become worn out by long continued efforts and the consequent thinning out of the lower half of the uterus with the not infrequent contraction of the ring of Bandl which, when carried too far, will mean an impossible delivery by normal process. Even in the second stage in old primiparas, the chair may be used to great advantage to dilate the rigid pelvic floor. Of course here the greatest care must be used not to carry it too far.

TABLE 1.—BABIES, TWINS AND STILLBIRTHS

	Number	Babies	Twins	Stillbirths
Primiparas	282	282	5	5
Multiparas	38	27	...	1
Total	320	319	5	6

It has never been intended that the patient should be placed in the sitting posture at the beginning of labor and continued in that position, but rather that it be used to rest the expectant mother's efforts and allow the weight of the liquor amnii to do its part to the best advantage. Each case must be judged by itself, the patient going from the bed to the chair or walking about as is most comfortable for her, and yet bringing the first stage of labor to an end in the shortest time possible without risk.

A search of the textbooks on obstetrics on the subject of posture shows that the sitting posture is but little considered as an aid to labor.

Williams says:

> During the first stage of labor the patient usually prefers to move about the room, and frequently is more comfortable when occupying a sitting position. During this period, therefore, she should not be compelled to take her bed unless she feels so inclined, and when she does so she should be cautioned against attempting to hasten labor by voluntarily bringing her abdominal muscles into play, for they have little or no effect on the dilatation of the cervix, and the effort will only serve to exhaust her strength. In the latter part of the first stage the pains generally become so severe that the patient instinctively seeks the recumbent position; but if she is still moving about the room or sitting up, she should go to bed immediately on rupture of the membranes and the beginning of bearing down pains.

TABLE 2.—ANATOMIC CONDITIONS

	Normal Pelvis	Abnormal Pelvis	Total
Primiparas	226	56	282
Multiparas	29	9	38
Total	255	65	320

Cragin says:

> On the other hand it is only fair to the patient that she should be visited and carefully examined by her obstetrician as soon as her labor is well started and that he should remain with her during her second or expulsive stage and for at least an hour after the birth of the child. After a careful examination during the first stage, experience will usually indicate to the physician how long he can safely be absent and engaged in other work without being needed by the patient, and if there is a well trained nurse in attendance, and especially if he can communicate with her by telephone, he is often enabled, during the first stage, to devote several hours to other work. He should always hold himself in readiness, however, to come at once to the patient's house on the call of the nurse. During the first stage it is a good rule not to encourage the patient to use her abdominal muscles during uterine contractions as it usually does little good, and by forcing the undilated cervix downward it tends to loosen the fascial support of the anterior wall and favors the development of a cystocele. During the first stage, unless it occurs at night, the patient should be encouraged to be up and walking about, as engagement of the presenting part and dilatation of the cervix are favored by the upright position. She should not be allowed, however, to become fatigued by excessive walking. If the first stage begins at night the patient, after the examination of the obstetrician, should be advised to get some sleep if possible, so as to have her strength for the demands of the morrow.

TABLE 3.—HOURS DURING WHICH PATIENTS WERE KEPT IN CHAIR

Number Hours in Chair	1 or Less	2	3	4	5	6	7	8	Not Recorded	Total
Spontaneous	45*	64	49	16	5	7	..	4	3	193
Low forceps	5	3	4	..	1	1	..	..	1	15
Medium forceps	1	2	3	1	..	1	1	..	..	9
High forceps	..	..	..	1	..	..	..	..	..	1
Version	1	3	1	1	..	..	1	..	1	8

* Of these forty-five, in 1 case 15 minutes, 7 cases 30 minutes, 1 case 35 minutes, 4 cases 40 minutes, 5 cases 45 minutes, 1 case 55 minutes.

DeLee says:

> The treatment of the first stage is one of watchful expectance. The duty of the accoucheur is to observe the efforts of nature, not to aid, until she has proven herself unequal to the task. Only when nature fails is art to enter. Nothing is so reprehensive as meddlesome midwifery. It has cost thousands of valuable lives. Attempts to hasten the dilatation of the cervix, either manually, by bags, or by having the woman bear down may not be made. Premature bearing down efforts of the mother aid very little in the first stage; further, it is distinctly harmful, since the child is forced down before the dilatation of the os, overstretching the broad ligaments and laying the foundation of a future prolapsus uteri. Let the parturient woman walk around the room, the admission of dust into the vagina being guarded against by a large sterile pad and a T-binder. She may rest at intervals on a couch, lying on her back or on the side to which the occiput is directed.

Peterson says:

> During the first stage of labor, there is little to be done beyond the moral support of the patient. All necessary preparations have been made for the final moments of the delivery. All that is necessary at this time is for the physician to ascertain the nature and position of the presentation, and to assure himself of the normal conditions of affairs. During this stage the bowels and bladder must be emptied by the methods already described. The patient must be impressed with the necessity of conserving her strength at this time. To this end, she should remain in her chair

or bed, according as to whether it is day or night, occasionally walking around the room in order to bring the action of gravity into play, thereby stimulating the uterus to more efficient contractions. In most women and especially those with relaxed abdominal walls, much valuable assistance will be afforded at this time by the wearing of an abdominal binder. This should be closely fitted to the abdominal protuberance. It affords a certain amount of support to the woman, and stimulates the womb to more energetic contraction. After the labor has progressed sufficiently to result in a cervical dilatation of from 4 to 5 centimeters the patient should be confined to her bed in order to avoid the possibility of a precipitate escape of the child.

TABLE 4.—ABNORMAL PELVES

	Primiparas	Multiparas	Total
Contracted outlet	14	1	15
Very projecting spines	1	..	1
Flat pelvis	9	1	10
Justo minor flat	..	1	1
Justo minor	21	..	21
Funnel (male) type	2	..	2
Flat with projecting spines	1	..	1
Generally contracted	8	5	13
Right Nägele	..	1	1
Total	56	9	65

They all agree that the woman should walk about and even sit in a chair, but its actual value in shortening the time of labor is not touched on. The one objection, the use of the abdominal muscles during the uterine contractions by the woman bearing down, I heartily agree with when the pains are strong, but this applies to her while she is walking around the room as well as when she is sitting in a comfortable chair, where she is much less likely to attempt such efforts and at the same time the pressure of the bag of waters is exerting its best efforts.

I believe that every obstetric patient should have the "test of labor," however abnormal the existing condition may be. If I may be pardoned the enthusiasm which only a practical experience can give, I should go further and say, with special reference to the abdominal cases encountered in obstetric work, that no opportunity should be lost, no deviation from the normal too great, to try the obstetric chair if for no other reason than the dilatation of the cervix. We must not expect the impossible, such as a spontaneous delivery of a large baby in a markedly contracted pelvis or in cases of grave deformity with presentations impossible of delivery where all sorts of bad handling already handicap any procedure. But the obstetric chair has certainly justified itself in our experience by shortening the time of labor with benefit to mother and child, to say nothing of the time saved to the accoucheur.

TABLE 5.—DELIVERY

	Spontaneous	Low Forceps	Medium Forceps	High Forceps	Version	Breech Extraction	Cesarean Section	Total
Contracted outlet	4	3	6	..	..	1	..	14
Very projecting spines	..	...	1	..	..	..	..	1
Flat pelvis	4	..	3	..	1	..	1	9
Justo minor	8	..	7	..	2	3	1	21
Funnel (male) type	..	1	1	..	..	..	..	2
Flat with projecting spines	..	..	..	1	..	..	..	1
Generally contracted	5	3	..	..	..	..	..	8
Total	21	7	18	1	3	4	2	56

In an earlier article I suggested that a folding chair might be improvised which could be constructed of such material that its sterilization might be easily accomplished and of such small size that it might be folded up and carried from case to case. As yet this has not been easy to do, and I have therefore turned to the rocking chair found in every home that can be made into an excellent obstetric chair. Our method of using the chair is as follows: When regular contractions have been established, the patient is instructed to conserve her strength by not remaining too long in one position, but to sit from time to time in the chair with the knees elevated so that they support the enlarged abdomen and to have the chair so padded with pillows, blankets, etc., that the maximum of comfort is afforded. In such a chair, if her pains are weak, she may comfortably sleep for half an hour or more, and the accoucheur will be satisfied by the fact that the weight of the uterine contents is being exerted on the cervix, not in a harmful way but with a steady hydrostatic pressure that at this stage does more to shorten the labor than anything else. If she becomes restless in the chair or the contractions are severe, she may with benefit walk about the room or even recline.

TABLE 6.—PRIMIPARAS WITH NORMAL PELVES

Delivery	No.	Average Time in Chair	Stage When Put in Chair		Average Duration of Labor, Hrs.	Progress in Chair		
						Good	Fair	Poor
Spontaneous	193	2	157	36	12	178*	12	2
Low forceps	15	1¾	14	1	22	9†	3	3
Medium forceps	9	2½	8	1	28	2‡	4	3
High forceps	1	4	1	..	25	..	..	1
Version	8	3	7	1	22	5§	..	3

* One not recorded; 1 inertia.

† Of these fifteen: 1 right occipitoposterior presentation; 1 eclampsia; 1 lobar pneumonia; 9 weak pains—inertia; 3 not recorded.

‡ Of these nine: 1 left occipitoposterior presentation not rotated; 2 prominent spines; 3 rigid cervix; 2 inertia, weak pains; 1 not recorded.

§ Of these eight: 2 right occipitoposterior presentation; 1 cord prolapsed; 1 twin; 1 eclampsia; 1 inertia; 1 no advance; 1 not recorded.

Again, the inclination of the chair is of the greatest importance, as in old multiparas with an abdominal wall so relaxed that the uterus is completely antiflexed in the upright position. A binder should be applied and the chair so tipped back that the axis of the uterus will point directly downward into the pelvis.

That the chair should be used with discretion, I most certainly believe; but that rule applies to all medical procedures.

Since I began to use the chair, I have performed fewer operations, such as cesarean section, versions, forceps, etc., and a study of my statistics shows an improvement, there being a decrease in deaths of mother, fewer stillbirths and fewer deaths of children following labor. As far as perineal lacerations go, it has not apparently affected them as far as can be seen in the few cases collected, and I believe that where lacerations or other complications of a similar nature do occur, the fault lies with the accoucheur in not controlling the progress of the child through the parturient canal in time to prevent such accidents.

The statistics in Table 1, based on 320 cases, include 179 reported in September, 1915.

From the standpoint of anatomic conditions encountered, Table 2 is of interest.

Table 3, arranged under the headings of hours during which the patients were kept in the chair, is of interest. A consideration of this table and the explanatory note shows that in about 20 per cent. of the cases labor lasted only one hour or less after the patient was put in the chair. In one case fifteen minutes apparently sufficed, though here the cervix was almost fully dilated at the time, while in eighteen cases in which the cervix was only 1 or a few fingers dilated, less than one hour was required.

In the next group of cases, the patients with abnormal pelves, Table 4 gives the important features.

TABLE 7.—DELIVERY

Pelves	Spontaneous	Forceps	Cesarean Section	Total	Average Time in Chair	Average Duration of Labor
Generally contracted.......	3	1	1	5	1½	16
Contracted outlet..........	1	..	..	1	2	13¼
Flat......................	1	..	..	1	1	38
Right Nägele..............	1	..	..	1	4½	5½
Justo minor flat...........	..	..	1	1	2½	13
Total..................	6	1	2	9	....	....

If we consider the primiparas in this group and their behavior with the obstetric chair, we observe the data given in Table 5.

Considering the first portion of this table, namely, the primiparas with normal pelves, an analysis and consideration gives the features presented in Table 6.

Reference to the last part of this table, that referring to the progress in the chair, taken in conjunction with the notes appended, shows that interference was necessary in six cases because of abnormalities of fetal position: 3 right occipitoposterior presentation, 1 left occipitotransverse presentation, 1 prolapsed cord, 1 twin; and in 8 cases because of abnormalities in the mother: 1 lobar pneumonia, 2 eclampsia, 2 prominent spines, 3 rigid cervix.

In the remaining nineteen where operative interference was resorted to, excluding five where notes of the progress were not made, there were fourteen cases where uterine inertia prevented delivery.

It will thus be seen that in twenty-one primiparas where conditions anatomically might have presupposed, or rendered necessary, operative interference, spontaneous delivery occurred. In other words, in about 37 per cent. of fifty-six cases the obstetric chair apparently obviated the necessity of any other artificial aid.

TABLE 8.—ABNORMALITIES IN MULTIPARAS

	Spontaneous	Low Forceps	Medium Forceps	Version	Breech Extract	Total
Right occipitoposterior....	11	5	5	2	..	23
Left occipitoposterior......	1	..	2	1	..	4
Right occipitoposterior...	5	..	2	..	..	7
Left occipitoposterior......	5	..	2	3	..	10
Breech....................	7	..	..	..	3	10
Transverse................	2	..	..	..	1	3
Left mentoposterior......	1	..	..	..	..	1
Total..................	32	5	11	6	4	58

Of these twenty-one cases, fifteen were in the first stage of labor and six in the second. In two cases the patients were kept in the chair five and six hours, respectively, while in nine cases one hour sufficed to effect delivery, six cases needed two hours, and seven cases needed three hours for spontaneous delivery. The average duration of the entire labor in these cases was about twenty-one hours, while the average time in the chair was about two and one-half hours.

Of the twenty-nine multiparas with normal pelves, all but one was delivered spontaneously. Of the nine multiparas with abnormal pelves, Table 7 shows the important points.

In only two cases of the multiparas spontaneously delivered was the patient in the chair for more than two hours. A brief table of this series of cases, arranged with reference to the occurrence of abnormal positions and presentations and the resulting deliveries, is of decided interest (Table 8).

From this table it will be seen that in almost 50 per cent. of twenty-three cases of right occipitoposterior positions, in one case of a total of four left occipitoposterior positions, in cases of transverse and in one case of chin posterior spontaneous delivery occurred.

With regard to the case with the face presentation, the effect of the chair was to cause a rotation forward to a left mento-anterior position, and then to effect spontaneous delivery.

A brief survey of these tables, limited as is the number of cases on which they are based, cannot but bring home the distinct advantage the use of the obstetric chair offers, especially too in those cases in which, for some abnormality in the fetus or mother, operative interference seems to be indicated.

20 West Fiftieth Street.

ABSTRACT OF DISCUSSION

Dr. Rudolph Wieser Holmes, Chicago: Dr. Markoe's paper presages a revival of discussions on purely obstetric topics in our various medical societies, in contrast to the polemics on surgical intervention which have done inestimable harm to obstetric progress. I am sorry that Dr. Markoe did not go more fully into the question of posture in its influence as a correctional procedure, for he who has mastered the knowledge of the relation of posture to the course of labor has grasped many fundamental principles in the art of obstetrics which have a vital bearing on the simplification of difficulties due to abnormal mechanism of birth. Dr. Markoe did not picture the original obstetric chair—namely, squatting. This is the most natural posture for the emptying of the pelvic organs: in its obstetric relation, it brings the axis of the uterus more nearly into line with the axis of the pelvis, and, therefore, brings more certainly the action of the expelling forces in a line parallel to the birth canal. Crouching, or as it more comfortably may be realized by Dr. Markoe's chair, certainly theoretically and practically has an important place in obstetric therapy: however, this effect from crouching may be accomplished readily by the method of Samuel, which, in fact, secures the crouching attitude while recumbent in bed. Samuel suggests that the shoulders be raised, and as the pain begins the woman grasps her legs below the knees. In the act of straining while in this attitude she simulates the squatting posture of the aborigines. I cannot quite see how the labor is materially shortened if the average time of labor of his patients be twenty hours, and the duration in the chair be two hours. It never has been my privilege to use an obstetric chair, though constantly, in the early hours of labor, the women in my charge are encouraged to sit in a comfortable easy or rocking-chair. Such a position encourages the descent of the head through the brim. In abnormal labor, there hardly is a deviation of position or presentation of the fetal body which may not be enormously benefited by a timely application of the principles of posture in labor; in certain of these deviations of position an appropriate posture is a very definite correctional procedure.

Dr. Charles S. Bacon, Chicago: I have not been in the habit of allowing the patient to be around the room, sitting on chairs, largely because of the danger of contamination. One takes a great deal of pains to sterilize everything about the patient and to have her thoroughly clean. The danger of contamination from the floor, chairs, etc., is obvious.

I have also been somewhat in doubt on the value of abdominal contractions in the first stage of labor, feeling that it is chiefly the contraction of the uterine muscle that is of value in the dilatation of the cervix. The experience of Dr. Markoe, however, leads me to want to try the method, and I should like to ask him how the danger of contamination can be avoided.

Dr. Edward P. Davis, Philadelphia: I wish to call your attention to the value of posture in prolapse of the cord, where the knee chest position and vaginal reposition of the cord are often successful, and also to the value of the Walcher position in moderate pelvic contraction. I have often prevented cesarean section by bringing about labor by resorting to a posture on the knees. In the maternity department of the Jefferson Hospital of Philadelphia are several flights of stairs. Our matron is possessed of abundant experience and common sense, and when a woman with moderately contracted pelvis comes into the maternity ward we frequently have that woman scrub those steps. This position, with the vigorous use of the arms, results in a very large number of spontaneous labors, and we are saving a great many unnecessary cesarean sections.

Dr. E. Gustav Zinke, Cincinnati: I do not see how we are going to prevent intelligent men from performing cesarean section and other obstetric operations if they deem them necessary. The judgment of the obstetrician, after a careful study of the signs and symptoms of the case before him, is his guide. There is no question that some obstetric operations are performed too often; perhaps, without justification. At the same time we must make due allowance for errors of judgment and not condemn procedures which have proven of value. The doctrine of narrow pelvis is scarcely of age. It took 150 years for its development. Its therapy has been amply tested in the hospitals of Europe in the last fifteen years and has given very satisfactory results. The new treatment of narrow pelvis consists of the test of labor, hebosteotomy and cesarean section. The test of labor in 80 per cent. of the patients has resulted in spontaneous labors; 15 per cent. of the remaining patients were delivered by hebosteotomy, and the other 5 per cent. required cesarean section, and this with a maternal mortality of 0.1 per cent., and a fetal mortality of 4 per cent.

Permit me to call attention to just one sign or symptom which has been mentioned here, the ring of Bandl, the contraction ring. Whenever it shows itself it should always be considered a danger signal of impending rupture of the uterus. It means that the lower segment of the uterus has become exceedingly attenuated and that there is danger of rupture of that part of the organ. He who is on his guard and knows the cause of the contraction ring will not hesitate long but resort to some operative procedure and deliver his patient as soon as possible.

Dr. James W. Markoe, New York: My paper should be entitled "The Obstetric Chair" because no one could cover the subject of posture in fifteen minutes. I purposely left out the picture of the squatting posture and put in the picture of the chair because my paper was really on the obstetric chair. In regard to the question of contamination, referred to by Dr. Bacon, the woman was so placed undraped merely to show the position. Every woman in our hospital is scrubbed and cared for according to the modern method of asepsis. She has a T-binder on and an aseptic pad. Regarding the muscles, I do not advocate the woman using her abdominal muscles and I hold that she will be less likely to use them in the chair where she is comfortable and happy than in walking around the room. What I hold is that the chair gives the hydrostatic pressure to the liquor amnii to a far greater extent than do the muscles. Regarding Dr. Davis' criticism, I did not go into all the postures since I referred particularly to the chair. I feel that we ought to go more into the question of posture. I agree with Dr. Zinke regarding the ring of Bandl as one of the important signs of rupture of the uterus, although it is entirely extraneous to this subject. I have this year had four hysterectomies where the ring of Bandl had appeared just below the umbilicus. In every one of these cases pituitary extract had been used.

PREMATURE VENTRICULAR SYSTOLES

THEIR CLINICAL SIGNIFICANCE *

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In presenting a number of polygraphic and electrocardiographic tracings to illustrate the subject of this paper, I shall endeavor to bring before you certain first principles in the recognition and treatment of this form of heart irregularity. While it is desirable that, from the standpoint of the clinician, graphic tracing should be made when practicable, nevertheless, we are able to distinguish such abnormalities in the heart action by careful palpation of the pulse and auscultation of the heart sounds.

It may be safe to say that in general, premature contractions of the ventricle have given rise to too many unfavorable prognoses, and it is equally apparent that the subject of premature ventricular systoles has not been given the proper attention from the standpoint of therapy.

As a matter of fact, the point of primary importance and a point which I desire to emphasize from the very start is this, viz., that the irregularity of the heart action to which I wish to call attention has too often been attributed to disease of the heart itself, whereas the real seat of trouble is usually extrinsic to the heart. In fact, I wish most emphatically to state that in a great majority of instances premature ventricular systole—meaning a too early contraction of the lower chamber of the heart—is a functional disturbance.

Premature ventricular systoles may be of very short duration; they may last for a somewhat longer time and finally disappear altogether; or they may be more or less constant. They may be found in connection with hearts that show absolutely no other sign of disturbance, and they may be encountered in cases in which there is manifest organic disease of the heart. Even in the latter case, the premature ventricular discharge may not be the result of the organic lesion, but may again be the expression of a toxic condition in which the heart muscle becomes oversensitive.

Just as a patient with brain tumor may show signs of hysteria to complicate the clinical picture, so also may we have organic disease of the heart with certain functional disturbances, which are not essentially of cardiac origin.

THE RECOGNITION OF PREMATURE VENTRICULAR SYSTOLES

As a rule, the recognition of premature ventricular systoles is a matter of no great difficulty. In the majority of cases auscultation of the heart will prevent errors in diagnosis, since these premature contractions of the lower chamber of the heart usually give rise to a very characteristic sequence of heart sounds.

A glance at Figure 1 will demonstrate a number of factors which will serve to illustrate points in the diagnosis. The first five beats are regular in their sequence and they are the result of stimulation from the sinus node. The auricular contractions are regular, as may be seen by a glance at the chart. The *sixth* contraction of the ventricle is premature. It is in advance of the normal stimulus coming from above and, because the ventricle is in a refractory state when the sixth auricular stimulus arrives, the lower chamber is unable to respond to this command. The ventricle, therefore, rests for a longer period than usual, and does not contract or does not become active until the seventh stimulus arrives. This long pause is referred to as the compensatory pause. At the seventh stimulus the heart again contracts normally and this seventh normal beat is then seen to be followed by another premature contraction of the ventricle with the usual development of the period of compensatory rest. Here we have a diagrammatic representation of the fact that the space preceding the abnormal beat plus the space following the premature contraction is equal to the distance between two normal heart cycles.

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* Read before the Section on Practice of Medicine at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Auscultation of the heart sounds usually shows that no heart tones have been lost, for the abnormal beat is, in the majority of instances, accompanied by the first and second heart tones.

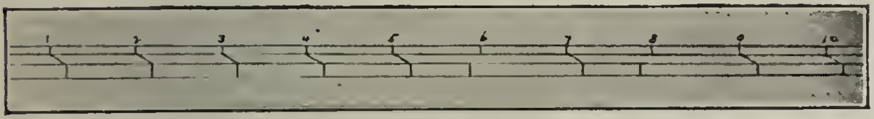

Fig. 1.—Diagram to illustrate premature contractions of the ventricle.

Auscultation of the heart tones also reveals the presence of the long pause after the premature beat.

Careful palpation of the radial pulse will usually reveal the presence of a small wave. At times, however, the small beat is entirely lost on the radial; indeed, the sphygmograph may even fail to show the faintest trace of a wave. It may or may not be evident in the carotid artery. As a matter of fact, some of these premature contractions of the ventricle may be so weak and so early that the semilunar valves at the aorta are not opened.

As a result we may have a change in the auscultatory phenomena. We may have the ordinary first and second sounds of the heart with the abnormal beat, or we may have only the first sound if the aortic valves are not opened by the premature contraction of the ventricle or, as happens in a few instances, even this first sound fails to materialize, or at least is not constantly audible. The latter condition must of course be very rare. The polygraphic and more particularly the electrocardiographic examination removes all doubt as to the real condition.

In some instances the premature contractions of the ventricle are grouped in such a manner as to give rise to the bigeminal pulse. In the bigeminal pulse (Fig. 2) every second beat is a premature ventricular systole. The premature beat in the radial is scarcely perceptible to the palpating finger and, indeed, it is at times not seen in the polygraphic tracing. The high peak in the jugular—the c-a peak, unusually high and sharp, shows the combination of two elements, the ventricular and auricular phases coming practically at the same time. Such a pulse is often mistaken for heart block.

I desire to present a number of tracings which show premature ventricular systoles.

A study of the electrocardiograms with the radial pulse is of great clinical interest. Figure 3 shows two premature ventricular systoles. The deflection in both instances is downward and this (apex negative) deflection is followed by a very marked deflection upward, the time corresponding to the simultaneous "P" and "T" wave. There is a long compensatory pause, as may be seen both in the electrocardiogram and the accompanying arterial tracing (radial pulse). Following the premature ventricular systoles, there is a quickening of the heart action, due to a more rapidly following sinus stimulation. The two beats following the premature ventricular systoles follow more closely and then the normal rhythm is established, until the second premature ventricular discharge takes place toward the end of the tracing.

Figure 4 shows two tracings from the same patient. In Lead I the pulse is quite regular. In Lead II there are six premature ventricular systoles, the last four occurring regularly with the third beat of the heart.

The upper tracing (Lead I) shows a series of very regular beats with the "P," "R" waves well defined. The lower tracing shows four regular beats followed by a premature ventricular systole which precedes the "P" wave by a small unit of time. In this tracing there are six premature systoles of the ventricle. After the first premature beat there is a large downward deflection at a period corresponding to the time of auricular systole. There follows a compensatory pause with a normal heart cycle. Immediately following this normal beat there is the second premature ventricular systole with, however, a small upward deflection of the "R" wave. Following the "S" deflection, which is quite pronounced, the "P" wave comes along just before the "T" wave, and there the "P" + "T" wave is exaggerated.

In this instance the patient has albuminuria, hypertrophy of the left ventricle and a somewhat enlarged aorta — Wassermann negative. Here, in looking for some extrinsic cause for the disturbance of the heart rhythm, I found a pronounced pyorrhea alveolaris. Pockets of pus were found from which large quantities of pus could be pressed. The patient was referred back to the family physician with the suggestion of immediate dental treatment.[1]

In certain instances, premature ventricular systoles may give the impression of the pulse of auricular fibrillation. It is evident that we should be on our guard because of the difference in prognosis and therapy. The tracings in Figure 5 might suggest fibrillation. The jugular curve, however, reveals premature ventricular systoles.

Figure 6 illustrates a form of premature ventricular systole which differs considerably from the usual type in that there is a fairly long series of premature ventricular systoles — the ventricular discharge rapidly encroaching on the preceding auricular stimulus until it precedes it by a definite interval. After eight such premature systoles the normal rhythm becomes established for a time. The upper two tracings in Figure 6 are from Lead I. In Leads II and III, we have not only premature ventricular systoles but in Lead II there are two true *extrasystoles* — the number of ventricular beats being in excess of the auricular beats. This case was one of rather mild endocarditis following a large abscess in the neck to the right of the thyroid cartilage.

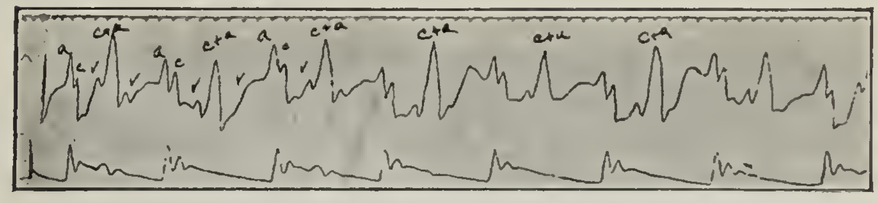

Fig. 2.—Bigeminal pulse, in which every second beat is a premature ventricular systole.

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[1] I am informed by the family physician, June 14, 1916, that the treatment of the teeth has not only relieved the pyorrhea, but that the heart action is now absolutely regular.

Although it is usually assumed that true extrasystole occurs only when the pulse rate is rather slow, nevertheless, we have in the polygraph tracing shown in Figure 7 an instance of a rather frequent rate with true *extrasystoles* thrown in between every third and fourth beat. The diagram illustrates that we have an increase of the number of ventricular beats above the number of auricular contractions. This case is one in which there is both tonsillar infection and pelvic disease.

I do not wish to multiply the number of illustrations of the subject. There are many more interesting phenomena in connection with premature ventricular systoles, but the tracings here presented are sufficient to bring out the main points.

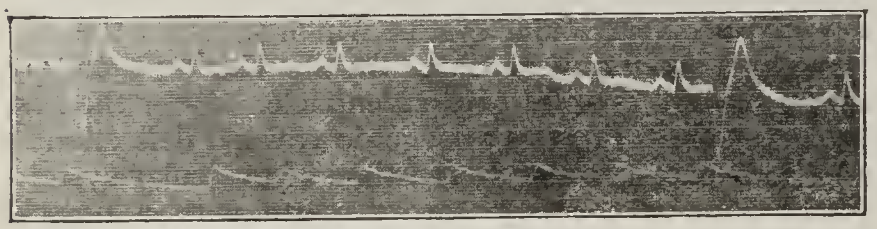

Fig. 3.—Premature contractions arising in the left ventricle.

SYMPTOMS

The occurrence of premature ventricular systoles may give rise to distinct subjective disturbances. These symptoms may be pronounced or they may occasion a mere passing discomfort. The degree of disturbance may be such as to occasion great alarm and this is particularly the case in neurotic or hypersensitive individuals. On the other hand, the grouping of the premature ventricular systole, as in the bigeminal pulse, may cause the patient comparatively little concern. There is, however, a temporary disturbance in the mechanism of the heart, and this alteration in the circulation is usually quite manifest in the violent pulsation in the neck. The patient may experience a disagreeable sense of suffocation, or, as happens in the premature beat of nodal origin, the auricle and ventricle contract at the same time, with the result that the jugular pulse becomes exaggerated. Again the beat following the compensatory pause may be, because of the greater filling of the ventricle, more pronounced and give rise to a distinct throb in the neck or in the head.

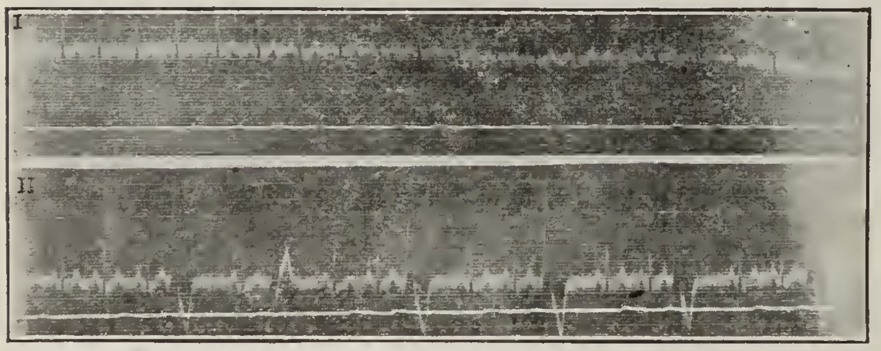

Fig. 4.—Two tracings from the same patient; upper tracing, Lead I; lower tracing, Lead II.

I find it impossible to dilate more fully on the possible symptomatology of premature ventricular systoles. Time does not permit of a full description of the individual symptoms.

ETIOLOGIC FACTORS

The frequency of premature ventricular systoles and their association with toxic conditions are matters of extreme importance in diagnosis and treatment.

This form of irregular heart action is found in connection with toxic conditions arising in the alimentary tract; in disease of the gallbladder; in infectious conditions arising in the accessory sinuses of the nose; in suppurative processes, both acute and chronic; in diseases of the kidneys, and in conditions giving rise to high arterial tension. It is furthermore often attributed to the excessive use of tea, coffee and tobacco. Personally I have not been able to satisfy myself of the etiologic relationship of premature ventricular systoles and the use of tea, coffee and tobacco. These agents certainly have a decided influence on the circulation, and while I have frequently seen tachycardia resulting from the abuse of tea, coffeee and tobacco, and while the products so absorbed have a decided tendency to produce insomnia, I have not observed any such effects as premature ventricular systoles. While I recognize the possibility of tea, coffee and tobacco as possible agents in the production of premature ventricular systoles, we should not be too quick to assume this as a fact.

Formerly any decided irregularity of the heart action led to a diagnosis of myocarditis. However, one cannot have practiced medicine for any length of time without having been impressed with the fact that constipation is a factor of great importance and frequency in the etiology of premature ventricular systoles. It has been my experience to notice the disappearance of such heart irregularity after the administration of a good dose of castor oil. I recall here the case of a patient of 70 years with hard arteries and pronounced premature ventricular systoles and where on account of the age and arterial disease, the diagnosis of a chronic myocarditis seemed at first justifiable. Here, to my great satisfaction, the pulse became absolutely regular after a thorough cleansing of the intestinal tract. Every trace of irregularity disappeared within twelve hours after the administration of castor oil.

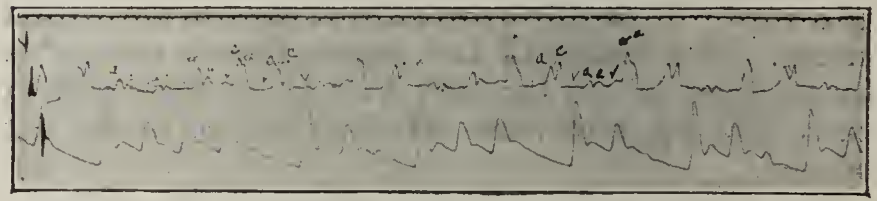

Fig. 5.—Marked irregularity due to frequent premature ventricular contractions.

Acute and chronic inflammation of the gallbladder have also, in my opinion, a place in the causation of premature ventricular systoles.

I have furthermore quite frequently seen the bigeminal pulse in cases of pronounced ptosis of the stomach and bowels. However, I am not inclined to attribute the development of premature ventricular systoles merely to the ptosis of the abdominal organs. Some authorities have spoken of a reflex from the displaced organs as the responsible factor in the production of too early contraction of the ventricle. This does not seem probable. It is much more important and much more satisfactory to attribute the irregularity to the toxic condition so commonly found in connection with dilatation of the stomach and ptosis of the bowels.

At times catarrhal and suppurative processes elsewhere, as for example about the female genital organs, and the accessory sinuses of the head, have a distinct tendency to alteration in the rhythm of the heart.

Only too frequently do we find persons with premature ventricular systoles refused life insurance. In one of my colleagues, the premature ventricular systoles have disappeared after successful treatment of a marked ethmoiditis. I have noticed a distinct tendency to the development of premature ventricular systoles in cases of stones in the gallbladder.

A very large proportion of other cases exhibiting premature ventricular systoles is found in cases in which there is a distinct evidence of disease of the kidneys. Such cases may or may not be accompanied by high blood pressure. It is clear that most of them have an excessive blood pressure. This has led to the opinion that the high blood pressure is the prime factor in the causation of the heart irregularity. When we consider, however, that so many cases of chronic nephritis with high blood pressure have no such phenomena as the premature ventricular systole, we are forced to look for other causes than the high pressure alone. It is more than likely that the condition of the bowels and the toxemias of nephritis are the real factors. Free purgation and attention to the diet will have a beneficial influence on the heart.

Loss of sleep, worry and excitement, with their attendant wear and tear on the nervous system, have a distinct place in the etiology of premature ventricular systoles. Here again we have toxemias in the excessive use of the nervous system as the probable exciting factors, and we are therefore less and less inclined to speak of irregularities of reflex nerve action. As a matter of fact, as we develop in our knowledge of the physiology of the glands of internal secretion, the less we speak of reflex action on the heart. These cases are toxemias.

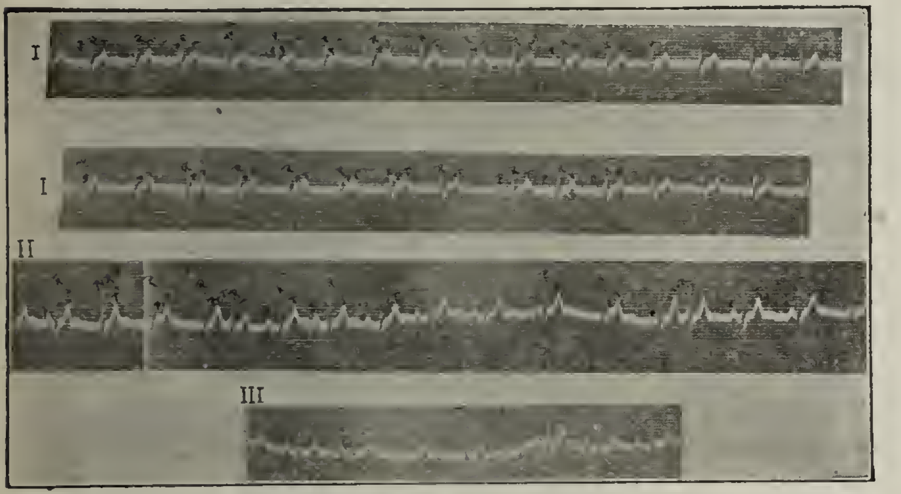

Fig. 6.—True extrasystoles.

The more we study our cases of premature ventricular systoles, the more are we convinced that the vast majority of such cases, even though they have organic disease, are the subject of toxemias which temporarily disturb the rhythm of the heart. We are more and more inclined to the view that premature ventricular systoles are an expression of functional and not of organic disease. Time does not permit a discussion of all the factors or of all the varieties. Tachycardia of ventricular origin is a rare type and certainly a much more serious condition.

In view of what has been said in this short paper of the causative factors, little need be added to the subject of treatment. Look for the cause. At times it takes patience and all possible skill to find the source of the trouble, but that is our duty to the patient.

I am quite confident that this subject must appeal in a most practical way to those who are active in the great question of the risk to be accepted by life insurance companies.

I should certainly advise that persons showing premature ventricular systoles and no other sign of organic disease of the heart or kidneys be not considered bad risks. The life history of such cases should be an argument in favor of such a view.

Wenckebach in his work on heart irregularities speaks of patients with premature ventricular systoles improving under exercise, even such exertions as in mountain climbing. Such cases are no doubt a perfect demonstration that primarily the heart was not the seat of trouble. Evidently the exercise in the open air restored the secretions generally.

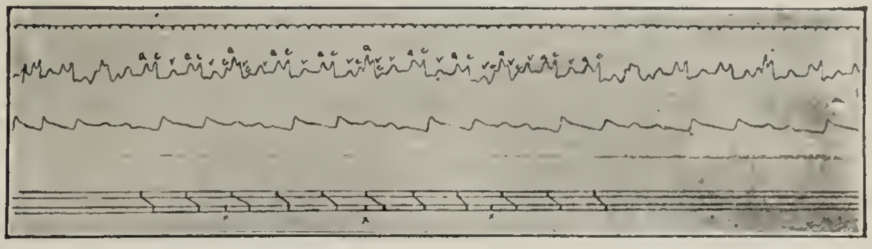

Fig. 7.—Jugular and radial pulse showing true extrasystoles. Diagram showing extrasystoles at *x*.

In a certain number of cases digitalis seems to have a good influence on premature ventricular systoles, and this may be explained by the effect of the drug on the vagus. Here there is a distinct tendency to slow the rate of contractions. We may assume that up to a certain point, digitalis controls the irritability of the heart. However, in a general way the immediate use of digitalis in premature ventricular systoles should not be looked on as good practice. In other words, one should first endeavor to find the cause, and by the removal of the cause wherever possible, remove the essential factors in the production of this type of heart irregularity.

PROGNOSIS

If there is no other evidence of disturbance of the heart, let the prognosis be favorable rather than unfavorable. Base your prognosis not on the presence of premature ventricular systoles, but rather on the underlying cause.

Union Central Building, Fourth and Vine Streets.

ABSTRACT OF DISCUSSION

Dr. Charles F. Hoover, Cleveland: The recognition of disturbances in the mechanism has after all not carried us much further in the handling and treatment of cardiac disease than twenty years ago. Twenty years ago we relied on a man having certain physical exercises. In recent years we attach a great deal of importance to the recognition of disturbances in the mechanism of the heart. That does not give a clear conception of the heart's energy. We may have the same disturbances of mechanism in purely functional disorders of the heart as in organic lesions of the heart. As already pointed out, many persons have functional disorders of the heart and at the same time evidences of infection, which raises the suspicion that there is some direct relation

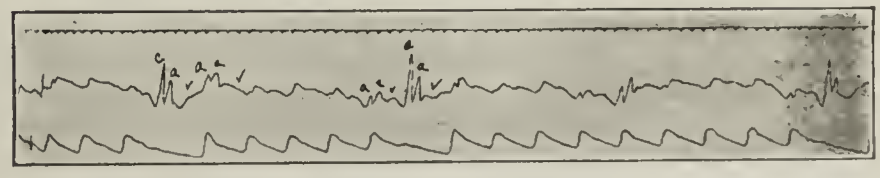

Fig. 8.—Polygraphic tracing of jugular and radial pulse; premature ventricular systoles with some arterial sclerosis and albuminuria, a type frequently found with nephritis.

between infection and functional disturbances. Again there is the psychic factor; then the retrospective. I know of a patient who had premature ventricular systole after a period of several days and this was due to some disturbance in temperament. He was unable to swallow; when he swallowed his heart stopped. Instead of expectorating he would lie on his right side and allow the fluid to drool. The condition was very annoying. If he turned on his left side the heart would stop. The right side had a normal rhythm. His physical health remained about the same. The reason why these attacks ceased after five years was because he finally became convinced that he was not sick and did not have any organic disease of the heart. After all, in the recognition of disturbances in the mechanism of the heart we must rely on the fingers, which can tell us the size of the heart, enable us to tell the conformation of the heart, the size of the auricle, the relative size of the ventricle, all this being tested out with exercises. Disturbances in the heart's mechanism can be incorporated with evidences showing that we are dealing with some organic lesion.

Dr. Walter J. Wilson, Jr., Detroit: While the importance of premature systoles may be exaggerated, it is not a good plan to put them all into a class of functional disorders and be satisfied with that. If functional, it is pathologic physiology. The study of the arrhythmias has resulted in the great advance in the modern management of heart disease, and the presence of any irregularity demands most careful study as to diagnosis and prognosis. A more thorough knowledge of auricular fibrillation alone has resulted in adding years to the lives of a great number of heart patients. The premature beats do often arise in acute infections. One patient with every attack of tonsillitis shows premature ventricular beats. The more severe types—and all sorts of combinations of premature beats may be observed, such as every alternate beat a premature beat—are more serious as to prognosis, one case later showing persistent pulse alteration. One patient under observation in 1914, in whom a series of premature ventricular beats of nine seconds' duration was present, was most seriously ill, as such series came frequently and resulted in attacks of syncope. Premature beats are often associated with the more severe valvular lesions such as mitral and aortic stenosis. When present in the form of premature auricular beats in mitral stenosis, they are often followed by attacks of paroxysmal tachycardia, and not infrequently are the precursors of auricular fibrillation.

As to diagnosis, the majority can be detected clinically by the stethoscope, as the ventricle, not the radial pulse, should be our guide. As to treatment, digitalis is contraindicated except in the decompensated heart, as it renders them more likely to appear from the slow ventricular rate, while hyoscyamus or belladonna by quickening the ventricular rate submerges the premature systoles. In conclusion, while the majority of cases of premature beats are not of serious prognostic omen, a respectable minority require most careful attention.

The Possibilities of Hygiene.—Certain it is that more people would practice hygiene if they could be made to realize in some vivid way how much they needed it. Few persons, even when they read and accept the statistics on the subject, really have a picture of the imperative need of hygiene as an integral part of every human life. It is not brought home to them how widespread is illness, how numerous are preventable deaths, how many are the tendencies toward individual and racial deterioration. The report of the Roosevelt Conservation Commission on National Vitality indicates that annually there are in the United States over 600,000 deaths which might be prevented if existing knowledge of hygiene were properly applied; that at least half of the 3,000,000 and more sick beds constantly kept filled in the United States are unnecessary; that the financial loss from earnings cut off by preventable disease and premature death amounts to over $1,500,000,000 annually; and that over fifteen years are lost to the average life through the lack of application of knowledge which already exists but which simply has not yet been disseminated and applied.—Fisher and Fisk, "How to Live."

PELVIC INFECTIONS IN WOMEN

COMMENTS ON SOME SPECIAL PATHOLOGY WITH APPLICATION TO TREATMENT *

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CHICAGO

The modern treatment of pelvic infections is based on the knowledge that has been acquired in special and general infections and immunity. The rapid advances made in the study of infections and immunity have resulted in radical changes in treatment, especially during the acute period of the disease.

Formerly infections were supposed to be local processes, and recovery was considered to be due to local changes. Since it has become known that infections, especially severe ones, are chiefly general, and that recovery is largely due to systemic immunization, important advances have been made in the treatment. The inflammatory exudate is no longer regarded as a destructive element, but as a conserving one. Recognition of the general character of infection and immunity has radically changed many of the notions relative to suppuration. Occurrence of abscesses, especially in puerperal cases, has little bearing on the severity or duration of the infection. In nonpuerperal cases the relation of suppuration to the infection is quite different, as in these cases the infective process extends along the mucous membrane, excites an increased secretion of mucus, and when it involves the fallopian tubes accumulates and generally produces abscesses. The marked difference between puerperal and nonpuerperal infections, as regards pathology and treatment, depends largely on the difference in the mode of extension of the infection. In one the infection travels along the blood and lymphatic vessels, and in the other by continuity of tissue, except for the systemic invasion of bacteria which occurs in both, but more actively in the puerperium for reasons that are obvious.

Pelvic infection involving the peritoneum is especially favorable to the development of immunity, as it excites an early and extensive inflammatory exudate which confines some of the infective discharge and takes an important part in its destruction. Pelvic exudates as a rule spontaneously become sterile. The active reaction that takes place in infection of the pelvic peritoneum is probably the chief reason why exudates in the pelvis become sterile more rapidly than in many other parts of the body.

It is impossible to determine the relative parts taken by general and by local immunizing forces. In the puerperal case, in the absence of a localized reaction, the immunity must be mostly or entirely general, and in all the acute cases of pelvic infection general immunity is probably the important curative process. In the nonpuerperal cases, the inflammatory exudate in cases of pelvic peritonitis must be a factor in immunity, as pus in these cases more readily becomes sterile than pus in many other tissues of the body.

TREATMENT

It is important to consider separately the treatment of acute and of chronic pelvic infections, as the problems encountered in the two are very different. One deals directly with the infection; the other chiefly with the residues of infection. This paper will consider only parts of the treatment of acute infections.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

As no specific serums or vaccines have been found for pelvic infections, diphtheria and syphilis excluded, the treatment, medical and surgical, relative to the acute period is limited to the use of remedies to aid the defensive forces of the body, that is, to sustain or increase the body resistance. Much of the treatment that has been and that continues to be used injures body resistance.

It would possibly be unnecessary and would require much time to consider in detail measures for increasing the defensive forces of the body. Fresh air treatment is among the most important of these remedies. It is much more valuable in these infections than in tuberculosis, where its value is generally known, appreciated, and effectively used, as the more acute the infection the greater must be the advantages of outdoor treatment. It is common experience to observe that the amount of sleep obtained and the amount of food taken, are often doubled after the patient is kept out doors six or eight hours daily. The importance of rest, sleep, food, elimination, and general hygiene can not be too much emphasized. They are much more valuable remedies than stimulants, tonics, alteratives and the like.

It may seem commonplace to mention the value of keeping the patient in as cheerful a mental state as possible, but it is much more important than many remedies that are highly recommended. The importance of this is appreciated by analysis of the relation of the mental state to the body functions in the well. The sick must be more susceptible to this influence than the well. Unnecessary pain, fear, and worry interfere much with rest, sleep, appetite and digestion.

Blood transfusion, which has been employed somewhat of late, must appeal to all as a remedy of great possibilities in the treatment of very acute infections, especially in those that are unable to develop a good resistance, as shown by the presence of leukopenia. Our limited experience has induced us to believe that blood transfusion is very valuable in selected cases, notably in very severe puerperal infections. In the absence of apparatus or an experienced operator, the whole blood can be easily and effectually given subcutaneously. It is highly desirable to obtain definite knowledge as to how much the increase in leukocytes and antibodies can be thus stimulated.

The recent investigations on the action of protein substances by Jobling and Petersen[1] and Miller and Lusk,[2] indicate that these remedies may prove to be of great value in increasing body resistance.

Before considering in detail the indications for some surgical measures, it seems desirable to discuss briefly the limitations of medical treatment in these cases. From an experience extending over some years and from logical deductions, we believe the treatment of nearly all puerperal cases should be entirely medical, that surgical procedures are usually more injurious than helpful. Our mortality and morbidity have been much lessened since our treatment has been less surgical and more medical. We have ceased to fear the result in puerperal infections except in the very virulent infections, usually virulent streptococcic, the type with the Hippocratic expression, the cases in which the muscles of expression are paralyzed by sepsis, the case which is hopeless when first seen. Residues in puerperal infections are uncommon, except occasional adhesions. The exudates usually disappear spontaneously by absorption. In practice it is uncommon to encounter much pelvic pathology as a remote result of puerperal infection. We will later discuss exceptional cases of puerperal infection that have surgical aspects.

The treatment of nonpuerperal infections during the acute period is also chiefly medical. In but very rare instances is surgical interference indicated in these cases. Danger to life is slight in acute nonpuerperal infection. The danger is largely one of continued morbidity and recurrent infections. The importance of delaying operative treatment in pelvic infections until the acute period is terminated is effectively proved by the results of studies and observations made by F. F. Simpson.[3]

The chief advantages of postponing surgery until the acute infection has ceased are lessened mortality, diminished postoperative pain and complications. Surgery in this class of cases is not usually as efficient in dealing with the infection as with the residues of the infection. When abdominal section is made during the acute infection, the residues from the operation may be worse than from the disease. The part taken by an inflammatory exudate in the pelvis in the production of immunity has a bearing on the indications for surgery. It is also not uncommon for patients with salpingitis to recover beyond the need for operation. Surgery has become limited in the treatment of salpingitis to cases in which residues exist which are producing distress, and to prevent recurrent attacks of infection. The following cases are presented to illustrate what the resisting forces of the body may accomplish in combating pelvic infection without the aid of surgery.

Case 1.—Mrs. N. had been seen by me in consultation fifteen years before when she had a very acute gonorrheal pelvic peritonitis, with an inflammatory exudate that extended nearly to the umbilicus. The presence of gonococci in the urethral discharge from her husband and in her vaginal discharge established a positive diagnosis. Complete recovery resulted, except for a few friable adhesions about the ovaries, which were observed on section two years later, which was made for a large retrodisplaced uterus. She has since had four normal pregnancies and is now entirely well.

Case 2.—Miss H. had been treated by me about ten years before for acute gonorrhea of the vagina and cervix; she later developed an acute peritonitis with large inflammatory exudates about both fallopian tubes. This apparently disappeared by absorption. She had a recurrent pelvic peritonitis, with similar pathology and result. The only pathology which remained, as observed on section some weeks later, was a few friable adhesions about the ovaries. She subsequently had a third attack of pelvic peritonitis, with extensive inflammatory exudate in both tubes. After recovery from this a second abdominal section was made and both fallopian tubes had apparently entirely recovered except for the presence of a few adhesions. These are exceptional cases, but well illustrate the possibilities of recovery of the tubes from infection.

The operative measures that are used in acute pelvic infections are chiefly curettage, incision and drainage of exudates, and excision of organs. These will be considered briefly.

Curettage of the Puerperal Uterus.—This is not in accord with the modern knowledge of infection and immunity, and has been found by experience to be a dangerous procedure. It is unnecessary, as the septic uterus will empty spontaneously. Its danger consists largely in causing embolic extensions from dislodgment of septic thrombi from the uterine sinuses. In the worst cases usually encountered in hospital practice and consultations the patients have been curetted and have become more ill after the curettage. Embolic infections seem to be usually secondary to and a result of curettage.

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[1] Jobling, James W., and Petersen, William: The Nonspecific Factors in the Treatment of Disease, The Journal A. M. A., June 3, 1916, p. 1753.

[2] Miller, Joseph L., and Lusk, Frank B.: The Treatment of Arthritis by the Intravenous Injection of Foreign Protein, The Journal A. M. A., June 3, 1916, p. 1756.

[3] Simpson, F. F.: Tr. Am. Gynec. Soc., 1909 and 1915.

Curettement for nonpuerperal acute infections is useless, dangerous, and tends to increase the probability of extension of the disease to the fallopian tubes.

Incision and Drainage of Inflammatory Exudates.—This is a problem for judgment in some individual cases. The indications depend on the probability as to whether it will increase or lessen the resisting forces of the body. The solid inflammatory exudates encountered in puerperal cases should not be incised, as with incision secondary infections usually result, tending to interfere with and delay complete resolution. Absorption of the exudate usually takes place rapidly after an immunity has resulted. Modern ideas of infection and immunity are opposed to incision of acute pelvic exudates except in unusual instances. The presence of pus in moderate quantities may have some value in supplying spontaneous autogenous vaccinations.

In nonpuerperal cases incisions not only do not usually shorten the acute period of the disease, but often result in a persistent suppurating sinus that complicates abdominal sections which may become necessary later.

Our experience has been that we have gradually been lessening the number of patients treated by incision and drainage, until it has become the rule, even in cases with large exudates, to use medical treatment until immunity results, and then to do abdominal section if any operative work is needed.

Prolonged operations and ether anesthesia for incision and drainage of pelvic exudates should be condemned, as they are unnecessary, injure body resistance, and delay immunity.

Occasional cases of extensive suppuration are encountered in which recovery seems impossible or is extremely protracted without surgical interference. These abscesses are often due to anaerobic or secondary colon bacillus infections. Incision and drainage of these large pelvic abscesses must relieve the body of much sepsis and lessen the work of the immunizing bodies.

We believe that incision and drainage should usually be limited to patients with large, superficial, fluctuating abscesses, which can be quickly opened with the aid of local or light gas anesthesia, without much disturbance to the resisting forces of the body.

Abdominal Section for Pelvic Infection.—This is required in exceptional cases of acute pelvic infection. Suppurative and some degenerative fibroid tumors of the uterus require early operation, as in many of these cases immunity does not develop and any delay exhausts the patient. Experience has demonstrated that these cases are relatively good surgical risks.

Inflammatory exudate may produce intestinal obstruction and necessitate surgical interference. Twists of the pedicles of tumors produce conditions much like those found in the fibroids mentioned above, and require early surgery. Acute appendicitis complicating acute pelvic infections should be operated on without delay.

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ABSTRACT OF DISCUSSION

Dr. E. P. Davis, Philadelphia: Dr. Watkins said that the parturient uterus will drain itself. The uterus will do this if you give it a chance. I have in recent years seen very few cases of puerperal septic infection. Why? Because I have made it a rule in hospital and private practice that after every confinement the uterus should be made to contract and stay contracted and left in a normal position. Under this condition the puerperal uterus will drain itself. But if, after a long anesthetization, a difficult forceps extraction, a relaxed uterus is left retroverted and infected that uterus will not drain itself. Furthermore, it makes a difference what is in the septic uterus. If the membranes are within the septic uterus they are of no practical importance whatsoever; placenta tissue is of the greatest importance. Therefore, while I am no friend of the curettage of the puerperal uterus, I believe it to be the duty of every obstetrician to know as nearly as possible whether there be in the uterus placental tissue or membrane. This can be ascertained by an exceedingly gentle exploration with a large blunt curet. Very often under anesthetization of the puerperal uterus hemorrhage occurs. Drainage must not only be maintained but excessive blood loss checked by the introduction of packing of iodoform gauze. This will drain the uterus, stop hemorrhage and bring about the better reaction of the patient. I am in hearty accord with Dr. Watkins' conservative management of these cases and believe that the medical treatment of acute puerperal sepsis is certainly worthy of very careful consideration.

Dr. Thomas S. Cullen, Baltimore: I fully concur with the remarks made by Dr. Davis. In those cases of postpuerperal infection of the uterus where there has been thickening in the broad ligament I have invariably drained the broad ligament from above. A McBurney incision is made just as for an appendix operation. As soon as the peritoneum is reached it is pushed toward the median line and with two fingers I gradually open up the broad ligament as far down as necessary. Sometimes pus is encountered; more frequently just a little watery fluid, and the fingers come in contact with a hard edematous area. I introduce one or two drains into the broad ligament, and as a rule in the course of a few days, or a week or two at the most, the induration has disappeared completely. Where both broad ligaments are involved an incision is made on both sides.

Dr. Florus Fremont Lawrence, Columbus, Ohio: We must remember that pelvic infections are of tubercular, streptococcic, gonococcic and of mixed type. The work that has been done in the saving of lives by opening and promptly draining in intra-abdominal infections renders the question of medical treatment something to be considered seriously. There is no question at all that the average simple infection may self-sterilize (provided the patient lives long enough), and may recover; but if I had an infection in my abdomen, or if one of my family had such an infection, I prefer that some one get in and get busy and do it quickly. The discussion has seemingly been limited to postpartum infection. The subject of pelvic infection is much broader. The "watchful waiting," which may succeed in puerperal infections, will prove disastrous in those originating in the appendix, those of tubercular character, and particularly those due to colon bacillus infection.

Dr. E. Hoeffer McMechan, Cincinnati: A certain point made by Dr. Watkins left me under the impression that etherization under any circumstances, in association with acute infection, is always a very dangerous procedure and almost invariably involved a decrease in the protective immunity. Much work has been done in recent years in connection with ether as a therapeutic agent and this work proves to my mind almost conclusively that ether used in a proper manner not only becomes an invaluable therapeutic agent in the control of infections, but infrequently if ever does any direct harm. Gwathmey of New York found that ether-oil injection was almost a specific prophylactic against postoperative infection by the *Bacillus coli.* I think that the use of liquid ether poured into the abdomen in acute infections is a therapeutic method which will come into general use. Whether the value of the ether in this connection is due entirely to a peculiar antiseptic property, or whether it produces a certain condition which relieves the tension of peritonitis causing the acidosis, it is difficult to determine. When we come to the toxic effects of infection we hold that for the acidosis during infection the prophylactic treatment consists in giving carbohydrates, fruit juices, alkaline waters with Fisher's solution intravenously, and in addition glucose-dextrose solutions. Etherization is used in connection with oxygenization in order to prevent increased acidosis. In order to eliminate the remnants of the anesthetic in the postoperative treatment we use the preoperative treatment of carbohydrates, alkaline waters, fruit juices, etc. We shall come to the conclusion that it is not the etherization that kills the patient but the infection. The etherization conducted as I have outlined will prove an invaluable method because some of these complications cannot be handled under local anesthesia, and in some nitrous oxid is not applicable. Ether anesthetization will satisfy all demands and I hope that the oxygenation may be continued with this method.

Dr. J. H. Carstens, Detroit: If you have an infected uterus with placental tissue and decomposing membranes, does anybody want to say it is a good thing to let it alone? I do not think so; I would take those out. You need not scrape and leave a raw surface and open lymph channels to favor absorption, but you can just wipe it off; take pure phenol (carbolic acid), swab it out, destroying all the germs you can, cauterize the surface to prevent absorption; Nature will generally take care of any septic material in the blood. That is the right way to treat such a case. There is another type of case to which I have repeatedly called attention, a case in which there is no septic material in the uterus; the woman absolutely has no pain; there is no exudate, no swelling; the uterus is in a normal condition. You ask the patient how she is, and she says she feels fine. You find that her temperature, however, is 106 to 107 F. There is a condition I do not understand. Some peculiar micro-organism produces that high fever, some different strain of streptococcus than we know. It is not the ordinary kind. In spite of all the swabbing and cleansing you may do the disease will run its course—four, six and eight weeks—or the patient will die in the meantime. There is also another kind of case, in which pus gets into the tubes and the tubes do not close up, or in which some of the septic material drops into the peritoneum. There is a peritonitis with pus. Perhaps there is a low grade of fever and this will remain as long as the pus is being absorbed. The pus tube often drops into the culdesac. Make an opening in the posterior wall of the vagina, drain the pus out, and the patient will be well in a few days. Still another kind of case is the one in which there has been a severe labor, lacerated cervix, tubes and uterus normal, but the woman has a septic infection from the lacerated cervix. The infection spreads along the lymphatics and broad ligament outside the peritoneum and goes in the direction of least resistance, sometimes running back over the crests of the ilium, sometimes toward Poupart's ligament, sometimes in the region of the appendix. That is another kind of case—extraperitoneal, in the loose cellular tissue. The woman will suffer from sepsis. Make a good opening on the side, going through the vagina; do not get into the peritoneal cavity. Open and drain, and the patient will get well. In this kind of a case you can carry out conservative treatment; others need surgery. It is a question of what kind of a diagnostician you are.

Dr. Channing W. Barrett, Chicago: I agree heartily with most of the points in the conservative treatment of infection of the uterus. If some of the operative processes had not been left out which are also conservative I would have agreed with the author entirely. We agree on the point that the inflammatory process is a conservative process. The clinician said we should operate against inflammation. Later we found out that the inflammatory process was aiding the patient to get well, so we operate only for infection. Dr. Watkins pointed out that the main thing in treatment is to sustain the patient, carry out such treatment as would help the patient to put up a fight against the infection. He, however, left out the fact that we might lessen the degree of infection that the patient was to fight. There are several points along the lines of infection of the pelvis in which we can definitely lessen the amount of infection. Some say that only saprophytes infect old placental tissue. It is not true. The most deadly sort of infection can find cultural mediums in placental substance. I think we should have an empty uterus. There is a vast difference between getting the uterus empty of such material and curetting the wall of the uterus. We would do great harm by curetting the wall of the infected uterus but little harm by taking foreign material out. It may be said that we cannot take foreign material out without doing some harm, but there will be more than a corresponding amount of good come from emptying the uterus. When patients come into the Cook County Hospital with high temperature, we empty the uterus and the temperature drops. If we added curettage to the emptying, we would do harm. With infection outside the uterus we know that the lessening of pus will improve the patient's chances. Pus does not mean just sterile fluid, but fluid swarming with bacteria. If we let that out we lessen the amount of work which the forces fighting the enemy have to do. If we let that out after opening the abdominal cavity and spread infection we do harm, but if we let it out without breaking down the wall which the exudate has formed we will decrease the work which must be done. That is shown by the fact that every case rupturing through the abdominal wall is followed by the death of the patient. There is no tendency to break through the wall if we, through some point, let it out where it will do little harm. In that way we help the patient to put up a fight. We not only increase the fighting power, but decrease the work the fighting forces have to do.

Dr. John B. Deaver, Philadelphia: I see many cases of pelvic infection of the postpuerperal type which Dr. Carstens has discussed. Dr. Carstens did not mention, however, the retroperitoneal infections, formerly diagnosed peritonitis, operated on in practically every instance with fatality; these are the so-called cases of concealed erysipelas, streptococcic infection by the lymphatic routes and retroperitoneal tissues. Infection from the placental site gives rise to phlebitis and to lymphadenitis. We know that the cervix is richly supplied with lymphatics, which is not the case with the body of the uterus; consequently infection of the cervix is much more common than is infection of the body of the uterus. We have two types of abortion. Practically all patients with spontaneous abortion will get well if left alone. Above all do not purge them. Almost certainly, as in appendicitis, purgation means disaster. I cannot agree with Dr. Cullen concerning the small incision. You cannot do much through a McBurney incision in septic infection. If you do anything, open up and look in.

Dr. Thomas Watkins, Chicago: In reply to Dr. Davis I would possibly modify my statement that "the septic uterus will empty itself," to this extent, that when the sepsis is so virulent as to produce muscular paralysis—the patient is so septic that the muscles of expression are paralyzed—the uterus in a case like that will probably not empty itself. Such cases are hopeless when first seen. On the other hand, most of the very ill patients except the ones just mentioned will get well if left alone surgically and supported by intelligent medical treatment. The period of illness may be shortened by removing retained contents, but at the risk of making much worse, or of death. Appendicitis is outside the subject and was mentioned only as a complication. It has been proved that body resistance is much lessened by ether anesthetization. Dr. Carstens must know that pus almost invariably became sterile in the cases under consideration.

Prescribing Proprietaries.—Having a patient, who I thought needed the attention of a "specialist," I sent her to a city doctor. While under his care, she presented seven prescriptions at intervals furnished by this distinguished gentleman. All seven prescriptions were for "proprietary remedies." I asked a friend how he accounted for this, and whether he thought that the doctor was getting a "rake-off" or was in any way financially interested in the combines. His reply was, "He is wealthy and above reproach." How do you account then? "Downright laziness," was his laconic reply. Too indolent to write a prescription.—J. W. Crenshaw, M.D., *Kentucky Med. Jour.*, September, 1915.

INTESTINAL OBSTRUCTION *

JOHN WILLIAM DRAPER, M.D.
Fellow of the American College of Surgeons
NEW YORK

Intestinal obstruction is no longer an abstruse laboratory study, but a many-sided problem of quite as great interest and importance to the abdominal surgeon as to the surgical physiologist.

This is a significant note, bearing on the growing value of surgical physiology to medical development in general and on the immediate importance of the new departments of comparative surgery and medicine. Again, and from another standpoint, the broadening of this subject popularizes in our profession the biologic point of view, clearing the horizon as to the origin, relationship and destiny of man. This emphasizes the geocentric as opposed to the homocentric conception of the universe in which we dwell. It helps to teach the supreme fact that far from being the central pivot of interest and importance, man, like his kindred vertebrates, is relatively unimportant; a link only in the great chain of animal and vegetable life. This has not, in the past, been the accepted doctrine and many of the medical prejudices and stumbling blocks with which we are beset have come from a failure to recognize man's place in nature.

Is it not along these abstract lines of progress that we are led by experimental study to just as important truths as are to be found in the concrete methods of laboratory work? I often think that the one is sometimes lost sight of in the search for the other and that we are apt to lose much from the broader conception of life and its variations from our arbitrary normal in a too austere and exclusive dependence on purely technical facts, particularly those relating to morphology.

I have said that today intestinal obstruction is of quite as much interest to the abdominal surgeon as to the surgical physiologist. What are these points of interest and how has the correlation of interests come about?

There is a certain well-defined clinical syndrome which has been somewhat loosely defined as autointoxication. So often is there a delay or at least an irregularity in the onward course of the intestinal contents that we are forced to concede a probable relationship between cause and effect. The moment this is granted do not our abstract laboratory studies as to the cause of death in obstruction enter into very close applied relationship with this clinical syndrome? The question as to the origin of the toxemia in dogs assumes growing importance if proved to be allied to the etiology of constipation in man. Lynch[1] has conclusively proved by careful study of the results of ileostomy upon numerous human beings that the amazing improvement noticeable in all these cases is due far more to a change in the biochemical conditions than to any mere relief of the intestine from mechanical work or to a drainage of intestine contents with bacteria and their products. These contributions by Lynch on the terminal ileum and colon have greatly enhanced the value of the winter's studies on the stomach and duodenum, and have shown that the hope for future progress in understanding the alimentary canal in health and disease lies in considering it as a whole, rather than as separated by arbitrary morphologic barriers. The researches of Barber[2] on the neuromuscular control are equally significant.

No truer words relating to the alimentary canal have been written than by the surgical physiologist Sweet,[3] who says, in concluding one of the most scholarly papers that has yet appeared on intestinal obstruction:

> We are aware that surgery already possesses a plethora of theories; but as long as a theory is given its proper valuation as a theory, as a working hypothesis, and is not accepted until supported by such an array of facts that the theory has itself become a fact, these theories offer the only means of progress in a field where so little is known.

Feeding Experiments.—For the past four years we have been interested in studying the effect on obstruction toxemia of feeding jejunal and ileal homologous epithelial cells to duodenally obstructed dogs. Two reports have been made, both suggestive that some improvement in the obstructed animals resulted. The series observed by us in the past year, however, and under like conditions fails to show any prolongation of life from the treatment. In fact the average duration of life was less than in the control animals, thus casting doubt on the further value of this working hypothesis. The result in this form of therapy is therefore still in abeyance.

TABLE 1.—DUODENALLY OBSTRUCTED DOGS, FED JEJUNAL AND ILEAC MUCOSA; 1916 SERIES

Dog Number	Average Pulse	Duration of Life, Hours
110	133	119
111	133	46.30
124	178	69.30
136	169	68.30
137	161	90.30
138	170	142
161	183	72
162	188	70
216	175	47.30
217	177	119.30
Average	1,667 166 plus	845 84½

TABLE 2.—DUODENALLY OBSTRUCTED DOGS

	1913 Series			1916, Mucosa Fed
	Mucosa Fed	Emulsion Fed	Controls	
Average pulse	156	157.4	156.3	166.7
Duration of life, hours	164.8	104.4	88.5	84.5

Duration of Life in Esophageal and Gastric Occlusion.—H. H. Janeway[4] in 1910 noted that esophageal obstruction often resulted in death without discoverable cause. Of five dogs obstructed by us transpleurally in 1916 all died of empyema within three days, thus destroying our statistics in this field.

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* From the Laboratory of Surgical Research, New York University.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Lynch and Draper: Developmental Reconstruction of the Colon Based on Surgical Physiology, Ann. Surg., 1915, lxi, 166; The Infected Colon and Its Surgery, Med. Rec., New York, 1915, lxxxvii, 983; Anastalsis and Therapy of the Colon, Am. Jour. Med. Sc., 1914, cxlviii, 828. Lynch, Draper and Lyon: Contribution to the Surgical Physiology of the Colon, Ann. Surg., 1915, lxii, 441. The foregoing articles are contained in Surgical Pathological Physiology, Volume I, New York University. Draper, J. W.: Studies in Intestinal Obstruction, The Journal A. M. A., Sept. 26, 1914, p. 1079. Lynch and Draper: The Protective or Esoteric Symptoms of the Alimentary Canal, Virginia Med. Semi-Month., 1916, xx, 601.

[2] Barber, W. Howard: Dilatation of the Duodenum, Ann. Surg., 1915, lxii, 433; Surgical Pathological Physiology, Volume I, New York University.

[3] Sweet: Intestinal Obstruction, Ann. Surg., lxiii, 720.

[4] Personal communication to the author.

On three dogs obstructed at different levels in the stomach, the following observations were made: average duration of life, 116 hours; average pulse, 187. Clinically, these dogs differed widely from those obstructed in the duodenum. There was no spasticity of the hind legs. Vomiting was rare. All signs pointed to a less acute intoxication. Nevertheless, they died. Our previous experiments have proved that dehydration is not a factor of any more importance in this than in toxemias due to other causes, and it is hard to understand how the duodenum can stand in causative relation, being aboral to the obstruction. Still for all it may so stand. The fact that obstruction anywhere aboral to the pharynx causes death is significant. Eisberg has noted a ratio between gastro-esophageal and ileocolonic obstructions in relation to duodenal which we hope to report on later. If confirmed this ratio will support our contention that the beginning and end of the canal have many points in common and that toxicity varies inversely with the digestive power.

Effects of Introducing into the Peritoneal Cavity the Scraped Epithelium of Obstructed and Nonobstructed Dogs.—The object of this was to determine if possible what change if any had taken place in the epithelium as regards toxicity, or whether any toxicity could be ascribed to the same cells under different conditions. From cultures of the mucosa introduced in three cases only colon organisms were found. Out of a series of ten dogs eight died of peritonitis, while two showed symptoms of duodenal obstruction, namely, hemorrhage from the rectum and tremors. It is to be noted that the first is not a common symptom of duodenal obstruction, but has been observed by us to occur. It is undoubtedly due to congestion of the rectum and colon from the elimination of toxins. The results of this series are absolutely inconclusive, but an improvement in the technic might help. We incline to the belief from these studies that the toxin is not in the cell itself, but is a product of its abnormal activity.

Isolation of Intestinal Doubly Occluded Loop with Reconstruction of Alimentary Canal and Curettage of Epithelium, Having Cells within the Loop.—In four out of five cases rupture occurred on the antimesenteric border. There was great distention. In two cases the loops were black, due either to gangrene or to autolysis. The average duration of life was forty-eight hours. The peritonitis was of the most virulent type. There was much trouble with hemorrhage after the curettage. Whipple's[5] technic of removal by sodium fluorid is evidently preferable. The result of this series was negative.

Thiry-Vella Fistulas, a Single Occluded Duodenal Loop, Drained Externally; Reconstruction of Canal.—It is well known that animals so treated do not prosper. After four or five days they show marked clinical signs of toxemia and a loss of weight. They usually die soon after. If curetted, these signs do not appear. This is in accord with most other observers, but at variance with Murphy and Brody's findings.

From six dogs, 1,000 c.c. of loop fluid was collected as follows: double duodenojejunal occlusion and invagination of ends; loops about 25 cm. long. There was no difference in the rate of fluid accumulating in the loops, whether the continuity of the intestine were reconstructed or not, or whether gastro-enterostomy were done. In all three types we had loops in which no fluid accumulated. We are at a loss to explain why. We did not interfere with the venous return.

Attempts to save the animal's life by excision of the loop after the symptoms had developed and where reconstruction of canal had been done was futile except in one case. A proteose was not found in the 1,000 c.c. referred to above. Perhaps this was due to the fact that we used infusorial earth to hasten the alcoholic precipitation. According to Whipple's technic it should have stood for twelve weeks. With this exception the method used was the same as his. The effect of injecting the final precipitate into one dog intravenously was very marked prostration, temperature of 105, no vomiting, no diarrhea, no spasticity, no convulsions or tremors. There was recovery after twelve hours.

We have noted the great difficulty in saving these animals after a doubly occluded duodenojejunal loop has been left in for more than thirty-six hours or often for less time. This we have assumed to be due to an impairment of the functional power of the liver based on the studies of Schultz and the writer. They noted a diminution in the camphor-glycuronic pairing power in the liver of duodenally obstructed dogs and assumed that this might also indicate decreased power to detoxicate autogenous duodenal toxins. In such acute conditions as those under consideration there is no time for morphologic changes to show and the change in amount of liver fat is not a reliable index of the organ's protective efficiency.

TABLE 3.—NITROGEN RETENTION AND ALKALI RESERVE IN DOGS SUBJECTED TO INTESTINAL OBSTRUCTION *

Normals	Nonprotein Nitrogen, Mg. per 100 C.c.	Creatinin, Mg. per 100 C.c.	Alkali Reserve, per Cent.
No. 280	51.3	0.1	28
291	44.4	0.1	50
292	43.3	0.1	48
308	29.0	0.65	43
307	39.0	0.8	38
(Tumor of Spleen) (Encapsulated hematoma)			
Doubly obstructed duodenojejunal excluded loop:			
Twenty-four hours after operation:			
No. 281	52.3	...	52
298	47.3	0.1	42
299	41.4	0.1	61
Forty-eight hours after operation:			
No. 298	63.1	0.3	60
299	82.8	0.55	48
304	85.0	1.00	57
305	101.0	2.00	..

* As far as we have gone three things are noticeable: First, a rise in nonprotein nitrogen; second, a rise in creatinin; third, it seems to grow more alkaline. These changes seem most noticeable after forty-eight hours.

Frazier and Peet[6] have introduced a most ingenious method to study this point, namely, an Eck fistula. It is more accurate and less cumbersome than Tollen's glycuronic technic.

Whipple in a comprehensive study of the subject has isolated a proteose from such doubly occluded loops. This he considers to be the direct toxin from the mucosa and in this supports Roger, who some years since showed the presence of proteose.

Sweet, while agreeing that the toxin undoubtedly originates in the cells of the duodenum, points out that an acceptance of the proteose hypothesis of Roger and Whipple entails a modification of our present understanding of protein digestion and gives strong proof of the toxic activity of the pancreas in intestinal obstruction. He points out the clinical resemblance between acute pancreatitis and duodenal obstruction.

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[5] Whipple and Stone: Intestinal Obstruction: Study of a Toxic Substance, Jour. Exper. Med., 1913, xvii, 286.

[6] Frazier and Peet: Ann. Surg., June, 1916.

CONCLUSIONS

The cause of death in intestinal obstruction is still unknown, but all recent studies point to aberrant activity of the duodenal and probably pancreatic cells. The old hypothesis that the toxin is of bacterial or food decomposition origin may be looked on as discarded. Dehydration is of no greater importance in this than in other toxemias.

There is an important ratio between the toxicity of the intestinal epithelium and its digestive power.

The intricate syndrome autotoxemia occurring in man will be better understood when we know the cause of death in duodenally obstructed dogs.

I am indebted to Dr. Gettler of the department of chemistry, New York University, for Table 3, which appears to show some interesting and constant changes in the blood of duodenally obstructed animals.

ABSTRACT OF DISCUSSION

Dr. H. D. Johnson, New York: When the intestine is obstructed, death results from either water starvation, food starvation, or both, or from toxic absorption. In my clinical work I have tried to differentiate these classes of cases and to treat them accordingly. I have thought out some death lines. I had a case of obstruction in the stomach at the pyloric end. There was regurgitation of water and no toxic symptoms whatever so far as I could see. I have not seen the high obstruction of which Dr. Draper speaks. The nearest approach to it was in a case in which there was obstruction at about 4 feet down the jejunum, in which the symptoms were those of acute toxemia as well as water starvation. It is well to remember that these patients not only do not take water, but the water which they have is not utilized. The toxic symptoms are less acute as you get away from the pylorus and into the region of the large intestine, where the toxic death line is very long delayed. The point I would bring out is to provide drainage. If you will make an end to side anastomosis and put in a rubber tube in these cases needing daily drainage you will produce a water-tight bowel anastomosis. If you have not the proper tube, cut off a glove finger and make a water-tight joint between the glove finger and the intestine through which you may irrigate the bowel and through which gas may escape. In one case of high obstruction I kept the patient alive for an indefinite period, feeding by rectum and through the anastomosis. The tube should be dropped straight into the bowel so that there will be no angulation. If normal action of the bowel is restored, either by nature, or surgery, that fistula will not stay open.

Dr. C. Hugh McKenna, Chicago: About seven years ago, when Dr. Draper first brought out his work on acute intestinal obstruction, Dr. Bloodgood of Baltimore directed my attention to this work because I was somewhat interested in the clinical phase of the subject. Having had one or two interesting cases in which I had performed enterostomy, I started some experimental work along the line suggested by Dr. Draper, and since that time we have operated successfully in eight human cases of acute obstruction by performing a jejunostomy, preferably in the upper part of the jejunum. These patients are operated on under local anesthesia. The jejunum can be picked up without unnecessary manipulation of the gut, which is important, and an enterostomy is performed by attaching the intestine to the skin alone by Lembert sutures, making it for the time being hermetically sealed so that none of the secretions can run back into the peritoneal cavity. It has been interesting to note that at the time of the resection of the bowel or closure of the fistula five or six weeks later, a small tip of gut was pulled off at right angles to the jejunum, so that for two weeks preceding the operation for closure practically the entire intestinal content continued down with very little passing out on the abdomen. The welfare of the patient seems to be in proportion to the position of the opening in the small intestine, whether high up or low down, and the presence and amount of pancreatic secretion which is poured out on the skin of the abdomen is indicative of a high enterostomy. Every abdominal surgeon will know this to be true. In other words, the question of getting an enterostomy high up in the small intestine is the all-important part of the operation, just as has been proved by Dr. Draper and other men doing this work. In our experimental work the frequency of death was in proportion to the position at which the obstruction was caused. From the work of Whipple and others, I am inclined to believe that the fatal factor in ileus is due to a normal physiologic intra-enteric secretion that comes probably from the duodenum and which, when the peristalsis of the intestine is interfered with sufficiently to block up this secretion, gives us one of the most powerful toxins, which condition if not corrected produces death. To those who claim that we may gain results by placing a tube down through the stomach and into the duodenum for lavage, I wish to say that my clinical experience has taught me that there must be a permanent drainage until the normal tone of the duodenum and upper intestinal tract has been entirely restored.

Dr. John William Draper, New York: It is very encouraging to those who spend a great deal of time in abstract studies to feel that the results will be of use in applied surgery. Dr. Johnson referred to water starvation. It was with the hypothesis of water deprivation in relation to this toxemia that we performed the following experiments. We took a series of dogs and gave them pilocarpin in very large doses. We then suddenly obstructed a similar number. The former lived; the latter died. All tissues were then excised. I cannot give the exact figures, but there was less than half the amount of water in the tissues of the pilocarpinized animals than in the animals dead with intestinal obstruction. Although twice as dry, the pilocarpinized animals were clinically normal and healthy in every respect. It is well known that with an increased water content, with dilution of the toxemia, any toxic animal will live longer. Dr. McKenna spoke of the desirability of draining away the material which has accumulated above the obstruction. This is a subject in which I am much interested, but of which we know little. I am, however, quite familiar with his work. Statistics collected at the Johns Hopkins by McGlannan would seem to indicate that better results were obtained from such drainage, but it is about "fifty-fifty." It is quite conceivable that this material which everybody knows is very toxic may be of great value as a detoxinating agent for the host itself, although toxic to other individuals.

The Quantity of Light.—The quantity and intensity of light may be considered in relation to the special place of work and to the surface on which the work is performed. The quantity of light will depend on the source and the kind of light which is let into the factory, and the adequacy of light will also depend on the kind of material on which the work is performed. Mr. Wilson, who has made the light investigations for the factory department of England, distinguishes two kinds of work, which he names respectively inspective and detective, according as the work entails continuous application of the eye to one point or small area, or consists merely in keeping general watch over a given process, actual labor being demanded only when some fault occurs. "The making up of clothing, handkerchiefs and typesetting," he says, "belong to the inspective class; while cotton and flax spinning and preparing belong to the detective class." The work of a watchmaker, jeweler, or draughtsman requires very much more light than the work of clothing or any needle workers. The work of a hand typesetter, for instance, may also be divided into several kinds. It requires more light to decipher some of the manuscripts which the typesetters have to set up, and certainly much more light than that which is necessary on the typestick itself. Proofreading may require more light than any of those mentioned.—George M. Price, *The Modern Factory.*

THE FRACTIONAL EXAMINATION OF THE STOMACH CONTENTS*

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SAN FRANCISCO

Today the accepted method of obtaining the contents of the stomach is by means of the stomach tube, a rubber tube usually of 34 F. caliber and 80 cm. long, with bulb and funnel attached. It is a rather unpleasant event to the patient to have the tube in the throat, and, because of the unpleasantness, it cannot remain there any length of time. It is almost ideal for removing the contents of the stomach and for lavage. Also, because of its size and thickness, it can be used when the patient is decidedly unwilling. For diagnostic purposes this large tube has its limitations. After test meals it is used once, the accepted procedure being the removal of the stomach contents forty-five minutes after ingestion. By measuring the volume of the obtained contents we assume we know the amount of meal and secretion still remaining in the stomach. By titration we learn the concentration of acid present. There are well founded objections to this method. In the first place we may not obtain all of the stomach contents and, second, our chemical findings represent only one phase of the digestion. Consequently we dare not make definite statements, from this one phase, regarding the behavior of the stomach.

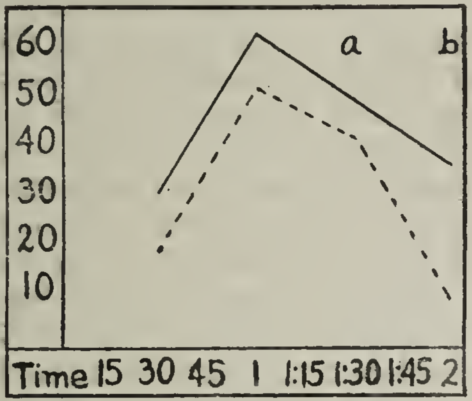

Chart 1.—Normal curve. Digestion complete in two hours. O. P. D. 17312. *A*, phenolsulphonephthalein +; *b*, secretion scanty, phenolsulphonephthalein absent. In the charts the solid line indicates the total and the broken line, free hydrochloric acid.

Because of the objections raised regarding this unsatisfactory method of learning what the stomach is doing, many variations have been adopted from time to time to offset them. Some diagnosticians withhold opinion until several examinations have been made. One method is to remove the contents at varying periods following the test meal, on successive days. This procedure is less objectionable when the patient is in a hospital; but to have an ambulatory case return day after day is far from ideal.

Our object is to obtain all possible information, and, at the same time, cause the least amount of discomfort, loss of time and secondary injury to the patient. The regular stomach tube does not answer these requirements.

Recent work on the physiology of the stomach has given us more light on the normal, and better understanding of the pathologic. We have been taught, from clinical findings, that hydrochloric acid is found in a normal stomach at about 0.2 per cent. concentration, and that anything above this is to be considered as hyperchlorhydria. Yet the careful work of Boldyreff[1] shows the true secretion from the stomach glands to be quite constant at 0.5 per cent. hydrochloric acid concentration. Why we do not find this high acidity normally, Boldyreff explains through a reflux of duodenal contents whose alkalinity quickly reduces the excess of acid. Cannon[2] has shown the presence of a reflex at the pylorus which allows the pylorus to open and close, depending on the presence of free hydrochloric acid on the gastric or duodenal side. Then there can be a nerve control over the stomach secretion governed by an optimum acid concentration point, as suggested by Mintz.[3] This point can vary with the individual. A quantity of food is introduced into the stomach. The gastric glands have been previously stimulated through the taste (Pawlow,[4] Carlson[5]). The food dilutes the secretion, while the contained protein combines with the acid. These two factors diminish the concentration of free hydrochloric acid. As long as stimulation is present, the secretion of gastric juice continues. The protein present increases the rate of secretion (McClendon[6]). Furthermore, the faster the secretion is produced, the higher is the concentration (Carlson[7]). Should the concentration exceed the high point for the particular stomach, a reflux of duodenal contents takes place to lower the acidity. When no food is in the stomach the stimulation is lacking, and secretion ceases or is very small in amount. Through a relaxed pylorus, duodenal contents may enter and keep the original high acid secretion down to the figures found in the contents of the resting stomach (Boas, 1889-1890, Boldyreff[8]).

The nerve control may be deranged and cause various pathologic findings. Inhibitory influences may be lacking and the secretion may continue after all food has left the stomach, or a derangement may take place which causes a failure in the response to the higher acid concentration, and the acidity approaches that of the pure juice. This high concentration may be reached early in the digestion, for instance, near the end of the first hour, and continue. Or the highest point may not be reached for hours after the meal has been ingested.

The evidence obtained by physiologic workers, as Boldyreff,[1] and clinical observers, as Carlson,[5] shows the pure secretion from the gastric glands to contain 0.5 per cent. hydrochloric acid. On entrance into the stomach of 400 c.c. of water and masticated bread, as represented in an Ewald meal, it is readily seen how low the acid concentration will be at the beginning of digestion, through simple dilution. As digestion continues, we have two factors which tend to increase the acidity; first, the highly acid secretion from the gastric glands, and, second, the loss of certain amounts of stomach contents by passage of the chyme, at intervals, into the

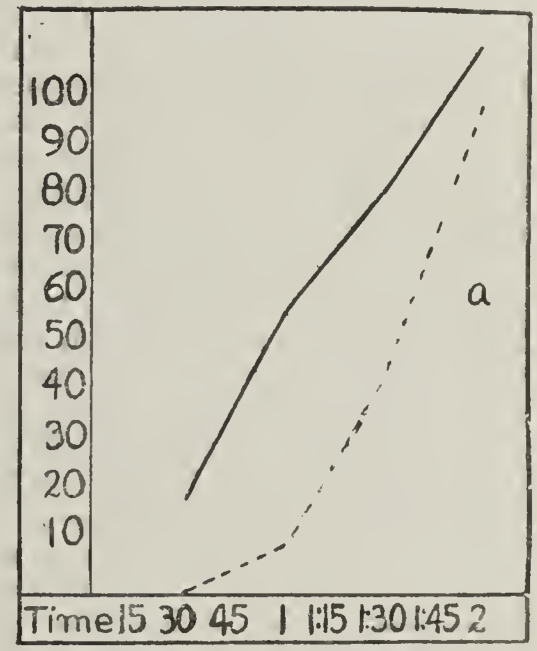

Chart 2.—Continuous secretion. Duodenal ulcer. O. P. D. 18135. Free hydrochloric acid absent in thirty minutes. *A*, phenolsulphonephthalein +.

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* From the University of California Medical Clinic.

[1] Boldyreff: Quart. Jour. Exper. Physiol., 1914, viii, 1.

[2] Cannon: Am. Jour. Physiol., 1907, xx, 283.

[3] Mintz: Russk. Vrach., 1915, xiv, No. 14.

[4] Pawlow: The Work of the Digestive Gland, London, 1910.

[5] Carlson: Am. Jour. Physiol., 1915, xxxvi, 50.

[6] McClendon: Am. Jour. Phys., 1915, xxxviii, 191.

[7] Carlson: Am. Jour. Physiol., 1915, xxxviii, 248.

[8] Boldyreff: Ergebn. d. Physiol., 1911, xi, 121.

intestine. Toward the end of digestion the acidity should decrease, owing to a diminishing activity of the gastric glands and reflux of alkaline duodenal contents.

The gastric contents then should show an ever changing picture of acidity, rising from very low concentration to an apex which should be constant for each individual stomach, and probably regulated by a complicated reflex mechanism, finally descending to a low acidity at the completion of digestion. Such being the case, what information is obtained of the patient's condition, if we know that at forty-five minutes after an Ewald meal the free hydrochloric acid is at 40? To know our patient we should have a graphic picture of the stomach activity during the digestion period. This can be obtained by plotting the concentration of acid at certain definite periods of time.

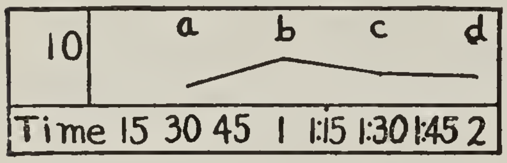

Chart 3.—Achylia; phenolsulphonephthalein showing rapid motility. O. P. D. 13518. Free hydrochloric acid absent. *A*, mucus + + +; *b*, phenolsulphonephthalein +, mucus + + +; *c*, phenolsulphonephthalein absent, mucus +; *d*, mucus +.

It becomes necessary to obtain and examine samples of the stomach contents at regular short intervals during the process of digestion. Rehfuss[9] has called our attention to the use of the duodenal tube for this purpose. He modified the tube somewhat, making a heavy metal tip with large openings to lessen the clogging of the openings with food. The rubber tube is No. 8 F., easily swallowed and retained, with practically no discomfort, over a period of hours. Samples of the stomach contents can be removed every five, ten or fifteen minutes, and the chemical tests made and charted. On coordinate paper, curves can be plotted which show graphically the ever changing picture of the stomach content. This method opens up a wealth of possibilities. We can study the variations in acidity in the normal stomach from beginning to end of digestion, note the entrance of duodenal contents, and follow the secretory activity of the abnormal stomach.

In 1912, Ehrenreich[10] published an article on the examination of the stomach activity over a period of hours by means of a stomach tube remaining in position during that time. He had previously used successive days, introducing the ordinary tube ten, twenty and thirty minutes later each day. This had also been done by Ewald and Boas in 1885, Reichman in 1885, Rosenheim in 1888, Jackson in 1890, and Schule in 1895. The results were unsatisfactory in that they gave no real essential knowledge. . From Ehrmann,[11] Ehrenreich received the idea of using a long thin Nealton catheter, which Ehrmann used for duodenal feeding. Later Ehrenreich discovered that Gross,[12] in 1893, had used a similar small tube in duodenal work and recommended it for diagnostic use in stomach examinations, but did not use it for that purpose.

Ehrenreich gave the Ewald meal because of its extensive use, then introduced the small tube which remained during the test and, by means of a Politzer balloon and glass connecting tube, aspirated small quantities of the stomach contents at definite intervals. He tested the acids and ferments of trypsin and pepsin. Curves were plotted showing the increase and decrease of the acid concentration. The apex of his curves was not always at sixty minutes. In healthy stomachs this was frequently true, but with pathologic stomachs the high point was not reached sometimes until the two hour or three hour period. These facts could not be discovered with the older method, and he strongly recommended the adoption of this technic in stomach clinics. He found trypsin present regularly entering the stomach during digestion, and with the increase of trypsin a decrease of hydrochloric acid. Mucus also played a part in lowering the acid content. The presence of trypsin shows the duodenal contents to be normally regurgitated back into the stomach, and plays a definite part in the acid concentration.

Skaller,[13] after reviewing the various methods of stomach examination and their limitations, described a method of using a duodenal tube 2 mm. in diameter, with a metal tip, which he left in the stomach a distance of 50 cm. from the teeth. He removed a few cubic centimeters of stomach contents every five minutes, and tested the acid concentration. He plotted curves of acidity over a period of sixty minutes.

Skaller's qualifications for a test meal are: (1) a homogeneous mass, liquid; (2) light, as is the Ewald meal, and (3) stimulating to the gastric secretion. The one article that answers these requirements is Liebig's meat extract in water. He gave 200 c.c. of water and 5 gm. of meat extract. The amount remaining in the stomach at the end of the hour is removed and measured. Skaller does not consider this breakfast a substitute for the Ewald test meal, but finds it an admirable substitute for studying the secretory power of the stomach. His findings show the fallacy of a single stomach test. His results parallel Pawlow's findings with the blind pouch. He does not mention Ehrenreich's work.

In July, 1914, Skaller[14] demonstrated the use of his small tube before the Berlin Medical Society. He mentions the work of Ehrenreich, but considers the Ewald meal and milk as a test meal not ideal. Skaller used a small tube with a heavy metal tip, made of tantalum and heavy enough to reach and stay at the bottom of the stomach. He again emphasizes the meat extract as ideal, answering all requirements. By being colored, this meal can be used to determine when the stomach is empty, by the absence of the meal if the color is properly checked up. He recommends using 25 drops of phenolphthalein solution to determine the motility. Other advantages of the tube are the determining the presence of mucus and quantitative estimates of the stomach ferments. Skaller does not discredit the old method of examination, but considers the fractional method a decided refinement and within the range of the busy practitioner.

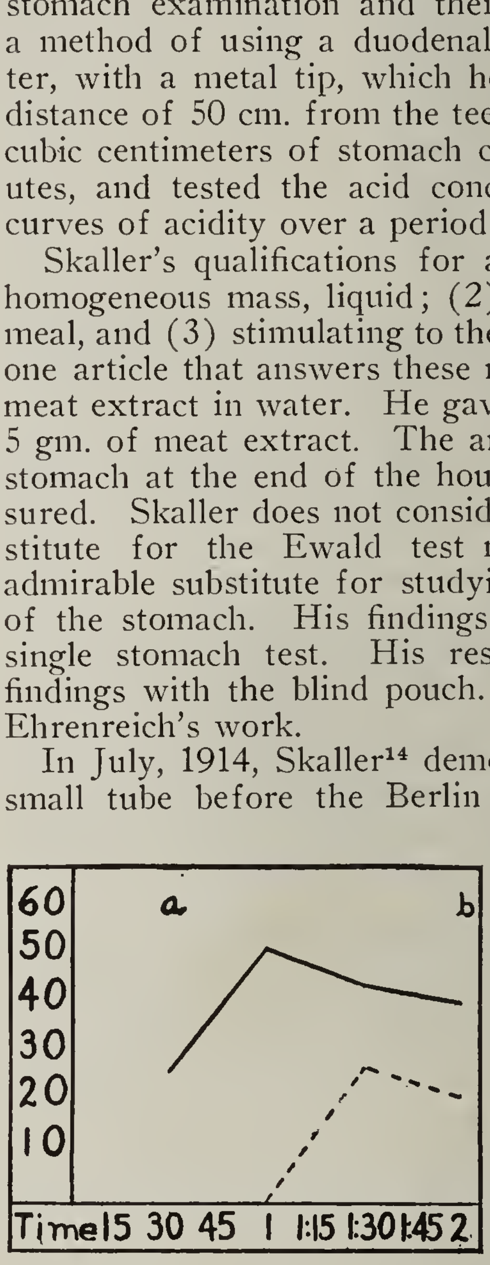

Chart 4.—Late appearance of hydrochloric acid, with total acid curve of normal shape. O. P. D. 20085. Suspected gastric malignancy. *A*, mucus + + +; *b*, phenolsulphonephthalein +.

Regarding the use of the small tube for the stomach examination, we have the following information: Gross,[12] in 1893, mentioned the possible use of a small tube for stomach investigation. Then Ehrenreich,[10] in 1912, received the idea from Ehrmann,[11] and put to a practical test a Nealton catheter. Skaller,[13] in 1913, used a very small duodenal tube of 2 mm. diameter with a metal tip. Rehfuss,[9] in June, 1914, described his tube, the idea of which was suggested by Palefski. Palefski used a soft rubber tube for duodenal work of No. 8 F. caliber, with a heavy metal tip weighing 105 grains and containing numerous perforations. Rehfuss altered the tip by making slots of equal diameter to the rubber tube, which was No. 8 F. His tip weighed from 90 to 120 grains. At about the same time Skaller,[14] in July, 1914, in an address, describes his tube, very similar to the Rehfuss tube. He emphasizes the weight of the tip as very important for remaining at the bottom of the stomach. Apparently his tip was perforated with small holes. Other workers with the small tube and fractional examination of the stomach are Bondi,[15] Sybrandy,[16] Lanza,[17] and Egan.[18] Egan used the small tube and fractional examination in conjunction with a barium meal and the Roentgen ray.

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[9] Rehfuss: Am. Jour. Med. Sc., June, 1914.

[10] Ehrenreich: Ztschr. f. klin. Med., 1912, lxxv, 231.

[11] Ehrmann: Berl. klin. Wchnschr., 1911, No. 49, 2226.

[12] Gross: New York Med. Jour., Nov. 18, 1893.

[13] Skaller: Berl. klin. Wchnschr., Nov. 24, 1913.

[14] Skaller: Berl. klin. Wchnschr., Feb. 1, 1915, p. 105.

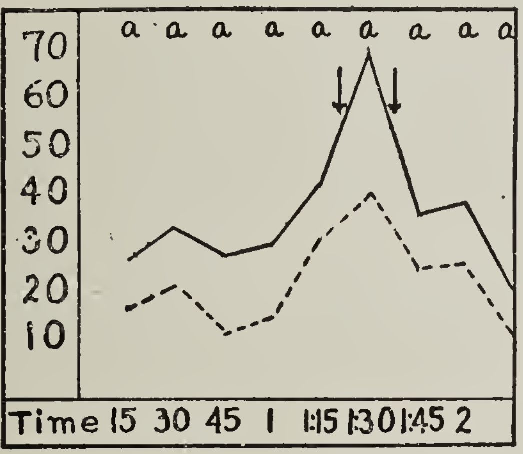

Chart 5.—Mr. G. Pain one and one-half hours after eating. Gastro-enterostomy two years previous for gastric ulcer. Bile present throughout; *a*, bile +. Arrows indicate burning pain.

Various test meals have been used in determining the gastric function, such as the Ewald meal of two slices of bread and two glasses of water; 200 c.c. of milk; the whites of two or three eggs; beef extract, 5 c.c., in 200 c.c. of water, and a dry test meal. These are all simple meals, easy to obtain, have an abundance of fluid, and save the dry meal, all of which are qualifications for a satisfactory test meal. Ehrenreich[10] used various test meals and found striking differences in his results. For instance, with the egg white meal he found the hydrochloric acid curve greatly changed and diminished and, in some cases, absent. With the milk meal, his curves became extremely high, especially the total acid, showing an increased acid content. Van Spanje[19] advocates a dry test meal in order to determine the actual secretion. He gives a triscuit with no fluid; then what fluid is recovered is the pure gastric product. Skaller[20] uses Liebig's beef extract and considers it ideal, as it answers all the requirements of an Ewald meal, contains nothing to clog the tube, and is a marked stimulant to the appetite through its tastiness. Mintz[21] has also worked with meat extract meals. Rosenheim[22] finds beef extract very reliable, but prefers the Ewald meal for all practical purposes.

We know that the extractives of meat are not foods. It is true they stimulate pleasant sensations, but they are otherwise toxins to be eliminated as quickly as possible. Their use in stomach work will call forth an appetite secretion, but does this give us a true picture of normal digestion? The Ewald meal is perfectly satisfactory in every way save in the possibility of particles stopping the tube and in its low protein content. When the patient follows instructions and chews each mouthful well, the trouble with clogging is fairly eliminated. This is especially true when the tip with large slit openings is used. The universal use of the same test meal is necessary if we would accomplish uniform results. Results are worthless for interpretation unless all factors are the same. Years of experience have shown the value of the Ewald meal with the large tube. Consequently it is to be strongly recommended as the test meal in making the fractional examination.

To determine gastric motility, certain additions have been made to the test meal by various workers at various times. Boas and Kemmerling[23] used chlorophyl. The yellow color of the meat extract has been used.[14] Skaller found that chlorophyl disturbed the acid determination. He used phenolphthalein, adding 25 drops to the water or meat extract and testing the samples for the presence of phthalein by adding strong alkali. The phthalein is quite harmless and does not interfere with any other color reaction. When the test meal has entirely left the stomach, the phthalein will have left also. This gives us a definite reaction for determining the emptying power of the stomach.

The first part of our work on fractional examination of the stomach function was done with a small duodenal tube, of the Einhorn type, which had a perforated metal tip. Occasionally difficulty was encountered in obtaining samples of the stomach content through plugging of the perforations in the metal tip. This was especially true when thick, ropy mucus was present. In due time a Rehfuss tube was received and the samples were obtained with greater ease, because of the wide slits in the metal tip in place of the small perforations. Yet even with the wide openings, plugging will occur in rare cases.

In order to obtain a fairly accurate picture of the chemical and physical activity of the stomach, over a definite digestion period, with a minimum loss of time and inconvenience to both patient and physician, we have found the following procedure to be very serviceable: On an empty stomach, the patient is given a test breakfast consisting of two pieces of bread, with no crust, and two glasses of water to which 25 drops of phenolphthalein (1 per cent.) have been added. The patient chews the bread fine and takes the water along with the bread. Before thirty minutes have elapsed the tube is passed. This is done by having the patient open his mouth and say "ah." The metal tip is dropped behind the tongue, and the patient swallows. To prevent gagging and retching, the patient takes deep breaths. When this is done the tube can be passed to the 50 cm. mark, with hardly an unpleasant sensation to the patient. When down, the tube is kept to one side of the throat and causes very little annoyance. During this period the patient can talk, read or devote his attention toward any minor employment, to pass the time. Saliva is frequently abundant. The patient is instructed to spit this out, not to swallow it. Ehrenreich[10] found that patients would have from 50 to 100 c.c. of saliva.

Samples of the stomach contents are removed in a half hour, one hour, one and one-half and two hours after starting the breakfast. A "Triumph" syringe is used to exert suction; about 3 to 5 c.c. of contents are withdrawn; then several cubic centimeters of air are blown back by the syringe through the tube to prevent an error from unequal mixing of different samples. The syringe is cleaned each time after a sample has been obtained. The tube is easily removed. When the metal tip reaches the pharynx, some resistance is met. The patient is instructed to swallow, and moderate traction is exerted to cause the tip to slip into the mouth. Of each sample, 1 c.c., unfiltered, is titrated with hundredth normal sodium hydroxid, the Topfer method for determining hydrochloric acid and total acidity being used. The results are charted on coordinate paper, and lines connecting the points give us a graphic picture of the stomach contents during digestion. By adding alkali to the two hour sample the presence or absence of phenolphthalein is shown, which gives us information regarding the motor power of the stomach. The presence of phenolphthalein indicates the presence of the original meal still in the stomach. It has been shown by Seidel[24] that unfiltered stomach contents give more accurate acid results, unless mucus is present. In the latter case, the stomach contents should be filtered.

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[15] Bondi: Arch. f. Verdauungskr., 1913, xix, 692.
[16] Sybrandy: Nederl. Tijdschr. v. Geneesk., 1915, lx, No. 18.
[17] Lanza: Riforma med., Naples, 1915, xxxi, No. 20.
[18] Egan: Arch. f. Verdauungskr., 1915, xxi, 479.
[19] Van Spanje: Nederl. Tijdschr. v. Geneesk., 1913, lviii, No. 4.
[20] Skaller (Footnotes 13 and 14).
[21] Mintz: Deutsch. Arch. f. klin. Med., 1912, civ, Nos. 5 and 6.
[22] Rosenheim: Med. Klin., 1915, xi, No. 35.
[23] Boas: Deutsch. med. Wchnschr., 1912, xxxviii, No. 10. Kemmerling: Arch. f. Verdauungskr., 1914, xx, 49.

We have, then, a procedure which gives us information on the digestive cycle, very simple in execution. It is a method which can be handled perfectly by a nurse and not too exacting in its demands on the patient. It is an examination to be used not only in specially selected cases, but also as a routine in all gastric complaints. It can be used by the general practitioner as easily as in the teaching hospitals.

Further reports will be necessary from many careful workers, for the more accurate interpretation of the graphic curves. A great many cases must be examined, and the latter findings at operation, necropsy, etc., must be added to prove the real value of our results. If one looks over a large number of curves, certain features stand out prominently. The healthy stomach usually gives a curve that rises to its apex in one hour and descends to a low point in two hours (Chart 1). The hydrochloric acid curve is symmetrical with the total acid and usually within 20 of the total concentration. A continuous secretion curve (Chart 2) rises steadily to two hours and, if followed longer is found to stay high, making a plateau over a long period. In pure achylia, the constant absence of free hydrochloric acid is found, while the total acid curve holds a fairly level course (Chart 3). Other cases are found that have no free hydrochloric acid at certain periods, yet free acid is present at others (Chart 4). In view of the fact that many statements have been made regarding the pain in gastric ulcer being due to high concentration of acid, it is interesting to note that in a case of gastric ulcer two years following a gastro-enterostomy, pain was felt one and one half hours after eating, readily relieved by alkalies. The curve of acidity (Chart 5) shows not only no hyperacidity but barely the normal concentration. The late apex was reached at the time of pain, and relief was experienced with the fall of acidity.

It is hoped this summary of later work on stomach examination will help to bring this very satisfactory fractional method of investigation more strongly to the attention of physicians, that it may be adopted universally, resulting in more accurate diagnosis.

240 Stockton Street.

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[24] Seidel: Arch. f. Verdauungskr., 1915, xxi, No. 3.

TRICHINOSIS

IMMEDIATE RESULT FOLLOWING INTRAVENOUS INJECTION OF NEOSALVARSAN

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AND
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In the past it has been doubtful whether any direct measures have had beneficial influence in arresting the trichinae, after the muscles have once been invaded. It has been simply a Verdun conflict of the mastery between the strength of the patient and the life of the trichinae, securely entrenched in nearly every tissue, even to spinal fluid, as was first demonstrated by Van Cott and Lintz,[1] and later confirmed by Bloch[2] and Elliott.[3]

H. R., German, aged 33, entered St. Joseph's Hospital, July 30, 1915. While watchman for a cold storage plant, he had eaten for some days undercooked ham. Before entering St. Joseph's Hospital, he had been in another institution in a different part of the state, since the date of his infection. The nature of the treatment we were unable to ascertain. He was rapidly getting worse and was brought to the hospital on a stretcher.

The patient, in his fifteenth week of disease, was greatly emaciated and severely prostrated, having lost 60 pounds. The temperature was 100. The forearms were flexed on the arms, and there was restriction of the wrist joints so marked that he was unable to lift a cup or feed himself. There was rigidity of the muscles of the neck, and deglutition was difficult. The chest muscles appeared free. The abdomen was tender to touch, with rigidity of the rectus muscle. The Kernig sign was present. The patellar reflex was absent. The hip joints were extremely painful and the lower limbs showed a cyanosis and edema. Owing to the long confinement, the patient had sores. It was apparent that he was suffering from a severe type of anemia, and a blood examination at this time showed: Erythrocytes, 3,000,000; hemoglobin, 55 per cent.; leukocytes, 30,000; differential count: neutrophils, 58 per cent.; lymphocytes, small and large, 7 per cent.; eosinophils, 35 per cent.

A section of muscle fibers was removed from the lower third of a biceps muscle, and numerous living trichinae showed in every field. The cerebrospinal fluid or blood was not examined for trichinae.

Fortunately for our patient, we were unaware of the use and results of neosalvarsan in trichinosis, as reported by Van Cott and Lintz. Independently we realized our utter helplessness with the usual therapy, and decided to use intravenously 0.06 gm. of neosalvarsan. During its administration he became slightly cyanosed and it was followed by a marked chill. Within forty-eight hours, the patient felt less pain than he had for months, and was soon able partially to extend his forearms. Within one week he was in a chair and able to sit in an automobile, and left the hospital, Aug. 9, 1915. Fourteen days after intravenous injection he was able to walk with crutches, and three weeks later he discarded his crutches and went on to an uninterrupted recovery.

The scientific paper and work of Van Cott and Lintz and their unfavorable results in the use of salvarsan and neosalvarsan would make us slow to use neosalvarsan. However, in our case, we were rewarded with a most favorable result, which seems to prove beyond a doubt that in certain stages of the disease, at least, neosalvarsan intravenously is a rational method of treatment in trichinosis.

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[1] Van Cott, J. M., and Lintz, William: Trichinosis, The Journal A. M. A., Feb. 28, 1914, p. 680.

[2] Bloch, Leon: Trichinosis, The Journal A. M. A., Dec. 18, 1915, p. 2140.

[3] Elliott, A. R.: Trichinosis, The Journal A. M. A., Feb. 12, 1916, p. 504.

BLOOD CULTURES IN EPILEPSY *

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AND
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In cultures from the blood of the following six cases of epilepsy we have failed to isolate the organism described by C. A. L. Reed[1] as the *Bacillus epilepticus*.

Dr. Reed gave us one of the cultures isolated by Dr. Hyatt from a case (S). As far as we could tell, this organism belonged to the *B. subtilis* group. Its morphology is well shown in the photomicrographs published by Dr. Reed in the article cited. It varied in its reaction to Gram's stain according to the medium on which it was cultivated. In size it resembled *B. subtilis* and formed terminal and subterminal spores which, when mature, were almost central. It grew rapidly at 37 C. or 24 C. with a smooth or wrinkled dirty white layer on any of the ordinary mediums. Blood serum was rapidly digested, as was also the casein clot in milk. Acid was produced from dextrose, levulose, galactose, saccharose and mannite. We decided to test its pathogenicity after we had proved to our satisfaction that it really could be isolated from the blood of epileptics.

Dr. Reed kindly offered to allow us to make cultures in his cases, which was done by us in four cited below in conjunction with his bacteriologist, Dr. Hyatt. Not only could we not isolate such an organism but also we failed to find any bacteria in smears stained by the Giemsa stain and by Abbott's spore stain and other methods. Dr. Hyatt showed us a blood smear containing the "spores" of *B. epilepticus*. We were not able to pass on the nature of these bodies, which were about the size of the spores of *B. subtilis*. We will only say that we have been unable to find similar bodies in smears made by us. Our reason for limiting ourselves to the study of a few cases was influenced not only by the pressure of other work; we also hoped that by the use of special mediums, which we had found suitable for the growth of many delicately growing parasites, we might be able to isolate something overlooked heretofore.

We submit the following condensed notes on the cases in which we made cultures:

Case 1.—Mr. B., Cincinnati General Hospital, was referred to us by Dr. Reed as particularly favorable on account of the frequent attacks of grand mal. Three separate blood cultures were made:

(*a*) Feb. 24, 1916, 5 c.c. of blood were taken between the frequent attacks and distributed in two flasks of + 1 broth and several deep tubes of + 1 glucose agar. These all remained sterile and were discarded after fifteen days' incubation at 37 C.

(*b*) March 6, 10 c.c. of blood were drawn one hour after a typical attack of grand mal in which the patient fell down and injured himself. The blood was immediately distributed among four flasks, each containing 400 c.c. + 1 broth; 2 deep tubes of + 0.5 Martin's medium; two deep tubes of + 2.0 Martin's medium, and six tubes of + 0.5 Martin's medium which were solidified in the slanting position and two of these were made anaerobic. These all remained sterile during two weeks' incubation at 37 C. Some of the sediment from the flasks was transplanted to + 1 maltose and + 1 human blood agar slants on the third day, but these subcultures too remained sterile.

(*c*) On the afternoon of March 6, the patient had a seizure, and while he was on the floor, Dr. Betzner drew 10 c.c. of blood and defibrinated it. This was distributed in flasks of + 1 broth and + 1 glucose broth and deep tubes of Martin's medium. After a month's incubation a few colonies of staphylococci were detected in some of the deep tubes of Martin's medium. The + 1 broth flasks remained sterile, but a staphylococcus and a peculiar clostridium were isolated from the glucose-broth-blood culture. The clostridium multiplied very slowly in the blood sediment, and proved to be a partial tension organism. We have described its isolation in an article which is shortly to appear.[2] We subsequently encountered an aerobic strain of the same organism in a glucose-broth-blood culture in a case of phlebitis. Investigations showed that the clostridium had extremely resistant spores and probably came from the glucose.

After this we took care to autoclave all the mediums used in the following cultures ourselves.

Case 2.—Mrs. H., Cincinnati General Hospital, was referred to us, February 28, by Dr. Roger Morris and Dr. T. H. Kelly. Blood was drawn from an arm vein two hours after a typical attack of grand mal. Five c.c. of blood were distributed in three aerobic agar plates, in four deep tubes of + 0.5 Martin's medium, and in three flasks of + 1 broth and one flask of + 1 dextrose broth. These were incubated at 37 C. All these cultures remained sterile during twenty-two days' observation.

Case 3.—From Miss G. R., aged 15, one of Dr. Reed's grand mal patients, from a private hospital, April 12, with Dr. Hyatt, we drew 10 c.c. of blood from an arm vein. About 5 c.c. of this were immediately distributed in one deep tube of + 0.5 Martin's medium; two flasks containing 600 c.c. of + 1 broth each and 1 flask containing 600 c.c. of + 1 glucose broth, and into three + 1 agar plates. The other 5 c.c. of blood were hemolyzed in sterile distilled water and taken back to the laboratory, where it was sedimented at high speed and the washed sediment and supernatant fluid planted in a variety of mediums. In all sixteen aerobic and anaerobic cultures were made in + 1 glycerin agar, + 0.5 Martin's medium, Martin's medium made up with monosodium phosphate, + 0.5 Martin's pleuritic and on + 1 human blood agar slants.

All of these cultures remained sterile during twenty-six days' observation, excepting that eight superficial colonies of *Staphylococcus albus* appeared on one of the + 1 agar plates. This was discarded as an apparent contamination, as the room in the hospital in which the plates were made was dusty and drafty.

Case 4.—Mr. L., aged about 45, one of Dr. Reed's cases, from a private hospital, had petit mal, but "has been growing worse." April 12, cultures were made from 10 c.c. of blood drawn at the same time and place as in Case 3. Cultures were distributed in the same way and in the same mediums. One plate showed a superficial colony of a large coccus. The rest of the cultures remained sterile as in Case 3.

Case 5.—From Miss A. E., who had nocturnal attacks, referred by Dr. C. A. L. Reed, April 16, various types of mediums were inoculated with 10 c.c. of blood and incubated aerobically, at partial tension, and anaerobically with negative results during eight days' observation. About 2.5 c.c. of the blood was inoculated into ten tubes of + 1 broth. Four of the tubes belonged to Dr. Hyatt. These we divided between us. Ours, including two of Dr. Hyatt's broth tubes, remained sterile. Dr. Reed later informed us that Dr. Hyatt had isolated the *Bacillus epilepticus* from one of the tubes taken by her.

Case 6.—Mr. A., from the Jewish Hospital, one of Dr. Reed's patients, April 25, 1916, Dr. Reed notified us, was a favorable case. We could not go ourselves to collect the blood, but Dr. Hyatt kindly collected about 5 c.c. in sterile sodium citrate solution (1.5 per cent. furnished by us). Some of the blood had been discharged into tubes of plain broth (made by Dr. Hyatt). Two of these inoculated broth tubes were turned over to us for observation. The citrated blood was centrifuged. The citrate plasma was removed and the sediment hemolyzed with distilled water. The hemolyzed sediment and plasma were then centrifuged at high speed for one hour and the sediments planted in deep tubes of + 0.3 and + 1.0 Martin's medium containing sterile pleuritic fluid. Two plates of combined sediments were made; one was kept aerobic and the other at partial tension at 37 C. All the cultures showed no growth during two weeks' observation.

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* From the Department of Bacteriology in the University of Cincinnati, Cincinnati General Hospital.

[1] Reed, C. A. L.: The Bacillus Epilepticus, The Journal A. M. A., May 20, 1916, p. 1607.

Note.—We have for publication next week a paper by Dr. W. B. Terhune, of the East Louisiana Hospital for the Insane, giving his results, which apparently confirm Dr. Reed's claims as to the causative agent of epilepsy; also a comment by Dr. Reed on this article and the one by Caro and Thom which follows.

[2] Wherry, W. B., and Oliver, W. W.: Jour. Infect. Dis., to be published.

A BACTERIOLOGIC STUDY OF THE BLOOD OF SEVENTY EPILEPTICS

WITH SPECIAL REFERENCE TO THE BACILLUS EPILEPTICUS OF REED *

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The obscurity surrounding the fundamental causes of so complex a group of neurologic disorders as the epilepsies will, in itself, bring forth from time to time many new observations, both etiologic and therapeutic in nature. Recently, Dr. C. A. L. Reed of Cincinnati has written concerning the isolation of an organism believed by him to be the cause of the convulsion in so-called "idiopathic epilepsy." The value of such an observation can hardly be overestimated, particularly since it contains vast possibilities in the opening up of a new field of therapeutic endeavor. Accordingly, we felt it to be essential that this work should be corroborated, merely from the point of view of recovering the organism from the blood of epileptic patients.

A brief summary of Dr. Reed's work will aid in the presentation of the results of our investigations. In February, 1915, Dr. Reed[1] stated that "the rôle of constipation as a causative factor in epilepsy is due to the more than probable fact that the initial cause is to be found in a specific infection." So convincing was this conclusion that he felt the necessity of stating that it was probably a bacillus of the gas-forming group, which, together with its toxins, had the faculty of accumulating in the tissues and in the blood.

Following this hypothesis, Dr. Reed[2] reported the finding of a specific organism as the cause of "idiopathic epilepsy," which he believed to be the epilepticoccus. This organism consisted "of granular bodies, sometimes arranged in diplococci, sometimes in chains, sometimes in clusters, while in certain cases all these forms were present in a single case." It was to be found in the blood either just before or just after a seizure, but in the interim it disappeared. Growth of the coccus occurred readily on ordinary mediums, and animal experimentation fulfilled the third of Koch's laws. In conclusion, the presence of the epilepticoccus was stated definitely to be pathogenic for the disease.

In a later communication, Dr. Reed[1] stated that "epilepsy is an infection depending on a definite spore-bearing organism — the *Bacillus epilepticus.*" The discarding of the epilepticoccus was explained briefly (in a footnote) on the basis of the changing morphology of the bacillus, as shown at different stages of its development. This had given rise to some confusion, and the discredited researches of Bra are quoted in defense of this change in the causative agent. In this paper, it was stated that cultures from the blood of epileptics showed the organism present in a large number of cases, more abundant immediately preceding or during a convulsion, although frequently found at other times, and, less readily, in "long interval" cases. The duration of the disease had no influence, apparently, on the finding of the bacillus, for mention is made of a case of more than twelve years' duration in which cultures were found positive. The organism was said to grow slowly in bouillon or on agar-agar (taking from two to five days), and to stain best with carbolfuchsin, although other stains could be employed. Finally, injection of pure cultures of the organism into rabbits was stated to produce a syndrome analogous to epilepsy in man.

Brief mention of the work of Bra may not be inadvisable at this point. In 1902, she[3] described the neurococcus as the essential cause of epilepsy. Besta, working in the laboratory of Ceni, failed to find the organism in a total of 375 cultures, of which 370 were sterile, the remaining five being contaminated. Ghiliarowsky of Moscow found the organism in insane patients (not epileptic), and concluded that it was a contamination. The following year, Tirelli and Brossa examined a total of fifty-eight cultures with negative results. Lannois and Lesieurs of Lyons also were unable to find the neurococcus.

With these facts in mind, we began an investigation along the lines taken by Reed and his assistants. In all, seventy cases of clinically idiopathic epilepsy, without any demonstrable organic lesion, have been studied. In this group were included forty-seven women and twenty-three men. In fifty-five of these patients no exciting cause could be found. In fourteen cases the exciting cause was given as: pregnancy, 2; pneumonia, 1; scarlet fever, 1; dentition, 3; indigestion, 3; pertussis, 2; rachitis, 1, and measles, 1. In this group, one case (blood taken during status) was included in which the assigned cause was given as "head injury," but necropsy failed to reveal any lesion of the calvarium or brain structures. The age of onset of the disease varied from infancy to 41 years (Table 1). The age at time of first known convulsion is here taken as the age of onset.

TABLE 1.—AGE OF ONSET

Age	Number of Cases
Before end of first year	8
Between age of 1 and 5	14
Between age of 6 and 10	24
Between age of 11 and 15	13
Between age of 16 and 20	4
Between age of 21 and 30	6
Between age of 41 and 45	1
Total	70

The duration of the epilepsy was from three to forty-five years; periods of remission, no matter what their length, are included in the duration (Table 2).

In regard to the incidence of constipation, on which Reed laid considerable stress, it was found that all of the seventy patients were suffering in varying degrees from this complication.

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* From the laboratory and wards of the Monson State Hospital (for Epileptics), Palmer, Mass.

[1] Reed, C. A. L.: The Bacillus Epilepticus: Third Report, The Journal A. M. A., May 20, 1916, p. 1607.

[2] Reed, C. A. L.: Diagnostic Methods and Pathologic Constants in Idiopathic Epilepsy, The Journal A. M. A., Jan. 29, 1916, p. 336.

[3] Bra: Recherches microbiologiques sur l'épilepsie.

Our routine method of examination consisted in the withdrawal of from 5 to 10 c.c. of blood from the median basilic vein. The blood flowed directly from the needle through a glass tube (connected to the needle by a short piece of rubber tubing) and into a test tube (200 by 20 mm.) holding 2 c.c. of a solution containing 0.6 per cent. sodium chlorid and 1.5 per cent. sodium oxalate. The oxalated blood was planted immediately on agar-agar slants and in bouillon. Each culture tube was inoculated with 1 c.c. of blood. The incubated cultures were not examined until the fifth day, unless a growth was noted on the agar slants, or turbidity of the bouillon occurred before that time. All apparatus used was subjected, for twenty minutes, to a temperature of 250 F. under 15 pounds' pressure.

TABLE 2.—DURATION OF EPILEPSY

Duration, Years	No. of Cases
1 to 5	8
6 to 10	15
11 to 15	13
16 to 20	6
21 to 30	22
31 to 40	5
41 to 45	1
Total	70

In all, eighty specimens of blood were obtained; ten of our cases were repeated. The total number of cultures was 160. Table 3 shows the relation of the specimens taken to the time of convulsions.

TABLE 3.—RELATION OF SPECIMENS TO TIME OF CONVULSIONS

When Taken	Number
During status	4
At cessation of grand mal seizure	10
At cessation of petit mal seizure	2
Within one hour after last seizure	29
Between 1 and 2 hours	10
Between 2 and 3 hours	6
Between 3 and 4 hours	2
Between 4 and 5 hours	3
Between 5 and 6 hours	2
Between 6 and 7 hours	1
Between 7 and 8 hours	3
Between 8 and 9 hours	1
Between 9 and 12 hours	3
Between 12 and 24 hours	1
None for several days	3
Total	80

The specimens obtained at cessation of grand mal seizures were taken as soon as the convulsive movements of the arms had quieted sufficiently to allow venipuncture to be performed. In the other cases, from one to eight grand mal seizures preceded the taking of the specimen. Two of the three patients free from seizures for several days were examined again at intervals of fifteen minutes and two hours, respectively, following a single grand mal seizure.

Examination of these cultures showed that 156 were sterile. Smears were made from every culture incubated, the lack of growth on the agar slant or clearness of the bouillon not preventing such procedure. Of the four cultures that showed growths, one (taken five hours after a grand mal seizure) showed staphylococci in bouillon. Another specimen of this patient's blood, obtained ten minutes after the last of a series of five seizures, gave sterile cultures on agar and in bouillon. The other three cultures all showed a similar organism. On a Petri dish (blood taken five hours after seizure), two colonies were found outside the areas over which the blood had spread. In the second case (taken twelve hours after a seizure), a similar colony was found on an agar-agar slant. In the third (taken during a grand mal seizure), a scanty growth was found in bouillon. All of these growths were found before the third day of incubation. With methylene blue as a stain, the organism was found to be a very large oval-shaped bacillus, with deeply staining ectosarc and pale staining protoplasm. It grew rapidly on agar-agar slants, and was distinctly fungoid in appearance. Injections of pure cultures, both intravenously and intraperitoneally, into a rabbit failed to produce any systemic disturbance, and ten days after the last injection the animal was returned to its mates. Feeling that this was a contamination, Petri plates were placed about the laboratory, and a similar organism was isolated. Fortunately, at about this time, Dr. Reed sent us a subculture of *Bacillus epilepticus.* Examination of specimens from it showed an entirely different organism from the contamination described above. All three of these cases were repeated either during or within fifteen minutes after the cessation of a grand mal seizure, and the cultures were found to be sterile.

In addition to the foregoing group of cases, two patients with hemiplegia were examined, one the day following the seizure and the other at the cessation of a convulsion. These cultures were sterile. Similar results were found in two cases with myoclonus. Both specimens were taken within a half hour after a grand mal seizure.

In a personal communication, Dr. M. M. Canavan,[4] assistant pathologist to the Massachusetts State Board of Insanity, has given us the results of postmortem cultures from seventeen epileptics on whom necropsies were held during the past year. In every instance, from two to seven loci were studied for bacteriologic infection, and these have included always the heart's blood. In three of these cases, all cultures were found to be sterile, a total of thirteen loci being studied. In the remaining fourteen necropsies, with a total of seventy loci investigated, Dr. Canavan was unable to find any organism approaching the morphology of *Bacillus epilepticus* as described by Dr. Reed.

SUMMARY

1. In a series of seventy cases, with a total of 160 blood cultures, there were 156 sterile cultures. The remaining four showed contaminations.

2. Four cases with either myoclonus or hemiplegia also gave sterile blood cultures.

3. In a series of seventeen necropsies on epileptics, Dr. Canavan, in a bacteriologic study, was unable to find any organism resembling *Bacillus epilepticus.*

4. In conclusion, it would seem evident that, in the seventy epileptic patients studied, the epileptic syndrome was not due to the *Bacillus epilepticus* of Reed.

New Method of Antral Cleaning with Trochar.—For some time it has been my practice after insertion of a trochar through the wall of the inferior meatus into the antrum of Highmore to proceed as follows: The point of the trochar is turned downward so that it comes as near the floor of the antrum as possible. Both nostrils are then closed around the trochar tube with the finger, and the patient blows forcibly. This puts air pressure via the ostium maxillaris into the antrum, and forcibly blows out the pus through the cannula. It is much better to use a cannula of good size, and one has to manipulate it a few times to be sure the inner end is free. I believe that this method practically empties the antrum of fluid, which the ordinary method with a trochar does not do.—A. C. HEATH, M.D., St. Paul.

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[4] Personal communication from Dr. Canavan to Dr. Thom, dated June 29, 1916.

Therapeutics

THE TREATMENT OF DIABETES

(*Continued from page 1021*)

THE DIET

Addition of Carbohydrates to the Diet.—When, as a result of the fast, the urine has been free from sugar for twenty-four hours, feeding may be cautiously begun. All the food given must be weighed and its composition must be known approximately, at least. Unless this is done, no accurate idea of the food tolerance or of its caloric value can be obtained, and subsequent treatment becomes of necessity a "hit-or-miss" affair, with the probabilities all in favor of its being a "miss." Information as to the composition of the common foods may be obtained from various treatises on dietetics and food chemistry.[5]

The accompanying table, compiled by Joslin,[6] contains in a compact form all the essential information. The figures, although only approximate, are sufficiently accurate.

A convenient scale for weighing food is the movable dial spring balance, made by John Chatillon and Sons (85 Cliff Street, New York). With this balance it is a simple matter to allow for the weight of the receptacle.

Feeding is begun with food containing but small amounts of carbohydrate and lesser amounts of protein and fat. The most satisfactory diet to begin with is one composed exclusively of green vegetables of the "5 per cent. group" (see table). These vegetables, although they contain but little available nutriment, have a large bulk and serve to fill the stomach, thus allaying in some measure the pangs of hunger. The indigestible residue is valuable in preventing constipation. From 150 to 200 gm.[7] of the vegetables of this group are given the first day. Approximately 5 gm. of *available* carbohydrates are contained in this amount. If no glycosuria occurs, the diet on the second day may contain vegetables equivalent to five more grams of carbohydrate, and this increase is made daily until 20 gm. of carbohydrate are given. Following this, 5 gm. are added every other day until glycosuria occurs or the patient is receiving as much as 3 gm. of carbohydrate per kilogram of body weight in twenty-four hours (Joslin). After the first day or two carbohydrate may be given in the form of vegetables of the 10 per cent. group, followed subsequently by those of the 15 and 20 per cent. groups. Fruits are then added, and ultimately, if glycosuria has not supervened, bread and oatmeal.

Ordinary bread is but seldom included in the dietary of the diabetic. There are on the market a large number of brands of "gluten" and "diabetic" flour which contain relatively little carbohydrate and much protein. Bread made from such flour, provided the composition is accurately known, may be eaten. These special brands of flour, however, are expensive and many are fraudulent.[8]

JOSLIN'S DIET TABLE

Strict Diet—Meats, Fish, Broths, Gelatin, Eggs, Butter, Olive Oil, Coffee, Tea and Cracked Cocoa

FOODS ARRANGED APPROXIMATELY ACCORDING TO PERCENTAGE OF CARBOHYDRATES

Vegetables

5 Per Cent.	10 Per Cent.	15 Per Cent.	20 Per Cent.
Lettuce	Onions	Green peas	Potatoes
Spinach	Mushrooms	Artichokes	Shell beans
Cauliflower	Squash	Parsnips	Baked beans
Sauerkraut	Turnip	Canned lima beans	Green corn
String beans	Carrots		Boiled rice
Celery	Okra		Boiled macaroni
Asparagus	Beets		
Cucumbers			
Brussels sprouts			
Sorrel			
Endive			
Dandelions			
Swiss chard			
Sea kale			
Tomatoes			
Rhubarb			
Egg plant			
Leeks			
Beet greens			
Watercress			
Cabbage			
Radishes			
Pumpkin			
Kohlrabi			
Broccoli			
Vegetable marrow			

Fruits

Ripe olives (20 per cent. fat)	Lemons	Apples	Plums
Grapefruit	Oranges	Pears	Bananas
	Cranberries	Apricots	
	Strawberries	Blueberries	
	Blackberries	Cherries	
	Gooseberries	Currants	
	Peaches	Raspberries	
	Pineapple	Huckleberries	
	Watermelon		

Nuts

Butternuts	Brazil nuts	Almonds	Peanuts
Pignolias	Black walnuts	Walnuts (Eng.)	
	Hickory	Beechnuts	40 Per Cent.
	Pecans	Pistachios	
	Filberts	Pinenuts	Chestnuts

5 Per Cent.	
Miscellaneous. — Unsweetened and unspiced pickles, clams, oysters, scallops, liver, fish roe	Reckon *actually available* carbohydrates in vegetables of 5 per cent. group as 3 per cent., of 10 per cent. group as 6 per cent.

Thirty gm. or 1 ounce, of each of the following contain approximately:

	Protein, Gm.	Fat, Gm.	Carbohydrates, Gm.	Calories
Oatmeal, dry weight	5	2	20	110
Meat (uncooked)	6	2	0	40
Meat (cooked)	8	3	0	60
Broth	0.7	0	0	3
Potato	1	0	6	30
Bacon (cooked)	5	15	0	155
Cream, 40 per cent.	1	12	1	120
Cream, 20 per cent.	1	6	1	60
Milk	1	1	2	20
Bread	3	0	18	90
Butter	0	25	0	230
Egg (one)	6	5	0	75
Brazil nuts	5	20	2	210
Orange (one)	0	0	10	40
Grapefruit (one)	0	0	10	40
Vegetables, 5 and 10 % groups	0.5	0	1	6

1 gm. protein, 4 calories.
1 gm. fat, 9 calories.
6.25 gm. protein contain 1 gm. nitrogen.
30 grams (gm.) or cubic centimeters (c.c.), 1 ounce.
A patient "at rest" requires from 25 to 30 calories per kilogram body weight.
1 gm. carbohydrate, 4 calories.
1 gm. alcohol, 7 calories.
1 kilogram, 2.2 pounds.

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[5] Useful books are: Locke: Food Values, New York, D. Appleton & Co. Atwater and Bryant: The Chemical Composition of American Food Material, Bull. 28, Office Experiment Station, U. S. Dept. Agric.

[6] Joslin: Am. Jour. Med. Sc., 1915, cl, 485.

[7] Vegetables are best cooked by steaming in a double boiler, as in this way nothing is lost.

[8] Street, J. P.: Diabetic Foods Offered for Sale in the United States, THE JOURNAL A. M. A., June 28, 1913, p. 2037. Street and Mendel: Diabetic Foods, Rep. Connecticut Agric. Expt. Station, 1913, Pt. 1, Sec. 1.

The patient's longing for bread may, in a measure, be satisfied by bran biscuits. These contain no carbohydrate and serve as a convenient vehicle for the administration of butter or other fats. The bulky residue fills the stomach and relieves constipation.[9]

The appearance of glucose in the urine means that the patient's assimilative limits have been exceeded and a fast must be instituted until the glycosuria ceases.[10] Following the fast, the carbohydrate ration should be diminished by one half and not increased beyond this amount for some days and then very cautiously. The amount should be kept well within the limit of tolerance previously determined for a considerable period of time. Subsequently, if there is reason to suppose the patient can assimilate more carbohydrate, the limit of tolerance may again be determined by gradual addition of carbohydrate, even to a point in excess of the former tolerance.

In severe cases some patients cannot assimilate even the small amount of carbohydrate contained in green vegetables, although they may still be able to assimilate minimal amounts of protein and fat. Such patients may be given at first green vegetables that have been cooked in three changes of water and the water discarded. Vegetables so prepared contain practically no carbohydrate.

Addition of Protein to the Diet.— In severe cases of diabetes, it is advisable to determine the protein tolerance in essentially the same way that carbohydrate tolerance is determined, eggs and meat alone being fed in increasing amounts until glycosuria occurs. In most cases of diabetes, however, protein may, to advantage, gradually be added to the diet during the period of testing the carbohydrate tolerance. During the first week of green vegetable feeding, provided no glycosuria occurs, two or three eggs may be given during the day. Lean meat is then added from day to day in amounts corresponding to 10 or 15 gm. of protein (see table) until the patient is receiving daily about 1 gm. of protein per kilogram of body weight, or if the carbohydrate tolerance is zero, only 0.75 gm. Later, if desired, protein may be raised to 1.5 grams per kilogram of body weight (Joslin), provided, of course, this can be done without the development of glycosuria. Children may to advantage be given as much as 2 gm. of protein per kilogram.

Addition of Fats to the Diet.—When the amount of protein fed has reached 1 gm. per kilogram of body weight, fats may be added to the diet in gradually increasing amounts (25 gm. a day) until the caloric requirement of from 25 to 40 calories per kilogram of body weight is covered by the total food intake. Patients who are exercising require a higher caloric intake than when resting, and growing children up to as much as 50 or 60 calories per kilogram, depending on the age. The caloric intake should eventually be such that a progressive loss of weight does not occur. On the other hand, the patient must not gain in weight, or, more correctly, he must not gain in adipose tissue, though muscular development is allowable.

Fat, besides that obtained in the eggs and meat fed, may be supplied in the form of bacon, cream, olive oil or butter. If marked acetonuria appears, it is advisable to substitute olive oil for butter and cream.

Weekly Fast Days.— For a long time it has been recognized that days of partial or complete fasting are of benefit to the diabetic. Allen has incorporated this idea into his system of treatment, and advises frequent fast days. Joslin's rule is to fast all patients once a week whose tolerance for carbohydrates is less than 20 gm. When the tolerance is between 20 and 50 gm., 5 per cent. green vegetables and one-half the usual quantity of protein and fat are allowed on the fast days; when the tolerance is between 50 and 100 gm. of carbohydrates, the 10 and 15 per cent. vegetables are allowed as well. If the tolerance is more than 100 gm. of carbohydrate, the carbohydrate intake is halved on the weekly fast days.

(*To be continued*)

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[9] The recipe used at the Rockefeller Institute Hospital is:

Bran	60 gm.
Salt	¼ teaspoonful
Agar agar, powdered	6 gm.
Cold water	100 c.c. (½ glass)

Tie bran in cheese cloth and wash under cold water tap until water is clear. Mix agar agar in the water (cold) (100 c.c.) and bring to the point of boiling. Add to washed bran the salt and agar agar solution (hot). Mold into three cakes. Place in pan and, when firm and cold, bake in moderate oven from forty-five to fifty minutes.

Powdered agar agar is to be had at Munsch-Protzmann, 410 Madison Avenue, New York.

[10] Frequently a slight glycosuria may disappear in twenty-four hours, without any dietary change.

New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

BARIUM SULPHATE FOR ROENTGEN-RAY WORK.

—Barium sulphate freed from soluble barium salts.

Action, Uses and Dosage:—Barium sulphate for Roentgen-ray work, being freed from soluble barium and other salts, passes through the system unchanged and because of this is used in taking Roentgen-ray pictures of the stomach and of the intestines.

For the Roentgen-Ray Examination of the Stomach:—The evening before the examination the patient receives 1 fluidounce of castor oil. In the morning an ordinary portion of wheat-meal porridge with which 2 ounces of barium sulphate have been well mixed, together with a little sugar and cream, is administered by mouth. The patient is then directed to abstain from further food. The examination is made six hours later.

For the Roentgen-Ray Examination of the Colon:—An enema consisting of 16 ounces of mucilage of acacia, 3 pounds of condensed milk, and 8 ounces of barium sulphate is warmed to body temperature and injected into the rectum from a height of from 3 to 6 feet. The examination is made with a fluoroscope while the injection is passing into the rectum.

Barium sulphate for Roentgen-ray work is a fine, white odorless, tasteless and relatively light powder, which is insoluble in water and organic solvents as well as in acids and in dilute alkalies.

Boil 10 Gm. of barium sulphate for Roentgen-ray work with a mixture of 10 Cc. of acetic acid (Sp. Gr. 1.064) and 90 Cc. of water and filter. Evaporate 25 Cc. of the filtrate to dryness, dissolve the residue in 20 Cc. of water and filter (return the filtrate to the filter until quite clear) and to the filtrate add a few drops of dilute sulphuric acid; no separation of barium sulphate should occur within one-half hour (soluble barium salts). Saturate another 25 Cc. portion of the acetic acid extract with hydrogen sulphide: it should not become colored or turbid (heavy metals).

Boil 2 Gm. of barium sulphate for Roentgen-ray work for a few minutes with 10 Cc. of nitric acid (Sp. Gr. 1.149 to 1.152) and filter: the filtrate does not give a yellow precipitate with ammonium molybdate solution within half an hour (barium phosphate).

Triturate 2 Gm. of barium sulphate for Roentgen-ray work with 10 Cc. of stannous chloride solution: no dark coloration occurs within one-half hour.

Boil 10 Gm. of barium sulphate for Roentgen-ray work with 50 Cc. of water containing 1 Cc. of hydrochloric acid, U. S. P., and filter: the clear filtrate shows no spectral line for barium.

Barium Sulphate-Squibb for Roentgen-Ray Work.—A non-proprietary brand complying with the standards for barium sulphate for Roentgen-ray work.

Manufactured by E. R. Squibb and Sons, New York.

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SATURDAY, OCTOBER 7, 1916

THE EFFICIENCY OF THE DIAPHRAGM

Considered as a muscle, the diaphragm performs a unique service to the body exceeded or equaled only by the musculature of the heart. From birth to death it continues to carry out a series of orderly contractions at fairly regular intervals with a degree of regularity and rhythm that challenges our interest in much the same way as do the cardiac contractions, when attention is once directed to the unremitting muscular performances in respiration. The position, the structure and the normal behavior of the diaphragm are unique; and it is strange, indeed, as a recent writer reminds us, that more physiologic facts have not been available regarding the functional properties of a tissue which, from the standpoint of importance to the individual, ranks highest of all skeletal muscles. Accordingly we welcome the publication of recent investigations, from the Department of Physiology at Columbia University, respecting the comparison of the diaphragm with a series of other muscles of unlike properties and physiologic make-up.[1] The behavior of the diaphragm under various experimental conditions has been contrasted with that of certain muscles of the leg, such as the extensor longus digitorum, the sartorius and the soleus, and at times the muscular tissue of the heart. The extensor and the sartorius were chosen as typical pale muscles, the soleus as the type of red muscles. The diaphragm appears intermediate between these two in color. In physiologic properties, however, color appears to be a feature of limited significance.

According to Lee and his collaborators, the most common order in which the several muscles may be arranged as to the quantitative development of the various general physiologic properties is: diaphragm, sartorius, extensor, soleus. The properties appear least pronounced in the red soleus, and next in the two pale muscles, with the sartorius slightly in the lead. As to most of the properties, the diaphragm stands by itself in the lead of all the others. Its tissue possesses the greatest reducing power, in other words, the greatest power to remove oxygen from its environment, and this power is probably dependent on the existence of an enzyme; its content in peroxidase is greatest; the irritability of the excised diaphragm to single induction shocks, while surpassed in degree at first by both the extensor and the sartorius, survives long after all the other muscles have died; in the brevity of its latent period, the excised diaphragm is surpassed only by the extensor.

As a working mechanism the diaphragm is now experimentally demonstrated to be vastly superior to all the other muscles studied. It lifts a greater load, it is capable of lifting it to a greater height, it continues to work for a longer time, and it performs before it becomes exhausted a much greater amount of labor. All of these powers are greatly to its advantage in the important rôle which it plays.

Other features further testify to the superior efficiency of the diaphragm for the uses to which it is devoted. Its greater resistance to fatigue is exhibited in its longer working period and its greater work accomplished before becoming exhausted; it, with possibly some other respiratory muscles, is the last skeletal muscle of the body to submit to the paralyzing action of curare; other investigators have pointed out its greater tendency than other parts of the body to harbor trichinae — a peculiarity that is not yet explained, but may possibly be associated with the greater power of the diaphragm to utilize oxygen; when the body is subjected to high heat and high humidity, all the muscles are affected deleteriously, which is manifested in a diminution of the working period and the total work which can be accomplished before exhaustion sets in, but the diaphragm is affected far less than the other muscles; by extreme inanition the total working period of the excised diaphragm is shortened far less than that of the extensor, although the total work which can be performed by the former is diminished to a greater degree — a fact which may possibly be associated with the greater activity of the diaphragm. Among the muscles examined, the glycogen content — often taken as an index of reserve energy — is greatest in this organ.[2]

Not only in its contractile capacity but also in its power of resistance to deleterious influences, the diaphragmatic muscle commands a superior position. Most of these facts, Lee and his co-workers remark, indicate that the diaphragm possesses much more efficient muscular tissue than do the other muscles — in other words, it is a superior physiologic mechanism. This is exactly what might be expected, when the unique and superior rôle of the diaphragm among skeletal muscles is considered. Here, they conclude, seems to be a striking instance of physiologic adaptation to physiologic requirements.

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[1] Lee, F. S.; Guenther, A. E., and Meleney, H. E.: Some of the General Physiological Properties of Diaphragm Muscle as Compared with Certain Other Mammalian Muscles, Am. Jour. Physiol., 1916, xl, 446. Lee, F. S.; Scott, E. L., and Colvin, W. P.: Some of the Chemical Properties of Certain Mammalian Muscles, ibid., p. 474.

[2] Lee, F. S.; Scott, E. L., and Colvin, W. P.: Some of the Chemical Properties of Certain Mammalian Muscles, Am. Jour. Physiol., 1916, xl, 474.

THE LOWER ANIMALS AND HUMAN DISEASE

Only a few years ago Lee[1] wrote:

> From time immemorial human life has been cursed by the two great evils of war and pestilence. Working at times together, at times apart, there is no portion of the earth and no race of men that they have not devastated. The one has slain its thousands, the other its millions, and sorrow and misery have ever accompanied and followed them. Ages have come and gone, while through them all the clash of arms has sounded and murderous plagues have silently spread unchecked. Now in the morning of the twentieth century the moral nature of man has risen against the one of these evils, and all his science is invoked against the other; and there is ground for the great hope that when our century passes away, they also will pass, and man will be freed forever from two of his greatest burdens.

Whether the conquest of war is in sight is a question that may be left for debate to those who are watching the struggles in the present European conflict. The possibility of a human conquest of infectious diseases looms up with the prospect of some success when the experience of the past few decades forms the background. Since Pasteur's day that remarkable group of primitive forms called bacteria has been the center of attention. Among the fifteen hundred species that have been described there are not a few enemies of mankind. The earlier investigators in the new science of bacteriology directed their energies toward a study of the distribution of these micro-organisms, their modes of entrance and exit into the human body, the toxic products and dangerous lesions which they produced, and likewise to the ways in which the organism attempts to repel the attacks or prevent the ravages of unwelcome microbial invaders. A science of immunology has been developed; protective or curative therapy has been devised; preventive measures have been successfully instituted. The achievements have been notable, and there is still abundant opportunity for additional progress.

In almost every field of science there comes a tendency at times to view the impending problems from somewhat similar angles and to apply the familiar tested methods of procedure to their solution. Advancement becomes progressively slower and more difficult until some pioneer breaks through the confines of the conventional and enters new paths of progress. New methods, new observations — the creation of a new avenue of approach illuminated by an unbiased attitude in place of the traditional or the customary — these are the antecedents of novel discoveries. These thoughts of the frequent necessity for travel along unbeaten paths in scientific medicine are prompted by the recognition of the important part played by the lower animals in relation to human disease and an increasing appreciation of how manifold the interrelations are. No single rule can be applied to recognize or control or prevent the numerous forms of disease dependent in some way or other on man's relation to animals.

Some impression of the importance and of the large number of diseases of man carried by the lower animals is afforded by a partial résumé recently prepared by Davis[2] of the University of Illinois College of Medicine in Chicago. He has enumerated more than sixty known illustrations of human diseases transmitted by over twenty animal species. This exemplifies how man's relations and points of contact with a large variety of the lower animals are more intimate and complex than those of any of the other animals to other species; and as a result of such relations, on the whole, the disease transmission from animals to man is naturally increased in number and variety. This is one of the penalties that man pays for being nurse, doctor and master of the brute creation.

The modes of transmission of disease from animals to man are varied, and some of them are well recognized. Davis recalls that infection in man may occur through simple contact with diseased animals. The infectious agent may be carried mechanically from person to person or from animal to person through food or otherwise by a second animal. The animal may through a bite produce a lesion into which the infectious agent is transferred. The parasite may be transmitted to man through the meat of lower animals used as food. The infectious agent may be transmitted to man through the secretions of the lower animals. The infectious agent may enter one of the lower animals, in which it passes through a regular phase or completes a cycle and then, usually through a bite of the animal, is transmitted to man.

A few somewhat extraordinary instances deserve to be repeated in illustration of the unexpected diversity of the relationships of animals to man in respect to disease. Recently an outbreak of several cases of anthrax occurred in England which after considerable difficulty was traced to the use of infected shaving brushes. The anthrax bacilli were recovered from the used brushes as well as from new brushes from the same stock obtained in a store. They were made with hair from a diseased animal. Malta fever is transmitted largely through the milk and urine of goats infected with *Micrococcus melitensis*. The difficulty of recognition of the source of the infection lies in the fact that in most of these animals there are no symptoms whatever, the micrococcus being found in the secretions of animals perfectly healthy and which remain so. The problem of the healthy carrier thus applies to the lower animals in this new relation. Again, over thirty milk-borne epidemics of streptococcus sore throat are already on record. It would now seem that in some instances virulent streptococci of the human type may find their way into the udder of the cow through the contaminated hands of the milker and there multiply and return subsequently in large numbers in the milk and infect the consumer. Some of these epidemics and perhaps many of them have originated thus. Still different is the acquirement of disease where more than one species of transmitting agent is concerned. For example, Davis reviews how most interesting relationships exist in this connection between some of the nematoda and the trematoda or fluke infections in man and certain small water animals, including crabs, snails and other arthropods. For example, the guinea-worm, a filarial parasite in man, lives in the tissues, and at times the female bores outward through the epidermis, discharging the embryos which, if they find water, swim about and enter a small crustacean, the waterflea or cyclops, in which they remain for several weeks undergoing certain transformations. Finally they may enter the stomach of man through drinking water and then bore through the stomach wall into the tissues again.

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[1] Lee, F. S.: Scientific Features of Modern Medicine, New York, 1911, p. 64.

[2] Davis, D. J.: On Certain Relations of the Lower Animals to Human Disease, Science, 1916, xliv, 337.

We must be prepared to appreciate and particularly also to educate the public to an understanding that though the most universal mode of transmission of the more widely distributed infectious diseases is through contact with an infected person and infected personal articles, this is by no means the sole mode of dissemination. Our study of disease in medical and veterinary institutions, says Davis, should be at least as broad and as comparative as is the study of zoology or botany. In order to understand the natural history of many diseases, comparative studies are absolutely necessary. It would undoubtedly be advantageous both from a humane as well as from a scientific standpoint, he adds, if our medical schools and hospitals, our veterinary hospitals and even our cat and dog hospitals and other places for the care of sick animals could all be concentrated in one institution for the broad study of disease.

DIETARY TOXICITY VERSUS DEFICIENCY

The prominence given to the question of dietary deficiencies in the more recent investigations and discussions of the pathology of metabolism has, very properly, directed consideration to factors of nutrition and disease not until now adequately appreciated. Enthusiasm for new discoveries or promising ideas proverbially tends to concentrate attention on that which is presumably novel; and incidentally there is a liability to overlook other highly important factors which are not, for the moment, in the center of interest. Thus, when unusual interest in the toxic performances of some variety of micro-organism is dominant, there is liable to be a tendency to overlook the equally significant powers of defense of the host; or, again, when some unexpected portal of entry for noxious germs into the body is brought into prominence by a new observation, the other possibilities of bacterial invasion are liable to be temporarily overlooked or minimized, if not entirely forgotten.

An illustration of what has just been indicated is suggested by recent researches from the Departments of Agricultural Chemistry and Anatomy at the University of Wisconsin.[1] In a noteworthy investigation[2] reported in 1911, it was pointed out that a ration from the wheat plant — wheat grain plus wheat straw — was wholly inadequate with heifers for reproduction and in some instances for continued growth. With swine, confined to the wheat grain and a suitable salt mixture, growth soon ceased and the animals passed into a poor condition, while a corn and salt mixture ration was at least sufficient for slow growth and continued well-being.[3] Since then our ideas of what constitutes an adequate ration have been considerably expanded.[4] The nature of the so-called deficiency diseases or avitaminoses has been widely discussed in relation, among others, to beriberi, scurvy, rickets and pellagra. It may be stated, in a general way, "from the extensive data now available, that certain at present unidentified substances aside from protein, carbohydrates, fats and salts are indispensable for growth or prolonged maintenance, and furthermore that there is a class of such accessories soluble in fats and another soluble in water and alcohol." Furthermore, "it seems highly probable that, while the amount of accessory substances of either of these classes which is required to induce growth is small, the evidence points to the belief that a certain quantity must be present before any growth can take place, and that above this amount, growth seems to be in some measure proportional to the amount of accessories present."[5]

Evidence seems to be at hand that in certain defects of nutrition, presumably of dietary origin because they can be corrected by alterations in the food, we have to deal, not with a true deficiency in the diet, but with some inherent substance in the ration that is either interfering with the use of certain constituents necessary for perfect nutrition, or is directly causing nutritional disturbances. Hart, Miller and McCollum[1] have now found apparently that certain wheat rations produce pathologic conditions, with histologic pictures analogous to those seen in the polyneuritis of fowls, as the result of an inherent toxicity, as well as by a deficiency in the food supplied. Malnutrition, histologically characterized by nerve degeneration, may result from the absence of certain factors in the diet, as in the case of beriberi. A similar condition may likewise arise from the presence of toxic materials in apparently normal food products, and in the presence of all known factors essential for continued growth and well-being. The newer investigations of the Wisconsin workers indicate that with a large mass of wheat in the ration of swine, toxicity will follow even in the presence of all the recognized factors for growth. Only in the presence of very liberal quantities of all these factors can the effect of the toxicity be overcome. One almost inevitably thinks of the cottonseed feeding problem in this connection. The lesson of these significant observations may be summarized in the words of the investigators: For normal nutrition with natural foodstuffs not only must there be a plentiful supply and proper constitution of the foregoing essential factors, but also a supply sufficient to overcome any inherent toxicty or else an absence of the toxicity itself. Of course it is assumed that some kinds of toxicity of natural foodstuffs can be overcome by a plentiful supply of the normal factors of nutrition. They may not always be possible.

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[1] Hart, E. B.; Miller, W. S., and McCollum, E. V.: Further Studies on the Nutritive Deficiencies of Wheat and Grain Mixtures and the Pathological Condition Produced in Swine by Their Use, Jour. Biol. Chem., 1916, xxv, 239.

[2] Hart, E. B.; McCollum, E. V.; Steenbock, H., and Humphrey, G. C.: Research Bull. 17, Wisconsin Experiment Station, 1911.

[3] Hart, E. B., and McCollum, E. V.: Jour. Biol. Chem., 1914, xix, 373.

[4] Compare, for example, Mendel, L. B.: Nutrition and Growth, The Journal A. M. A., May 8, 1915, p. 1539. McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1915, xxiii, 181. A Report on Nutrition in a German Internment Camp, editorial, The Journal A. M. A., July 8, 1916, p. 125.

[5] McCollum, E. V., and Davis, M.: The Essential Factors in the Diet During Growth, Jour. Biol. Chem., 1915, xxiii, 231.

OFFICE HYGIENE

One of the most important business centers of the world, the City of London, was credited in the census with a night population of about 26,000. During the day, this district contains from 1,000,000 to 1,500,000 persons, a great number, perhaps a majority, of whom are employed in office buildings. In most great cities a similar state of affairs exists. The conditions under which these diurnal inhabitants work have received little attention from sanitarians, who have devoted themselves chiefly to the investigation and amelioration of the working environment of industrial employees and schoolchildren.

Recently, under the auspices of the Department of Health of New York City, a sanitary survey was made of a typical city block containing buildings of different types from the oldest to the most modern. The results as regards lighting and ventilation were published in the monthly bulletin of the department.[1]

It is natural that architects and others responsible for the construction of office buildings should attempt to produce a favorable impression on the prospective tenant. The majority of tenants are, from past experience, capable of forming a fairly sound judgment on the heating arrangements of a building; they are also easily satisfied with the illuminating devices, provided the esthetic effect is good and there is enough light. It follows that insufficient attention is likely to be paid to the amount and distribution of the light on the working surfaces of the employees' desks. In respect to lighting, the most important defects are the two extremes of insufficient light of any kind and an excess of artificial light. In the New York survey it was found that less than 15 per cent. of the employees had access to natural light, and even of these many were obliged to supplement it with artificial light. Under such circumstances, the importance of ascertaining what are the best means and quantity of illumination is evident. The most satisfactory working conditions, from the physiologic point of view, for typists and bookkeepers are found to be the use of duly shaded sources of light, about 19 inches above the working surface and of such intensity that one square foot of white surface reflects light equivalent to eight or nine standard candles (eight or nine "foot candles"), the general illumination of the office being secured by ceiling lights. Health is ameliorated, comfort and efficiency increased by improved lighting, which generally means, in this case, a proper shading of the eyes from direct rays and a greater diffusion of the light with, as often as not, a considerable reduction in its intensity. In the most expensive installations, high power modern lamps are frequently combined with metallic reflectors, concentrating a brilliant disk of light on a small portion of the working surface and leaving the surroundings comparatively dark. This produces a contrast which experience has shown is fatiguing to every retina and even seriously harmful to some.

With regard to the problems of atmospheric conditions such as the purity, the movement and the humidity of the air, the prospective tenant is generally wofully ignorant. Moreover, it would be difficult for any one but an expert ventilation engineer to pass judgment on the efficiency in winter of what is known as "air conditioning" apparatus from the results of an examination made of an empty building in summer.

Under this head, the findings of the New York report are what would be expected in view of the considerable experience accumulated during the last few years. The actual amount of space available for each person was generally sufficient, but ventilation was unsatisfactory because, the nature of the building and its surroundings tending to cause drafts, the windows were not kept open during cold weather and the few inside openings such as transoms, when existing, were not in use.

In respect to the three atmospheric elements of working conditions, ventilation, temperature and humidity, this report is not so extensive as that issued after a similar survey by the Chicago Commission on Ventilation.[2]

The findings, the methods and the recommendations of the latter commission will repay study by all who are interested in this subject. Briefly stated, the principal recommendations were: that the air should be washed and filtered; that, whenever possible, upward ventilation should be used, that air currents impinging directly on persons should have a temperature not below 60 F.; that the humidity of the air should not be allowed to fall below 40 per cent. of saturation, and that the temperature should be maintained at about 68 F. This is ideal, of course, but it would be both difficult and prohibitively expensive to adapt existing buildings to meet all exigencies of such a system. This, however, is less true of the lighting arrangements and the control of humidity, and it would be found true economy in the construction of new buildings to design the heating, ventilating and lighting plant in accordance with the indications of sanitary science.

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[1] Monthly Bulletin of the Department of Health of the City of New York, August, 1916, vi, No. 8.

[2] Chicago Commission on Ventilation, Report, 1914.

It is now well established that the principal defect of air conditions in centrally heated buildings is the fact that in raising the temperature of the air, steps are not taken to insure a due degree of humidity. Warm air holding less than 40 per cent. of its potential humidity is irritating to the respiratory passages and is far more easily contaminated by dust, dried sputum and other objectionable particles. A number of satisfactory automatic and semiautomatic devices for regulating the humidity of the atmosphere are in use.[3] Some of these can be adapted to existing buildings and others cannot. For the greater part of the United States, there is little fear of overcharging the atmosphere with moisture during the winter. Simple evaporating devices adapted to existing radiators will therefore be found satisfactory in relatively small rooms. In larger rooms the same method may be employed, if the humidity is uniformly distributed by appropriately placed fans. It should be unnecessary to say that the best way of purifying the atmosphere is not by adding foreign materials to it but by introducing fresh air. All of the much advertised products recommended to be added to the water evaporating on radiators are worthless and serve only to transfer money from the pockets of the credulous to those of the exploiting class.

A NEWLY DISCOVERED FUNCTION OF THE BONE MARROW

The clotting of blood is a complicated process from the standpoint of the chemical changes concerned in it. Most of the essential facts of the phenomenon are now clearly recognized; but the theory of coagulation still remains shrouded in considerable mystery. The literature of the subject, which has received voluminous additions for more than half a century, is so largely confused by the variable nomenclature and unlike designations for the same features, that the untrained person will find it difficult to unravel the strands of the intricate meshwork of description and speculation. The fundamental rôle of the soluble blood protein fibrinogen, which is converted into fibrin when the blood clots, and the failure of the clotting process to be accomplished in the absence of soluble salts of calcium, are quite generally recognized. A further factor is found in what was formerly designated as fibrin ferment, but more recently thrombogen or prothrombin, to indicate the antecedent of a substance that plays a significant part in the formation of fibrin.

As delayed or inadequate clotting of the blood is of no little moment to the welfare of the individual, and is a symptom of various pathologic conditions, precise information respecting all of the factors indispensable for coagulation is imperative for any rational therapeutic procedure in certain diseases. If fibrinogen is lacking, the organs that normally supply it must be stimulated to their usual normal performance. Similar reasoning is applicable to the other essential contributors to the clotting of the blood. In recent years a more accurate determination of the nature of the deficiency in cases of unsatisfactory coagulation has become possible. Methods for remedying the discovered defects are not yet thoroughly satisfactory.

Prothrombin has been believed by different investigators to rise from one or more of all the familiar formed elements of the blood. At present there seems to be no doubt, however, that thoroughly washed mammalian erythrocytes do not yield prothrombin. Its possible origin from leukocytes disintegrating in the blood has become doubtful, to say the least. There is no question, however, that prothrombin arises from blood platelets; indeed, the disintegration of the latter elements accompanies the act of coagulation and seems to be one of the first features in it. Low platelet counts are known, furthermore, to be associated with certain tendencies to bleeding, and the lack of platelets has been held responsible for the deficient coagulation.

In the course of experiments conducted in the physiologic laboratory of the Johns Hopkins University on the perfusion of bone marrow, Drinker[1] has observed an unexpectedly large amount of prothrombin in the perfusing fluid after it has passed through the marrow. In regard to the cells of origin of this prothrombin, there is no tenable evidence that it comes either from leukocytes, lymphocytes, myelocytes, nucleated red cells, or wandering epithelial cells, all of which may be found in the marrow. On the other hand, the blood platelets are known to contain prothrombin, and the origin of the plates from the megacaryocytes of the marrow is said to be well established. The latter structures are, accordingly, the probable source of the marrow prothrombin. The discovery that bone marrow is an important and specialized source of prothrombin is significant.

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[3] Carpenter, R. C.: Heating and Ventilating of Buildings, New York, John Wiley & Sons, 1915.

[1] Drinker, C. K., and Drinker, Katherine B.: The Bone Marrow as a Source of Prothrombin, Am. Jour. Physiol., 1916, xli, 5.

The Appeal of the Mysterious.—Ignorance is guided by terror, rather than by love. To the undisciplined mind, whatever is supernatural or unexpected makes a stronger appeal than the familiar phenomena of daily life.—R. M. Lawrence, Primitive Psychotherapy and Quackery.

Current Comment

GOITER AMONG THE UNITED STATES INDIANS

Simple goiter occurs not only as a sporadic disease in all parts of the world, but also as an endemic manifestation in certain regions. For Europe these goiter districts have long been recognized. They are clearly localized in parts of the Swiss and Italian Alps. Silesia and the Black Forest have circumscribed goiter areas. The disease is also endemic in definite regions of France, Spain, England and Asia. In our own country the existence of goiter in comparable endemic form has not been so well established, or at any rate recognized. It has long been known, however, that goiter is unduly prevalent in the region of the Great Lakes. Sometimes the existence of goiter among domestic animals calls attention first to the similar tendency in man in the same region. This has lately been the case in some of the valleys of northern Montana. The intensive investigation of the problems connected with the etiology of endemic goiter[1] might advantageously be prosecuted in this country more vigorously than it has been in the past. America has its own goiter regions. Dr. Hrdlicka[2] of the U. S. National Museum has directed attention to an immediate opportunity for a thorough investigation, by modern means, of the conditions leading to thyroid enlargement. He reports the excessive prevalence of goiter and symptoms of thyroid derangement among the American Indians along that part of the Missouri Valley comprised between the Cannon Ball Creek and Cheyenne River in North and South Dakota. The situation is said to be sufficiently serious to demand speedy steps for relief, and its localization is attested by the fact that in his visits to upward of fifty tribes, Hrdlicka has never found a locality in which the thyroid disease was as prevalent and active, and where conditions for research into its causes were more promising. The incidence of goiter among the United States Indians has been estimated at 3 per thousand population. A report of 61 cases per thousand among the Blackfeet and Two-Kettle bands of the Cheyenne River group was made some years ago. The present equally great or greater prevalence of the disease in certain parts of the Fort Yates territory had not been suspected. Hrdlicka maintains that goiter among Indians is not connected with cretinism, which seems not to occur at all in that race, or with myxedema, and only rarely and moderately with exophthalmos. The clues to its origin seem to be quite as baffling in the Missouri Valley as in Switzerland. Hrdlicka relates certain facts which help to negate some of the older theories of race and region so long held. Disturbance of the thyroid gland among the Indians, he tells us, is not a tribal peculiarity, for other branches of the Sioux away from the river are less affected. There is no evidence that the disease extends for any great distance along the Missouri, or is common among the white persons of the same localities. The water used by the natives is mostly that of the Missouri and its small affluents. The present habits of these Indians are those of fairly civilized Indians in general. They were always hunters and great meat eaters, and are doubtless still more so than agricultural tribes; but this is true of all the Sioux. The country is of the rolling prairie type, the climate rigorous but not oversevere. Malarial infections are infrequent, but tuberculosis and venereal diseases prevail. If these facts afford no clue to the cause of goiter, they may nevertheless promote inquiry.

AN INSURANCE MAN ON SOCIAL INSURANCE

At the National Convention of Insurance Commissioners held last week in Richmond, Va., Hon. Rufus M. Potts, superintendent of the Illinois State Insurance Department, and chairman of the Committee on Social Insurance appointed by the convention, discussed social insurance from the standpoint of the insurance expert. Fearing that the designation "social insurance" might produce a hostile attitude on the part of the general public on account of an erroneous association with the Socialist party, Mr. Potts proposes to designate all such plans as "welfare insurance," which he defines as "the use of insurance principles and methods for the purpose of . . . maintaining every citizen of the United States in a state of wellbeing throughout the various misfortunes and emergencies of life that would otherwise destroy his wellbeing and cause destitution and suffering." He called attention to the fact that there is in every country an unnecessary amount of poverty or suffering which is not due to the improvidence or even misconduct of the individual himself, but which is brought about by accident, sickness, premature death of the bread winner, involuntary unemployment, old age or other causes beyond the control of the individual. He estimates that there are annually in the United States about 82,520 deaths from industrial accidents and 208,000 nonfatal industrial accidents, each sufficiently severe to cause more than seven days' loss of time, and that the total number of nonfatal accidents, industrial and nonindustrial, is about 697,000. The number of cases of sickness among working people he estimates at 13,400,000, entailing a total loss of time of 284,750,000 days, or a wage loss of $488,142,852. The number of deaths each year among wage earners between the ages of 15 and 65 he estimates at 608,239, causing approximately 200,000 dependent families left unprovided for annually. Regarding unemployment, there are practically no reliable statistics. Existing society, accident, sickness and life insurance are wholly inadequate, and reach only a small portion of the total population. Universal welfare insurance under the control of the federal government would, in Mr. Potts' opinion, reduce the expense of operation to a negligible minimum, render it feasible for the nation to contribute to welfare insurance, and compel the improvident to make provision for their families and themselves when overtaken by misfortune. The insurance of all the workers would include such enormous numbers that under the law of average the conduct of the plan would be stable and certain. The increase of production through greater individual and industrial efficiency and the diminished necessity for charitable relief will more than justify the expense involved. Mr. Potts' discussion of the subject is of special interest as coming from an insurance official rather than from a physician, a public health official or a social worker. It is another evidence of the growing interest in social insurance.

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[1] Endemic Goiter, editorial, THE JOURNAL A. M. A., Aug. 12, 1916, p. 514.

[2] Hrdlicka, A.: Goiter Among the Indians Along the Missouri, Science, Aug. 11, 1916, p. 203; Physical and Medical Observations Among the Indians of Southwest United States and Northern Mexico, p. 201.

FIRE AND ACCIDENT PREVENTION DAY

October 9 has been designated by the National Fire Prevention Association and the National Safety Council as a day on which to recall the need for the conservation of human life and property through prevention of the hazards with which these two associations are concerned. Holocaust after holocaust and the tremendous loss of property through fire have served to focus the attention of specially trained experts on the fire problem: underwriters' laboratories have been established to investigate the development of fire apparatus; engineers have devoted their attention to the elaboration of fireproof materials and sprinkling devices; furniture builders have designed steel and other noncombustible factory and office equipment. But all this has been prompted, in part, at least, by financial interests. The sacrifice of human lives has been a secondary consideration; it should be the first. Loss through fire is not always chiefly a loss of property, as evidenced by the Slocum, Triangle Shirtwaist Company, and Iroquois fires. For this reason the fire problem, especially as it affects public institutions, merits the attention of physicians. Industrial diseases have recently received extended investigation. New industries and new processes have brought with them a train of new diseases. In these investigations, physicians have been the leaders. Of great importance, also, is the prevention of industrial accidents. The problems are not, of course, chiefly medical, but rather problems to be considered by the safety engineer. Physicians are not ordinarily conversant with the construction of boilers, fly-wheels, transmission machinery, elevators or cranes. There are, however, many phases of industrial accident prevention problems in which the physician can aid in securing adequate safeguards. For example, records can be kept of the causes of all industrial accidents with which the physician is associated, and means can be sought to prevent similar occurrences in the future. Physicians may recommend the provision of appropriate goggles for workers who are liable to injury of the eye from foreign bodies. Many accidents are due to fatigue, but long hours are not the only cause; fatigue is as often due to speeding up or to monotony of muscular effort, as to long hours. The physician here should determine what is reasonable human capacity, thus aiding in preventing accidents caused by overtaxing human effort. By the position of influence which many medical men acquire in the community in which they dwell, they are among those citizens whose opinions carry the greatest weight in matters of public policy. As a citizen, therefore, the physician will often have opportunities of assisting in the application of measures for the reduction of accidents. Practically all accidents are preventable. An infinitesimal number — as that of the man, for example, who puts his finger in an electric fan — are of the variety dependent on human mental fallibility. Movements such as those promulgated by the National Fire Prevention Association and the National Safety Council should receive the cooperation and encouragement of physicians, who have always been among the first in movements for the preservation of human life and health.

CHANGES IN BUTTER DURING COLD STORAGE

The causes of rancidity in butter have frequently been investigated by chemists and bacteriologists. Recently the causes for the undesirable flavors sometimes present in cold-storage butter have been sought by dairymen, storage-men and hygienists. It has been generally supposed that rancidity is due to changes taking place in the fats of which butter is principally composed and that the "off-flavors" are merely mild forms of rancidity. After a series of studies on butter which had been prepared under widely varying conditions and stored at 0 F. for varying lengths of time, Dyer[1] concludes that (*a*) the development of undesirable flavors in storage butter is not dependent on an oxidation of the fat itself, but that (*b*) it is attributable to a slow process of oxidation progressing in the nonfatty constituents of the buttermilk, and that (*c*) the extent of this change is directly proportional to the amount of acid present in the cream from which the butter had been prepared. In other words, the buttermilk supplied the substances which decompose during cold storage and this decomposition is proportional to the amount of acid present in the cream before churning. The experiments showed that butter made from sweet cream had a very mild flavor and kept in good condition almost indefinitely in storage, while the butter from high acidity cream had a high flavor but would not keep well. The remedy consists in preventing the cream from ripening too much, i. e., producing too much acid before churning or, if that has occurred, in washing out the buttermilk from the freshly churned butter with fresh water.

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[1] Dyer, D. C.: Progressive Oxidation of Cold Storage Butter, Jour. Agric. Research, 1916, vi, 927.

Psychology of Race.—Much psychological attention has been devoted to the *primitive races,* and recent ethnological expeditions have not seldom been accompanied by psychologists who carried their various reaction time instruments and attention apparatus to the South Sea Islands. Yet the results indicate a very thorough similarity of all human beings, as far as the most elementary functions are concerned. The popular idea, for instance, that the senses of the savages are sharper than those of civilized men can be disproved by exact experiment. If certain tribes are able to recognize objects at distances at which civilized men do not notice anything, it is essentially through training of the attention for the observation of small signs, a training which is forced on them by the conditions of their life. The true mental differences between the primitive and the civilized peoples appear in the more complex functions.—Münsterberg.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Typhoid Reduction in Birmingham.—Dr. Cecil D. Gaston, health officer of Birmingham, in his report for August shows that 51,122 persons had received inoculation against typhoid fever from the city of Birmingham, and the cases have reduced 411 per cent., as compared with July.

Personal.—W. E. Bingham, Tuscaloosa, has been reappointed a member of the State Pharmaceutical Board.——Dr. Hathaway J. Denman, Birmingham, has been appointed intern at the Fresh Air Camp for Tuberculosis, Montgomery.——Dr. Marvin M. Gould, Mobile, who has been appointed chief surgeon of the hospital at David, Chiriqui Province, Panama, has sailed for Europe to pursue postgraduate studies and will return to his post in Panama in December.——Dr. Isham Kimbell, Auburn, has been commissioned captain in the Medical Corps of the Alabama National Guard.

ILLINOIS

Conference of Charities and Correction.—The Illinois State Conference of Charities and Correction will be held at Alton, October 20 to 22.

Hospital Association to Meet.—The Illinois State Hospitals Medical Association will hold its next meeting, October 26 and 27, at the Peoria State Hospital.

Dispensary Established.—A dispensary for Sangamon County was opened at St. John's Hospital, Springfield, September 12, under the charge of Dr. Jay T. Wood.

Hospital Opened.—The new hospital located at Paris was formally opened, September 22, and the public inspection occurred on the next day. The institution is under the charge of Dr. Roland Hazen.

Chicago

Additional Appropriation for Poliomyelitis Asked.—The health commissioner has asked for an additional $6.000, to be used to combat infantile paralysis. There had already been appropriated $8,000 for this purpose from the mayor's contingent fund.

The Study of Typhoid Fever.—Messrs. Isham Randolph, Lyman E. Cooley and Langon Pearse, representing the sanitary district; Cicero D. Hill, representing the board of local improvements; W. A. Nelson and W. R. Matthews of the bureau of sewers; and Chief Engineer Frank W. Sadler of the Sixty-Eighth Street pumping station have been appointed, by the health committee of the city council, a commission to study sewer and water conditions in the district between Forty-Fifth and Eighty-Seventh Streets. One of the duties of the commission will be to fix the responsibility for the conditions which caused the typhoid epidemic in this district last year.

Personal.—Prof. A. J. Carlson of the University of Chicago lectured in Toronto before the Academy of Medicine, October 3, on "Some Recent Studies of the Physiology and Pathology of the Stomach."——Dr. John Clarence Webster, who underwent an operation for gallstones in the Royal Victoria Hospital at Montreal, September 27, is improving.——Drs. Gilbert M. Loewe and Harry Mortimer Richter, who have been serving in a hospital at Naumberg-am-Salle, arrived in New York from Germany, September 30.——Drs. Christian B. Luginbuhl and Franz H. Harms have been appointed by the state department to work under the direction of the American Ambassador at Berlin for the relief of British prisoners of war in Germany.

INDIANA

Infantile Paralysis.—Fifteen cases of infantile paralysis have been reported to the Indianapolis Board of Health during the year.——The two schools that had been closed on account of the disease will be reopened, as it is believed that the situation is under control.

Conference on Mental Defectives.—The Indiana State Conference on Mental Defectives will be held at the Hotel Claypool, Indianapolis, October 16 and 17. The object of this conference is to discuss the methods of reducing, if possible, the number of feebleminded, insane and epileptic persons in the state.

Personal. — Dr. Charles J. Rothschild, Fort Wayne, announces his candidacy for coroner on the Republican ticket.——Dr. Halsted S. Murat has resigned as chief physician at the Indiana Reformitory, Jeffersonville, and will move to Middletown, Ohio.——Dr. Giles E. Mowrer has been appointed physician to the Indiana Reformitory, Jeffersonville.

Changes in Medical Corps.—Capt. Archibald G. Chittick, Frankfort, commanding Ambulance Company No. 1, Indiana N. G., has been promoted to major, M. C.——Lieut. Donald C. McClelland, Lafayette, assigned to the Ambulance Corps, has been promoted to captain.——Maj. Frank W. Foxworthy, M. C., Indianapolis, has resigned.——Drs. Melville Ross, Bloomington, and Claude D. Greene, Spencer, have been commissioned first lieutenants, M. C., and assigned to the Ambulance Company.

The Typhoid Situation.—The typhoid situation in Indianapolis is very much improved. Only four or five cases are being reported each day at present. Since August 1, 611 cases have been reported, with thirty-two deaths. Practically all the schoolchildren of the city have been vaccinated, and the city board of health has arranged to inoculate free of charge those who are unable to pay. Judge Ewbank of the circuit court refused to grant a temporary injunction against the board of school commissioners, commanding the board to admit all the schoolchildren who had not been vaccinated. In his decision, he pointed out that the Supreme Court of Indiana has twice decided that orders of local boards of health requiring all children to be vaccinated in times of epidemics were not unconstitutional.

State Association Meeting.—At the annual meeting of the Indiana State Medical Association, held in Fort Wayne, September 27 to 29, the following officers were elected: president, Dr. John H. Oliver, Indianapolis; vice presidents, Drs. John W. Phares, Evansville; Charles M. Mix, Muncie, and George L. Guthrie, Indianapolis; secretary-treasurer, Dr. Charles N. Combs, Terre Haute (reelected); delegates to the American Medical Association, Drs. Charles H. Good, Huntington, and Miles F. Porter, Jr., Fort Wayne (reelected); alternates, Drs. Charles A. White, Danville, and Anexamander M. Hyden, Evansville, and councilors for their respective districts, Drs. Joseph D. Heitger, Bedford; Frederick A. Tucker, Noblesville, and Oliver J. Gronendyke, Newcastle. The report of the legislative committee recommending a full time health officer for each county in the state, and the establishment of a department of child hygiene in connection with the state board of health, was adopted. Evansville was selected as the next place of meeting.

KANSAS

Personal.—Dr. Oscar L. Peak, Springfield, Mo., has assumed his new duties as national medical director of the Knights and Ladies of Security, with headquarters at Topeka.——Dr. Newton A. Seehorn has been appointed physician of the State Reformitory, Hutchinson, succeeding Dr. Fred A. Forney, resigned.——Dr. William R. Dillingham, for four years on the staff of the Halstead Hospital, has resigned and has been succeeded by Dr. Victor E. Chesky, Nickerson.——Dr. Eva Harding, Topeka, was nominated for Congress on the Democratic ticket at the recent primary election.——Dr. Charles A. Dudley has been appointed health officer of Pittsburg, succeeding Dr. Charles F. Montee.——Dr. Edward M. Miers, Salina, has been appointed chief surgeon of the Salina-Northern Railway.——Dr. Walter C. Palmer, Hiawatha, has returned after three months in a field hospital on the western war front.

MARYLAND

Census of Babies.—Dr. Frederic V. Beitler, chief of the bureau of vital statistics of the state department of health, has arranged with the police board for a census of all children born in the city since January 1. The census will be made in connection with the school census, which will be started in November. From the standpoint of the department, the value of the census will be that it will provide a check against the regular reports of births, which physicians and midwives are required by law to make to the health department.

Personal.—Dr. William H. Welch, Baltimore, professor of pathology at the Johns Hopkins Hospital University, has returned from Europe, where he went early in the summer to make an inspection of some of the most noted European hospitals in order to secure data for the new school of hygiene and public health to be established at the Johns Hopkins University. While in Europe he also secured a great deal of information which will be valuable in organizing and mobilizing the scientific resources of this country. He secured this information in his capacity as president of the National Academy of Sciences and at the request of the president. While abroad, Dr. Welch spent some time with Sir William Osler at Oxford and also visited Dr. Joseph A. Blake at his hospital at Risorangis and Dr. Alexis Carrel, New York, at Compeigne.

Plans for Children's Hospital School.—Plans for the final complete development of the Children's Hospital School that will make it one of the finest institutions in the state have been decided on and are now being worked out by architects to be available when occasion offers in the future. The school is now being used by the city for the treatment of infantile paralysis, and it will not be until after it has been turned back to its owners that the work of construction will begin. Even then only one of the buildings designed will be erected, but the authorities of the institution have had a complete set of harmonious plans drawn, so that as the school grows, the best possible use can be made of any legacies or endowments that may fall to it. The first building to be put up is to be the isolation observation ward. Later, as funds make the work possible, two private wards, a medical and a surgical building will be added in the order named. The buildings, thirteen in all, will probably not be completed for some years, but if an opportunity should come, the institution will be in position to avail itself of it.

Plague Renews Its Grip.—During the past week, more infantile paralysis has been reported in the city and state than at any time since the plague made its appearance. Sixty-nine positive cases of poliomyelitis have been reported in the city since September 1, and eighteen have proved fatal. Physicians in the city health department are showing concern over the fifth case of the disease to develop among children at the Tudor Hall apartment house during the week. All children in the apartment are quarantined and will be kept under surveillance for two weeks or more. A child, brought from Maine, and having a Maine State Board of Health certificate, as well as a traveling certificate from the United States Public Health Service physicians in New York, developed the disease shortly after arriving at a hotel at Denmore Park and the health department has the hotel and family under strict quarantine. Dr. John D. Blake, health commissioner, states the plague is not spreading, and the rule regulating gatherings of children in public places has kept the epidemic from assuming more alarming proportions. However, his request to the board of estimates to retain the thirteen extra physicians and two detectives for at least two weeks longer has been granted.

NEW YORK

Paratyphoid at Camp Whitman.—There are a few cases of paratyphoid fever among the five organizations of state troops at Camp Whitman, Greenhaven. These cases have been confined entirely to members of the Fourteenth Infantry.

Special Study Course for Health Officers.—About twenty-five health officers, chiefly from central New York, began a special course of study at Syracuse University, September 10. The course was outlined by Dr. Frederick W. Sears, Syracuse, district sanitary supervisor, and approved by the state health council. The course is designed better to prepare all student health officers for the performance of their duties in their respective communities.

Personal.—Dr. Amos O. Squire has resigned as prison physician at the State Prison, Ossining.——Dr. Richard H. Hutchings, medical superintendent of the St. Lawrence State Hospital, Ogdensburg, has been given an indefinite leave of absence and will undertake a comprehensive study with reference to the conservation of mental health in his native state, Georgia.——Dr. Charles W. Pilgrim, Poughkeepsie, superintendent of the Hudson River State Hospital, was appointed president of the State Lunacy Commission, September 13.

Academy of Medicine for Long Island.—Plans are being formed by Brooklyn physicians for a new organization to be called the Long Island Academy of Medicine, whose membership will include the profession of the entire island. The project involves the establishment of a great medical library to be kept in a library building which will cost $250,000. At present the library of the Kings County Medical Society comprises 65,000 volumes and it is proposed to add to this several other medical libraries in Brooklyn. Dr. Burton Harris, Brooklyn, is chairman of the committee which has this matter in hand.

New York City

Typhoid Carriers Discovered.—The Department of Health of Brooklyn has discovered thirty-five carriers of typhoid fever, most of whom are adults.

Appropriation for Braces.—The board of aldermen adopted a resolution, September 12, appropriating $50,000 for the purchase of braces and after-care of children suffering from infantile paralysis. The appropriation will be divided between the Bellevue and Allied hospitals and the Department of Public Charities.

Personal.—Dr. Louis Heitzmann has been appointed professor of pathology and bacteriology at Fordham University School of Medicine.——Dr. Robert W. Lovett, professor of orthopedic surgery in Harvard Medical School, delivered an address before the New York Academy of Medicine, October 5, on "The Management of Poliomyelitis with a View to Minimizing the Ultimate Disability."

For the After-Care of Victims of Poliomyelitis.—The directors of the Day Home and School for Crippled Children have declared their intention to keep their home on City Island, Pelham Bay Park, which is now used only as a summer home, open all winter for the care of as many children crippled by infantile paralysis as their means will permit. They are desirous of securing additional funds for this purpose.

Poliomyelitis.—Up to September 30, 9,029 cases of poliomyelitis had been reported in the city, with 2,286 deaths. The new cases number nineteen, with four deaths. On this day there were reported to be 2,131 cases in the various hospitals.——Surg. Lunsford D. Fricks of the United States Public Health Service, who has been inspecting interstate travel through New York, was recently ordered to Boston to assist the health commissioner of Massachusetts in the fight against infantile paralysis in that state.——Though the public schools were opened, September 25, many thousands of children were absent and the department of education has instructed truancy officers to be lenient in the enforcement of the truancy regulations for a couple of weeks, until parents can feel assured that all danger of contracting poliomyelitis in the schools is past.

Committee on After-Care of Infantile Paralysis.—A committee consisting of orthopedic surgeons and social workers has been formed for the purpose of caring for cases of infantile paralysis, with headquarters at 289 Fourth Avenue. The executive committee is as follows: Dr. Thomas B. Riley of the Brooklyn Bureau of Charities, chairman; Oliver H. Bartine, superintendent of the Hospital for Ruptured and Crippled, vice president; Dr. Henry W. Frauenthal, surgeon-in-chief in the Hospital for Deformities and Joint Diseases; Dr. Walter Truslow, Brooklyn; Dr. Jaques C. Rushmore, Brooklyn; Miss Bessie E. Amermann; Henry C. Wright, deputy commissioner of charities; Mrs. Fanniebelle Curtis, Charles B. Grimshaw, Dr. Samuel Kleinberg, James A. Perkins and Dr. Benjamin P. Farrell. The committee has engaged Miss Miriam T. Sweeney of Boston to teach nurses and masseurs the best methods of treating muscles injured by the disease.

Work of the Burke Foundation.—The report of the first year's work of this new field of social service has just been made public. This institution was founded and endowed by John Masterson Burke and is known as the Winifred Masterson Burke Relief Foundation. The object of the institution is to provide a home for convalescent patients until they shall be able to resume work, and also to prevent sickness and invalidism by providing a short period of rest, appropriate food and freedom from worry and care to those in need of this assistance. The capacity of the institution has been gradually increased during the year until there are now 220 beds. There have been 4,054 patients admitted during the year, and 83,472 days' treatment given. There is also a branch institution for boys and colored persons which has a capacity of fifty beds. Dr. Frederick L. Brush, formerly superintendent of the New York Postgraduate Medical School and Hospital, is the general medical superintendent. The admission department is at 325 East Fifty-Seventh Street. The work is conducted in cooperation with the various hospitals of the city. A special feature is the care of convalescent cardiac patients and their return to suitable employments.

NORTH CAROLINA

Personal.—Dr. John Thames, formerly assistant superintendent of health of Wilmington, has been elected city health officer of Winston-Salem, and has assumed his official duties. ——Dr. F. Arnold Stovall, Wilmington, has been appointed physician of New Hanover County.——Dr. Joseph Akerman, Wilmington, has been appointed a member of the faculty of the Medical College of Georgia, Augusta, and will be in charge of the hospital maintained in connection with that institution.——Dr. Reuben A. McBrayer, Sanatorium, has been commissioned first lieutenant, M. C., U. S. Army, and assigned to service with troops on the Mexican frontier.

OHIO

Two Years' Residence Required.—The Ohio State Medical Board has adopted a resolution requiring that all physicians who seek to register in that state through reciprocity must have resided and practiced at least two years in the state in which they hold their certificate. Several states require this.

Limited Practitioners' Qualifications.—An analysis published recently of the preliminary education of 150 drugless practitioners licensed in Ohio recently under the Platt-Ellis law shows that 121, or 80.7 per cent., had less than a four-year high school education and that for 39, or 26 per cent., there was no evidence whatever of preliminary education.

New Entrance Requirements.—The Ohio State University, College of Medicine, announces that beginning in September, 1917, its entrance requirements will be increased to include as a minimum the sixty semester hours of premedical work as required for the science-medical course. The Bachelor of Science degree will be conferred on completion of the second year in medicine and the degree of Doctor of Medicine at the end of the fourth year in medicine.

Public Health Federation Reorganization.—Reorganization of the Ohio Public Health Federation was effected, September 19, and by acceptance into membership of the Ohio Hospital Association and Ohio Association of Graduate Nurses, the membership of the federation was raised to 11,000. Plans were completed for the establishment of state headquarters in Columbus, to be in charge of G. V. Sheridan, executive secretary of the Ohio State Medical Association, who was elected secretary of the reorganized federation. The executive council consists of Drs. Willard B. Carpenter, Homer C. Brown, D.D.S., Robert G. Patterson, Prof. Edward Spease, and Drs. John H. J. Upham, Frederick O. Williams, and David White.

Personal.—Dr. Joseph S. Garwood, North Lewisburg, is reported to be critically ill at the Champaign County Hospital.——Dr. John R. McDowell, Zanesville, has been appointed chief of the Division of Public Education and Tuberculosis of the state board of health.——Dr. Charles A. L. Reed, Cincinnati, delivered an address before the Butler County Medical Society at Hamilton, September 27, on "Epilepsy, Its Cause and Treatment."——Dr. Charles H. Quayle, Madison, sustained a fracture of the hip when the automobile in which he was riding collided with a telephone pole, September 18.——Drs. Joseph H. Wilson, Bellefontaine, and Henry E. Beebe, Sidney, sustained painful injuries in an automobile accident near Big Springs, September 12.——Dr. Florus F. Lawrence, Columbus, has been ordered to duty at Fort Sam Houston, Tex.

Physicians and Blackmailers.—Probably no class of professional men are so constantly exposed to the danger of blackmailing as are physicians. Not only is the work of a physician necessarily of such a nature as to make him particularly open to such attacks, but the professional reputation of a physician more than any other class of professional men except possibly the ministry is more easily and completely destroyed by such charges, whether substantiated or not. The number of physicians who are victimized each year can only be guessed at. Associated Press dispatches from Cincinnati state that an attempt to blackmail Dr. Charles A. L. Reed of that city resulted in the exposure and arrest of the alleged blackmailer. Evidence was secured through the use of dictaphones and concealed detectives. The woman is under arrest and indictment.

Cincinnati

Popular Subscriptions for Resident Physicians. — Safety Director Friedlander approved of the plan of Dr. H. Kennon Dunham to raise by popular subscriptions enough money to employ three resident physicians at the Municipal Tuberculosis Sanatorium at salaries of $2,000, $1,500 and $1,200, respectively.

Personal.—Dr. Carlton H. Andrew of the staff of the Cincinnati General Hospital has been appointed assistant superintendent of the State Hospital for the Criminal Insane, Lima.——Dr. Earl A. Martin, assistant receiving physician at the Municipal Tuberculosis Association, has resigned to enter the United States Public Health Service.

PENNSYLVANIA

Personal.—Dr. George J. Van Vechten has been appointed director of the department of health of Scranton.——Dr. D. Duer Reynolds, resident physician at the Bryn Mawr Hospital, has been placed in charge of a hospital for infantile paralysis near Bryn Mawr.

State Genito-Urinary Clinic.—The state health department has announced the establishment of a state genito-urinary dispensary at 1630 Poplar Street. This will be conducted for the benefit of the poor and needy afflicted with genito-urinary diseases. The idea of its establishment by the state health department is to relieve the physician of the care of the many deserving but impecunious poor suffering with genito-urinary infections; the prompt attention and proper treatment for such conditions where it might be otherwise necessarily neglected and, thereby, in the rapid elimination of the danger of contagion, to employ the most effective method for the reduction of venereal disease throughout the state. Dr. John L. Laird will be in charge of the dispensary.

Philadelphia

Quarantine Being Lifted.—Dr. Wilmer Krusen, director of the department of health and charities, officially sent notice, September 26, to pastors and superintendents of Sunday schools that the quarantine on churches were lifted, October 1. Schools were opened, October 2, and on October 7, children under 16 years of age will be permitted to attend motion picture theaters.

Personal.—Dr. Leon Brinkmann has been appointed visiting surgeon to the Jewish Hospital.——Dr. Melvin M. Franklin has been made consulting surgeon to the same institution.——Dr. Ardrey W. Downs, formerly professor of physiology at the Medico-Chirurgical College, has accepted a position as head of the department of physiology at McGill University, Montreal.——Lieuts. Joseph V. Klauder and John B. Ludy, M. R. C., U. S. Army, have been placed on the active list and assigned to duty in the Hawaiian Department.——Dr. J. Chalmers DaCosta has been appointed chief consulting surgeon of the Philadelphia General Hospital, succeeding the late Dr. J. William White.——Dr. Ross V. Patterson, recently appointed dean of the Jefferson Medical College, to succeed Dr. James W. Holland, asumed his new office, September 25.——Dr. R. Tait McKenzie, physical director of the University of Pennsylvania, who has been in England all summer serving as a major in the Medical Corps of the British army, arrived in New York, September 24.——Dr. S. Lewis Ziegler has been elected a member of the board of trustees of Bucknell University.

Infantile Paralysis.—September 27, Mrs. E. T. Stotesbury made the first contribution for the care of infantile paralysis convalescents by the Home Relief Division of the Emergency Aid. The amount was $1,000 and contributions received up to September 20 have reached $12,338.53. This money will be used for the maintenance of the County Branch of the Children's Hospital at Wynnefield, in which children of the poor recovering from infantile paralysis are receiving treatment.——It was announced, September 26, by Dr. Wilmer Krusen, director of the department of health and charities, that a city committee on the after-care of infantile paralysis cases would be organized. The Home Relief Division of the Emergency Aid of Pennsylvania has been asked to appoint the committee whose work will be the systemic care of all cases of infantile paralysis which have passed the acute stage. The committee will obtain the cooperation of social service agencies for the purpose of ascertaining the ability or lack of ability for the families to bear the financial burden of the treatment. Through the public, the Home Relief Division has already promised to finance the orthopedic departments of several of the hospitals while they are taking care of infantile paralysis cases.

VIRGINIA

Professional Building for Richmond.—A professional building is being erected in Richmond. It is located at the corner of Fifth and Franklin streets, will be seven stories in height and will be devoted exclusively to physicians, dentists and allied professions. The professional building corporation has been chartered, with the following officers: president, Dr. Lawrence T. Price; vice president, Dr. J. McCaw Tompkins, and secretary-treasurer, Mr. A. R. Holderby. The building will cost about $175,000.

Personal.—Dr. Lucien Lofton has been appointed a district physician of Richmond, succeeding the late Dr. James F. Crane.——Dr. Robert C. Bryan, Richmond, who has been on duty with the American Ambulance in Paris for several months, has returned.——Dr. James W. Reed, Ocean View, has succeeded Dr. William P. McDowell as a member of the Norfolk County Board of Health.——Dr. Henry S. Stern has been appointed medical examiner of the Department of Health of Richmond, succeeding Dr. Bronson E. Summers, resigned.——Dr. J. Raymond Gorman, formerly of Richmond, has been appointed superintendent of the Locus Valley Emergency Hospital, L. I., N. Y.——Dr. William F. Drewry, Petersburg, has been appointed a member of the state board of health, succeeding the late Dr. Otho C. Wright, Jarratt.

WASHINGTON

Personal.—Dr. Frederick W. Rinkenberger, Tacoma, sailed from New York, September 14, to take a position in the German Field Hospital at Deutsch-Eylau, West Prussia.——Drs. John M. Semple, Spokane, and Park Weed Willis, Seattle, have been appointed members of the advisory board on medical education of the University of Washington.

Antituberculosis Association Meets.—At the annual meeting of the Washington Society for the Prevention and Relief of Tuberculosis, held in Everett recently, the following officers were elected: president, Dr. Christen Quevli, Tacoma; vice presidents, Drs. Wilson R. Johnston, Spokane, and Clarence A. Smith, Seattle; secretary, Prof. John Weinziri, Seattle, and treasurer, Mr. J. V. A. Smith, Seattle.

WEST VIRGINIA

Sanatorium to be Reopened.—Directors of the Ohio County Antituberculosis League held a meeting at Wheeling, September 15, and decided that on the appropriation of $8,000, made by the county for the support of the institution, the sanatorium would be reopened and permanently maintained.

Personal.—Dr. John N. Simpson, dean of the University College of Medicine, Charleston, has been made director of the chemical laboratory.——A. G. Cook, Morgantown, has been appointed, by the state health council, state chemist and assistant bacteriologist, succeeding Prof. O. Oughsoorn, resigned.

WISCONSIN

Personal.—Dr. Charles M. Gould, health commissioner of Superior, has been granted a three months' leave of absence on account of ill health.——Dr. George D. Whiteside, Plover, announces his candidacy for the General Assembly.

Sterilization by Law.—Sterilization operations have been performed on thirty inmates of the State Home for Feebleminded, Chippewa Falls, by Dr. Alfred W. Wilmarth, head of that institution, under the direction of the state board of control and in accordance with the law passed by the legislature in 1913, providing for such operations.

Hospital Notes.—The new Milwaukee Infants' Hospital was formally opened, September 7. The building has been erected at a cost of $50,000, and is a two-story fresh air building, each floor being divided into two units.——The Plymouth Hospital and Training School has been incorporated without capital stock. Its object is the care of sick and needy of Sheboygan County.

Senn Bust Given to Museum.—A bronze bust of Dr. Nicholas Senn was presented to the Wisconsin Historical Museum, Madison, by Dr. Emanuel J. Senn of Chicago. Among other gifts recently presented to the museum by the Senn family are the favorite scalpel of Dr. Senn and surgical instruments used by him when he began his practice as a country practitioner near Fond du Lac in 1869.

CANADA

Infantile Paralysis.—Infantile paralysis is spreading in Ontario, and the provincial health authorities are taking steps for a more vigorous handling of the situation. It will probably be found necessary to close the picture theaters and schools to all children under 14 years of age. During September there have been forty-nine cases, with five deaths. In August there were forty-four cases, with five deaths. July had a record of twenty cases, with three deaths. There was one case of a man 50 years of age. The cases occur pretty generally throughout the province.

Personal.—Mr. Irving Heward Cameron, professor of surgery in the University of Toronto, has arrived home in Toronto after a year's service as head of the surgical wards of the Ontario Military Hospital, Orpington, Kent County, England.——Dr. John J. Mackenzie, professor of pathology in the University of Toronto, has returned from Saloniki, where he has been working with the University of Toronto Base Hospital.——Dr. Roland W. Young, Oshawa, Ont., who was for a time doing hospital work at Malta, is now medical officer on a transport between Alexandria and Saloniki.——Capt. F. B. Bowman, Canadian A. M. C., has been placed in command of No. 2 Canadian Mobile Laboratory, stationed at Folkestone, England.

Medical Societies.—The Hamilton Medical Society began its work for the season early in September, when Dr. Lewellys F. Barker was present from Baltimore and delivered an address.——The Academy of Medicine, Toronto, began its winter session by a dinner in the York Club, tendered the members by the president, Dr. Herbert A. Bruce, who is abroad.——The Medical Society of New Brunswick has elected the following officers: president, Dr. Suther C. Murray, Albert; vice presidents, Drs. George G. Corbet, St. John, and Frederick H. Wetmore, Hampton; treasurer, Dr. William E. Gray, Milltown; recording secretary, Francis J. Hogan, St. John, and corresponding secretary, Albert E. Macaulay, St. John.——The Association of Medical Officers of Health of Nova Scotia at their recent annual meeting elected the following officers: president, Dr. George E. DeWitt, Wolfville; vice presidents, Drs. John J. Cameron, Antigonishe, and Willis B. Moore, Kentville, and secretary, Dr. William H. Hattie, Halifax.

Hospital News.—As the Dominion Hospitals Commission has its system of convalescent hospitals well organized for returned soldiers throughout Canada, it is further understood that there will also be established in the immediate future a chain of hospitals across Canada for surgical treatment as well. At the present time there are said to be from 10,000 to 11,000 Canadian soldiers scattered throughout the hospitals of the United Kingdom. Many of these could be sent to Canada for surgical treatment and so relieve the hospitals abroad for immediate cases. Canada bears all the charges for treatment of her sons in the old land.——Lieut.-Col. Charles W. F. Gorrell has resigned the command of the Duchess of Connaught Hospital in England and his place has been taken by Lieut.-Col. David W. McPherson, Toronto. This leaves a vacancy in the command of the Ontario Military Hospital at Orpington.——Command of the Bramshot Hospital, England, has been given to Col. Roderick C. McLeod of the camp of St. Francis Xavier Unit, which has been increased to the strength of a general hospital.——Lieut.-Col. Herbert A. Bruce, Toronto, who has been abroad making a special inspection of all the Canadian hospitals in England and France, is said to have criticized some of these hospitals rather severely. It is understood Dr. Bruce will not return to Toronto until after the first of the year.——An interesting hospital case is being tried in the courts of New Brunswick. The Moncton (N. B.) Hospital is an incorporated institution and at a meeting held early in the year the management passed a by-law by which all persons who subscribed $1 would be entitled to vote for governors at the annual meeting. The term of three trustees has expired; and taking advantage of the by-law some persons appeared, paid the $1, voted and three new trustees were elected. The validity of the above-cited by-law is now disputed, hence the action in the courts.

GENERAL

Southern Physicians to Meet.—The annual meetings of the Southern Medical Association and the National Association of Railway Surgeons are to be held in Atlanta, Ga., in November. The chairman of the committee of arrangements for the Southern Medical Association is Dr. Stewart R. Roberts, Candler Building, and Dr. Thomas H. Hancock is in charge of the arrangements for the railway surgeons.

National Safety Congress.—The fifth annual safety congress will be held at the Hotel Statler, Detroit, October 17 to 20, inclusive. At this meeting the latest developments of accident prevention and health conservation and practical problems of many industries will be discussed. Sectional meetings will be held on three afternoons. An interesting commercial exhibit of safety devices will be on view at the Detroit Armory.

Roentgenologists Elect New Officers.—At the annual meeting of the American Roentgen Ray Society, held in Chicago, September 28 to 30, the following officers were elected: president, Dr. Lewis G. Cole, New York; vice presidents, C. S. Blair, Chicago, and Dr. Howard E. Ruggles, San Francisco; secretary, Dr. William H. Stewart, New York; treasurer, Dr. William A. Evans, Detroit, and editor, Dr. James T. Case, Battle Creek, Mich.

Obstetricians Hold Meeting.—The twenty-ninth annual convention of the American Association of Obstetricians and Gynecologists was held in Indianapolis, September 25 to 27, and the following officers were elected: president, Dr. John W. Keefe, Providence, R. I.; vice presidents, Drs. Thomas Reder, St. Louis, and Charles L. Ill, Newark, N. J.; secretary, Dr. E. Gustav Zinke, Cincinnati (reelected), and treasurer, Dr. Herman E. Hayd, Buffalo.

New Medical Fraternity Officers.—At the annual meeting of the National Chapter of Phi Rho Sigma Fraternity held in Ann Arbor, Mich., September 22, Dr. Clifford G. Grulee, Chicago, was elected president; Dr. C. Guy Lane, Woburn, Mass., vice president and editor of the Phi Rho Sigma *Journal;* Dr. F. E. Lacy, Chicago, secretary; Dr. William M. Joyce, Chicago, treasurer, and Dr. Charles S. Wilson, Tacoma, Wash., recorder. The next meeting will be held in Philadelphia.

New Officers for Missouri Valley Society.—At the annual meeting of the Medical Society of the Missouri Valley, held in Omaha, September 21 and 22, the following officers were elected: president, Dr. Charles R. Woodson, St. Joseph, Mo.; vice presidents, Drs. E. Winnett Rowe, Lincoln, and Carl B. Hickenlooper, Winterset, Iowa; secretary, Dr. Charles Wood Fassett, Kansas City, Mo. (reelected), and treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo. (reelected). Keokuk was selected as the next place of meeting.

Prevention of Infant Mortality.—The seventh annual session of the American Association for the Study and Prevention of Infant Mortality will be held in Milwaukee, Wis., October 19 to 21. The subjects that will be discussed at the conference include the work of government authorities for the control and prevention of infantile paralysis during the epidemics of the current years; measles and whooping cough as factors in infant mortality; care available for mothers and babies in rural communities; problems of prenatal care; ways and means of educating the public in the campaign for the prevention of infant mortality; public school education in high schools, and vocational schools, colleges and university extension work, for the prevention of infant mortality.

Hospital Officers Meet.—The eighteenth annual meeting of the American Hospital Association was held at the Bellevue-Stratford, Philadelphia, September 26 to 29, and the following officers were elected: president, Dr. Robert J. Wilson, New York; vice presidents, Dr. Andrew R. Warner, Cleveland, and Miss Georgia M. Nevins, Washington, D. C.; secretary, Dr. William H. Walsh, Philadelphia; treasurer, Asa Bacon, Chicago, and trustees, Richard P. Borden, Fall River, Mass.; Dr. Winford H. Smith, Baltimore, and Miss Mary L. Keith, Rochester, N. Y. The plans mapped out for the organization include a nation-wide crusade, thorough remedial legislation against the baby farms, the placing of all hospitals under state or government control or both, and the standardization of hospitals. Cleveland was elected as the next place of meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

Pennsylvania Society to Protect Children from Cruelty, and St. Vincent's Home and Maternity Hospital, Philadelphia, each $5,000; St. Joseph's and St. Agnes' hospitals, Philadelphia, each $1,000, by the will of Mrs. Carolina Earl White.

Newport (R. I.) Hospital, for needed improvements in the buildings, a donation of $10,000 from Mrs. Harry Payne Whitney; $5,000 donation from Mr. and Mrs. Vincent Astor.

To build an emergency hospital at Naragansett, R. I., a donation of $50,000, by John H. Hanan.

Children's Hospital, Boston, and Portsmouth (N. H.) Hospital, each $5,000, by the will of Sara F. Turner, Brookline, Mass.

Massillon (Ohio) Hospital, a donation of $50,000, by C. M. Russell.

Samaritan Hospital, Philadelphia, $2,000, by the will of Steven B. Colliday.

Children's Hospital, Philadelphia, an endowment of $100,000, and an additional sum of $10,000, the income of which is to be used for Christmas presents and the annual dinner for patients and attachés of the institution.

Pennsylvania Epileptic Hospital and Colony Farm, $25,000; United Charities of Hazleton, Pa., the income to be used to continue the salary of nurses, $15,000; Philadelphia Hospital and Infirmary for Nervous Diseases, $50,000, by the will of Eckley B. Coxe, Jr.

FOREIGN

Memorial to Robert Koch.—The *Norsk Magazin for Lægevidenskaben* says that the memorial to Robert Koch was recently unveiled at Berlin, six years after his death, with much ceremony. It portrays in antique style the scientist in his working garment. Owing to the war the celebration was exclusively German, G. Gaffky presiding. He was one of Koch's earliest pupils and collaborators.

New Swiss Insurance Law.—Foreign life insurance companies doing business in Switzerland will be affected if a proposed new law is enacted. By the provisions of this law foreign companies writing business in Switzerland will be required to deposit with the National Bank of Switzerland acceptable securities to the full amount of their reserves for Swiss business, and three fourths of this deposit must be in Swiss securities. Swiss companies will be required to cover one half of their premium collections in the same manner.

Inauguration of Institute for Vaccines, Bacteriology and Chemistry at Buenos Aires.—With much ceremony, this new institute was recently inaugurated. Penna, chief of the public health service, Malbran, chief of the bacteriologic service, and various professors with university chairs in these specialties, all delivered addresses. Magnin, chief of the chemical department, reported that already he had researches under way which might aid materially in remedying the scarcity of imported drugs. A number can be made and many are now being made in the workrooms connected with his department. An isolated pavilion has been set apart for a training school in applied chemistry. The national board of health has had a chemical department since 1880, but this new triple institute is said to be equipped for the science and needs of tomorrow as well as today.

Canadian Military Surgeons at Paris.—The medical department of the University of Paris gave a reception recently in honor of the Canadian military surgeons serving in France. They form a branch of the Canadian Association of Military Medical Officers, and are to hold monthly meetings at Paris. The *Presse Médicale* reproduces the addresses at the reception, Landouzy as dean of the university welcoming them, and de Martigny as president of the association responding. Albee of New York was present as an honorary member, and his method of bone plastics was demonstrated by Pariseau, an enthusiast in the method. Landouzy recalled that at the last, the thirteenth annual French medical congress, held in 1913, it was decided to hold the next at Brussels and one after that at Montreal. The war has postponed all the meetings indefinitely.

Inscriptions on Monuments and Memorials to Physicians.—Prof. R. Blanchard of Paris has recently issued the first part of a work on which he has long been engaged as a contribution to the history of medicine. It is a compilation of epitaphs and inscriptions of all kinds on monuments and memorials, temples, statues and busts, and simple inscriptions, relating to members of the profession and biologic sciences. The full title is "Corpus inscriptionum ad medicinam biologiamque spectantium." This first part forms a handsome volume containing 1,258 inscriptions. The *Société française d'histoire de la médecine* wanted to undertake the work, but had no funds for the purpose, and Blanchard has assumed all the expense and, except for a few subscribers, is distributing the work gratuitously to libraries and persons especially interested in the history of medicine. He appeals to such the world around to collect material for the next part. He pleads for cooperation from members of the profession, urging them to send him a copy of all such inscriptions of historical value in their vicinity, reproducing the exact words, punctuation, alignment, capital letters, with brief description of monument, etc., and photograph of it when possible. The name of the compiler is published with each inscription. Address Prof. Raphael Blanchard, 226 Boul. St. Germain, Paris.

Deaths in the Profession Abroad.—E. Nuñez, assistant professor of gynecology and surgical pathology at the University of Havana, and secretary of the national board of health, aged 44. To his initiative is due much of the progress realized in public health matters throughout Cuba in the last few years, especially in better provisions for young children. He was long on the editorial staff of the *Revista de Medicina y Cirugia* and founded the *Prensa Medica* in 1910.——Our Norwegian exchange reports the death of Paul von

Bruns, the noted German surgeon, who followed his father as professor of surgery at the University of Tübingen. Surgery of the extremities was perhaps the field in which he was most interested, but he has done important work in surgery of the larynx and thyroid and in war surgery. His name has been carried far and wide by his *Beiträge zur klinischen Chirurgie,* which he founded in 1883 and has published since. Its approaching hundredth volume had been bespoken by his pupils to be a *Festschrift* in honor of his seventieth birthday, July 2. He also, with Bergmann and Mikulicz, published the "Handbuch der Chirurgie" and continued Bergmann's "Deutsche Chirurgie."——From the same source we learn of the death of H. Chiari, professor of pathologic anatomy at the University of Strasburg. He was the son of the Vienna gynecologist, J. B. Chiari, and was connected with the University at Prague until 1906.——E. Lang, the well known professor of dermatology and syphilis at the University of Vienna, aged 75.——G. Matti, chief of the medical service of the National Guard in Argentina, president of the Touring Club Argentina, at one time inspector general of pharmacies, and formerly collaborator on the *Semana Medica* of Buenos Aires.——N. Reynal, the dean of the profession in Argentina, aged 86. He founded the Buenos Aires Medical Society, and one of his sons, now deceased, is said by our Argentine exchanges to have been the inventor of the tracheotomy cannula.——W. Stewart, at his home in Urchin, Paraguay, aged 86. Educated in London, Perth and Edinburgh, he served as a surgeon during the Crimean War, and ten years later was surgeon-general to the Paraguayan army. In the interval he had been private secretary to President Carlos Lupez. In 1869 he returned to Edinburgh and studied there the antiseptic technic under Lister, introducing it on his return to Paraguay at Asuncion, which was, he thinks, the second place in the world to adopt Listerism. Dr. Stewart was for many years British consul in Paraguay.

PARIS LETTER

Paris, Sept. 7, 1916.

The War

BACTERIOLOGIC CONTROL AND THE SUTURE OF WAR WOUNDS

Bacteriologic control of the course of war wounds consists in regular determination of the microbic content of the exudate. For this purpose, a microscopic count is made of the microbes in a smear, the examination being repeated every two days. Dr. Depage of Brussels has carried out this control systematically in a hospital at La Panne since June 1, 1916. As a result of his examination of 500 cases, Depage is of the opinion that the bacterial control permits of following the evolution of an infection and indicating the precise moment at which suture may be attempted with the best chance of success. There are three periods in an infection of the wound: (1) a period of acute infection, during which microbes are numerous and have a maximum virulence. Suture performed at this stage will inevitably be followed by failure, if not by worse. (2) A period of attenuated infection during which the microbes are fewer in number and less virulent. Suture at this stage will rarely succeed; ordinarily, a part gives way and there is a possibility of reviving the microbic virulence and favoring the return of acute infection. (3) An aseptic period at which suture has every chance of success. It is, however, prudent to wait until two or three examinations have given negative results before practicing suture. Where there are bony lesions and especially fractures, this delay must be still further prolonged. Depage and his collaborators have, since June 1, practiced 137 secondary sutures in 108 cases; each of these cases having previously been subjected to bacteriologic control. A certain number had been sutured before the third or aseptic stage had been completely established. In no case did any complications arise to retard the healing of the 137 sutures, 112 being entirely successful, 23 partially successful and 2 unsuccessful.

THE EFFECT OF DAKIN'S FLUID ON FRESH WOUNDS

At one of the last sittings of the Société de chirurgie de Paris, Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, communicated the results of researches on the action of Dakin's fluid on fresh wounds made by him in a hospital at the front. He had already made observations on the action of hypochlorites on infected wounds and had communicated the results to the society (The Journal, Dec. 11, 1915, p. 2101). He wished to know if this solution would inhibit the growth of bacteria in wounds treated very early. He samples the exudates, and examines them bacteriologically before and after the action of Dakin's fluid. The conditions were favorable, as the wounds were treated a few hours after their infliction. Nevertheless, only two wounds out of nine, in which no bacteria had been discovered before treatment, remained aseptic. The one was not absolutely aseptic, but practically so. The other was under observation for only three days. In the seven cases bacteria appeared in the wound after two or three days of intermittent irrigation with hypochlorite. One wound of the knee required secondary resection on the seventh day; another patient was in an indifferent condition at the end of several days. The remainder progressed well and it was possible in their case to bring together the lips of the wound, two by suture and two by bandages. On the whole the clinical results were poor. In four cases after free resection, a secondary apposition of the lips of the wound was possible, but of two knee wounds, one required secondary resection; one thigh wound did badly. What Dr. Delbet wished to know was whether, in fresh wounds in which it is not possible to detect bacteria, Dakin's solution is capable of inhibiting the growth of the latter. In fact, this has only happened twice in nine aseptic cases. The history of the hypochlorite question appears to Delbet perfectly simple. First, Labarraque's solution, rendered less irritating by modification which deprived it of some of its germicidal power, was held capable of sterilizing wounds; then the Carrel-Dakin communication to the Académie des Sciences and the Tuffier circular in which the expression "free opening" is not even mentioned appeared. In the second phase, the necessity of early and free exposure was proclaimed. This was a confession of failure, for if free exposure is necessary, the hypochlorite does not sterilize. In the third period; free exposure and irrigation were no longer considered sufficient. Resection of the whole track of the projectile under general anesthesia was recommended. In this evolution, there is one constant, hypochlorite solution and several variables, namely, different methods and surgical treatment of wounds. The favorable results should not be attributed to the constant but to the variables. It is, moreover, unreasonable to believe that Dakin's fluid has an antiseptic action, for Delbet has shown that in wounds treated as above described, the gauze employed to maintain contact of the "germicide" with the wound is richer in microbes than the exudate itself. This apparent paradox finds its explanation in previous experiments of Delbet, which proved that hypochlorites act on the albumin molecule in such a way as to render it more susceptible to attack by microbes. Delbet has convinced himself that simple mechanical cleaning of the wound, excision of the orifices preferably of the whole surface of fresh wounds, followed by immediate reunion, is capable of producing healing by first intention without the help of any antiseptic.

An Alleged Marvelous Remedy for Burns

I was very much surprised to learn of a so-called miracle which had been obtained, according to the "War Letters of an American Woman," in one of the hospitals in the vicinity of Paris by the use of a pharmaceutical specialty, sold under the name of ambrine [The Journal, Aug. 12, 1916, p. 516 and 535]. In spite of the notoriety of which it is the object the remedy in question has not had as great a vogue as it would have merited if it had really had as marvelous effects as "An American Woman" affirms. It was left to America to herald these marvelous effects—completely unknown in France! So true is it, as the French proverb says, "No one is a prophet in his own country."

LONDON LETTER

London, Sept. 18, 1916.

The War

A MOTOR FIELD OPERATING THEATER

The latest achievement of medical science for the succor of wounded soldiers is a motor field operating theater, which is being presented to the Italian government by the Wounded Allies Relief Committee of this country. The vehicle, which is the first movable operating theater to be constructed, has been designed by a well-known surgeon and prominent politician, Sir William Collins. The huge body is mounted on a 4-ton chassis of 25 horse power. Its outstanding characteristics are completeness and compactness, with a view to use in any weather and in any climate. The entrance for the surgeon and his assistants is from behind the driver's seat, and leads immediately to a small compartment which is devoted solely to the sterilization of water, instruments, and complementary vessels, while storage is provided for dressings, lotions, splints and other surgical adjuncts. At the rear of the compartment, and separated by a sliding door, is the theater itself, which is 9 feet 6 inches long, 6 feet wide, and 6 feet 8 inches high, so that ample space is provided for complete freedom of action on the part of the operator. The only fixed furniture in the theater is a copper sink, over which water and lotion taps have been conveniently placed. The walls have been finished in white enamel, and the flooring is sheet lead. The latter material, although somewhat heavy, has been employed on account of its imperviousness to rust. Light is obtained by means of wire glass from the roof, which opens by simple mechanism for the purpose of ventilation, although lowered sides and electric fans are also provided for the same purpose. The 100 candle power electric lamps have been installed, and a Roentgen-ray outfit will be carried in a separate van. Sir William Collins became convinced of the need of motor field operating theaters when he visited Belgium in 1914. His idea is to bring the hospital to the patient, instead of the patient to the hospital, wherever it is found to be practicable, particularly in abdominal cases, in which the rate of mortality is very high unless immediate attention is given. Again, field theaters will enable the army surgeons to arrest hemorrhage and to anticipate sepsis. Sir Alfred Keogh, director general of the Army Medical Corps, and Sir George Makins, consulting surgeon to the army in the field, have inspected the vehicle, and expressed their appreciation of its value as a means of saving life and minimizing suffering. A request has been made by the Belgium government for a duplicate. The cost is approximately $5,000.

SPHAGNUM MOSS AS A DRESSING

The vast demand for surgical dressings has led to the revival of the use of sphagnum moss, which was suggested long ago but had fallen into disuse. This moss grows abundantly in England and Ireland, and was suggested many years ago as an economical substitute for absorbent cotton. Indeed, Joyce, the historian, says it was used as a dressing for the wounds of battle in Ireland in 1014. It grows so abundantly that the supply is inexhaustible. It has three great advantages over absorbent cotton: cheapness, absorbency, and the fact that its preparation is so simple that it can be carried out entirely by unskilled workers. The moss is much more absorbent than cotton, and will take up about twelve times its weight in water. It absorbs moisture very quickly and evenly, distributing it over the whole surface of the dressing, whereas absorbent cotton will absorb at one point, leading the moisture through at that point, while the rest of the wool may remain dry. The even absorption of the moss is one of its principal virtues, for this means that the patient is saved a good deal of disturbance and manipulation, since the dressings do not require to be changed so frequently. The preparation of the moss is simple. After being gathered, it is spread out on the heather or grass near the spot where it grows, and left to dry in the open air and wind. Another plan is to hang it out on a clothes line in open bags made of a very coarse open muslin or sacking, or to spread it out on sheets in gardens or on lawns, so that it is easily carried indoors at night, or during rain. Experiments have been tried of drying the moss artificially, in an oven, or in the drying room of a laundry, but neither plan is very successful, as when it is rapidly dried it becomes very dusty and brittle, and the workers who make it into dressings find it both wasteful and unpleasant to handle. It must be dried slowly, either in the open air, which is by far the best method, or by spreading it out indoors. For use it is put into bags of various sizes made of this muslin. The bags are loosely filled, and should be perfectly flexible and soft, so that they may be bandaged on a limb with comfort, as allowance has to be made for the way in which the moss swells up when brought into contact with moisture. There are four varieties of moss dressings—sterilized, unsterilized, sublimated, or sublimated and compressed. Recent reports show that in many cases the moss is much preferred to absorbent cotton, and every day hospitals are being added to the list of those which already use it regularly. To many of the poorly equipped French hospitals, which can in no way compare with the better provided British hospitals, the moss has proved of the utmost value, when a surgeon has once been persuaded to give it a trial.

HOSPITAL UNIT FROM HARVARD

A fully equipped base hospital unit, consisting of thirty surgeons, two dental surgeons and seventy-five nurses, has left for France in charge of Lieutenant-Colonel Jones of Boston. The hospital is the result of an offer made last November by the Medical Senate of Harvard University to the British government, and its services are to be available until the end of the war. Associated with Harvard in providing the hospital are Yale, Columbia, Princeton, Johns Hopkins and other universities. The movement is due chiefly to the joint efforts of Sir William Osler and Mr. Robert Bacon, formerly United States ambassador at Paris. The Harvard unit will work under the direction of the army medical corps.

Free Distribution of Salvarsan

The Local Government Board has issued a circular to county councils in which are laid down certain rules for the treatment of syphilis under the new scheme (described in a previous letter). The board will supply salvarsan or its approved substitutes free for the purpose of injection, and will give it to all who can produce satisfactory evidence of training or experience in the administration of these drugs. It is recommended that the health officers shall distribute the drugs and satisfy themselves, before issuing a supply, that the applicant is a registered physician with one or other of the following qualifications: that he (1) holds a certificate of having acted as a clinical assistant in a hospital department recognized by the board in connection with a local authority's scheme for the diagnosis and treatment of venereal diseases in their communicable stages; (2) holds a certificate of satisfactory attendance at a course of instruction in the diagnosis and treatment of venereal diseases (including intravenous medication) in such a hospital department or in a recognized medical school or postgraduate college; (3) is or has been within the last five years a member of the permanent staff of a hospital managed by a committee and containing not less than fifty beds, and (4) produces satisfactory evidence other than that indicated that he has had adequate experience in the administration of these drugs by intravenous injection. The scheme is evidently a compromise; as such it is good, better than might have been expected. Probably the appointment of a whole time specialist in each area to whom physicians could send their already notified patients for injection would have been the ideal method. Against this, however, had to be set the reluctance of the patient to face a stranger, and the natural reluctance of the physician to take any course which might savor of breach of confidence.

Marriages

Dana Winslow Atchley, M.D., New York, to Miss Mary C. Phister of Chicago and Newbury, Mass., at Newburyport, Mass., September 22.

Harry Cornelius Albert Beach, M.D., Columbus, Ohio, to Miss Marguerite Carolynn Schairer of Zanesville, Ohio, September 7.

Ernest Otis McCleary, M.D., Ordway, Colo., to Miss Edna Frances Woodard of Colorado Springs, September 14.

Theodore Foster Riggs, M.D., Pierre, S. D., to Miss Catherine Cugle of Baltimore at Pierre, September 8.

Arthur Lee Hagler, M.D., to Miss Ottie Morgan Maxey, both of Springfield, Ill., at St. Louis, September 9.

Edward Parnell Powers, M.D., Roxbury, Boston, to Miss Alice R. Jordan of Brighton, Mass., October 4.

Earl Berton Fitzpatrick, M.D., to Miss Josephine Irene Murray, both of Martinez, Calif., September 6.

Ernest Leonard Posey, M.D., Van Buren, Ark., to Miss Ethel Smith of Magee, Miss., August 31.

Leo Heuler, M.D., Fellows, Calif., to Miss Hepie Moore of Reynoldsville, Pa., at Chicago, June 15.

Bernard O. Bendixen, M.D., Beechwood, Wis., to Miss Olive Stoupe of Milwaukee, recently.

Melville Hammond Long, M.D., to Miss Ruth Snover, both of San Francisco, September 3.

Roscoe Conkling Eaton, M.D., to Miss Edna E. Moody, both of Chicago, September 28.

Sverre Oftedal, M.D., to Miss Agnes G. Halland, both of Fargo, N. D., September 13.

John Hall Lilly, M.D., to Miss Mae Connor, both of Philadelphia, September 14.

Giochino Lavieri, M.D., to Miss Edna C. Gibbs, both of Chicago, September 30.

Deaths

Adoniram Brown Judson, M.D., New York; Jefferson Medical College, 1865; College of Physicians and Surgeons in the City of New York, 1868; aged 79; a Fellow of the American Medical Association and American Academy of Medicine; a member and president in 1891 of the American Orthopedic Association; orthopedic surgeon to the outpatient department of the New York Hospital; appointed assistant surgeon, U. S. Navy, in 1861, and promoted to surgeon in 1866, resigning from the service in 1868; inspector of the New York Board of Health from 1869 to 1877; medical examiner of the New York State Civil Service Commission from 1901 to 1909; author of several treatises on orthopedic surgery and public health; died at his home, September 20.

William Henderson Mayfield, M.D., St. Louis; Washington University, St. Louis, 1883; aged 64; president and surgeon-in-chief of the Mayfield Sanatorium; surgeon to Hormington and Sweet Springs sanatoriums; formerly secretary and executive officer of the American Antituberculosis League; formerly professor of materia medica, therapeutics and diseases of children in the St. Louis College of Physicians and Surgeons; professor of clinical surgery and president of Barnes Medical College in 1911; died in the Mayfield Memorial Hospital, September 12, from cirrhosis of the liver.

Roland Playfair Campbell, M.D., Montreal, Que.; McGill University, Montreal, 1901; aged 40; demonstrator of pathology and bacteriology in his alma mater; chief of the genito-urinary department of the Montreal General Hospital; a member of the American Association of Pathology and Bacteriology; lieutenant-colonel commanding Field Hospital No. 6, Canadian expeditionary force; was killed in France, September 19, by the explosion of a shell which struck the dressing station in which he was attending the wounded.

George V. Calhoun, M.D., Seattle; University of Glasgow, Scotland, 1862; aged 78; in charge of the Marine Hospitals at Port Townsend and Port Angeles from 1866 to 1875; contract surgeon in the army during the Civil War; formerly a member of the territorial senate; president of the board of regents of the University of Washington, first president of the State Board of Medical Examiners, and president of the state board of trade; died at his home, September 16.

William Sherman Connett, M.D., Raton, N. M.; Denver College of Physicians and Surgeons, 1899; aged 51; formerly a member of the New Mexico Medical Society and president of the Colfax County (N. M.) Medical Society; one of the organizers and president of the Raton Supply Company; was instantly killed by the overturning of his automobile near Pueblo, Colo., September 17.

George Hauer Everhart, M.D., Baltimore; University of Maryland, Baltimore, 1890; aged 55; chief surgeon and medical director of the Skin and Cancer Hospital, Baltimore, since its foundation; died at his home, September 17. It was announced at his funeral that the Skin and Cancer Hospital would in the future be known as the Everhart Skin and Cancer Hospital.

Josiah Herbert Keenan, M.D., Elizabeth, N. J.; New York University, New York, 1895; aged 41; formerly a member of the Medical Society of New Jersey; died at his home, September 17, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of the death of his wife.

Sanford Hanscom, M.D., Somerville, Mass.; Harvard Medical School, 1868; aged 75; a Fellow of the American Medical Association; a veteran of the Civil War; a member of the Somerville school committee for twenty years and a trustee of the public library for six years; died at his home, September 20, from heart disease.

Delbert Claude Adcock, M.D., Warrensburg, Mo.; University Medical College, Kansas City, Mo., 1904; aged 36; a member of the Missouri State Medical Association and a specialist on diseases of the eye, ear, nose and throat; was found dead in his orchard near Hickman Hill, September 21.

Harlem S. Smith, M.D., Schoolcraft, Mich.; Georgetown University, Washington, D. C., 1867; aged 72; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at the home of his daughter in Schoolcraft, September 19, from arteriosclerosis.

John Henry Woodward, M.D., Springfield, Mo.; Eclectic Medical Institute, Cincinnati, 1875; aged 68; died at his home, September 4, from the effects of a gunshot wound of the abdomen, self-inflicted, it is believed, with suicidal intent, while despondent on account of long continued ill health.

Gilbert Tweedie, M.D., Toronto, Ont.; Victoria University, Coburg, Ont., 1860; aged 89; also a clergyman; from 1891 to 1908 medical superintendent of the Toronto Isolation Hospital; died at his home, from the results of a skull fracture sustained in a fall from a street car four months before.

Perry D. Covington, M.D., Bellefontaine, Ohio; Medical College of Ohio, Cincinnati, 1869; aged 73; a Fellow of the American Medical Association and once vice president of the Ohio State Medical Association; a veteran of the Civil War; died at his home, September 15, from angina pectoris.

Thomas Albert Calvin Kephart, M.D., Altoona, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 47; a member of the Medical Society of the State of Pennsylvania; while driving his automobile, September 18, was struck by a passenger train and instantly killed.

Frank DeWitt Bates, M.D., Hamilton, Ont.; New York Homeopathic Medical College, New York, 1876; for many years an oculist and aurist of Hamilton, Ont.; died at the City Hospital, Hamilton, August 26, from suppression of urine due to enlarged prostate.

Charles P. Dutchess, M.D., Walton, Ind.; College of Physicians and Surgeons of Indiana, Indianapolis, 1876; a veteran of the Civil War; for forty years a practitioner and druggist of Cass County, Ind.; died at his home, September 19, from disease of the brain.

Floyd Lee Van Wert, M.D., Newcastle, Pa.; University of Pennsylvania, Philadelphia, 1910; aged 32; a member of the Medical Society of the State of Pennsylvania; was killed, September 18, when his automobile was struck by a train.

John Stanley Hanlon, M.D., Los Angeles; Cooper Medical College, San Francisco, 1905; died at his home, September 4, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Thomas B. O'Reilly, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1893; aged 47; one of the best known practitioners of the northeastern section of the city; died at his home, September 18.

John William Was, M.D., Chicago; University of Michigan, Ann Arbor, 1878; aged 61; formerly a member of the Illinois State Medical Society; died at his home, September 23, from carcinoma of the intestine.

Patrick Francis Hogan, M.D., Brooklyn; University of Michigan, Ann Arbor, 1872; aged 65; for several years vaccinator for the Brooklyn Board of Health; died at his home, September 16, from nephritis.

Charles William McClintock, M.D., Ingersoll, Okla.; Central College of Physicians and Surgeons, Indianapolis, 1898; aged 42; died at the home of his aunt in Ingersoll, September 14, from tuberculosis.

Edwin George Sumner, M.D., Mansfield Center, Conn.; Yale University, New Haven, Conn., 1855; aged 86; for two terms a member of the Connecticut Legislature; died at his home, September 13.

Ira H. Fuller, M.D., Columbus, Kan.; Hahnemann Medical College, Chicago, 1884; aged 71; died at his home near Columbus, September 16, from carcinoma of the stomach.

Barney Rubin, M.D., Los Angeles; Kentucky School of Medicine, Louisville, 1893; aged 58; died in the Kansas City Hospital, September 19, after a surgical operation.

James William Harrison, M.D., Spanaway, Wash.; Harvard Medical School, 1868; aged 70; died suddenly from heart disease in North Puyallup, Wash., September 13.

John W. Estes, M.D., Georgetown, Ky.; Cincinnati College of Medicine and Surgery, 1890; aged 68; died at his home, September 11, from cerebral hemorrhage.

Francesco La Spada, M.D., San Jose, Calif.; College of Physicians and Surgeons, Chicago, 1894; aged 52; died at his home, July 2, from bulbar paralysis.

Joseph Samuel Chagnon, M.D., Willimantic, Conn.; Victoria University, Coburg, Ont., 1883; aged 58; died at his home, August 29, from edema of the lungs.

Thomas Wyre Vardon, M.D., Galt, Ont.; University of Victoria College, Coburg, Ont., 1866; aged 74; died at his home, June 30, from heart disease.

Alexander W. Biddle, M.D., Philadelphia; Jefferson Medical College, 1879; aged 65; died at his summer home in Islesboro, Me., September 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

HYDRAS

Report of the Council on Pharmacy and Chemistry

Hydras, sold by John Wyeth and Brother, Philadelphia, is one of the many proprietary, so-called "uterine tonics." It is said to contain "Cramp Bark, Helonias Root, Hydrastis, Scutellaria, Dogwood and Aromatics," but as the amounts of the several ingredients are not given the statement regarding its composition is valueless. The label declares the presence of 24 per cent. alcohol.

The name "Hydras," taken in connection with the statement of composition, would suggest that hydrastis (golden-seal) is an important constituent. The report of the Chemical Laboratory of the American Medical Association, however, indicates that hydrastis is present in unimportant amounts:

> "The hydrastin content of Hydras was determined by extraction with immiscible solvents (*Pharm. Review,* May, 1908, p. 132). Twenty-five c.c. was found to yield an alkaloidal residue of 0.0160 gm. The preparation contains, therefore, not more than 0.064 gm. 'hydrastin' per 100 c.c. Inasmuch as hydrastis is required to contain about 2.5 per cent. 'hydrastin,' hydras contains an equivalent of not more than 2.56 gm. hydrastis (golden seal) in 100 c.c. and the stated dose of Hydras—one dessertspoonful (8 c.c.)—represents not more than 0.2 gm. or 1/10 of the U. S. P. average dose of hydrastis."

The label of a recently purchased bottle of Hydras bears the following recommendations for its use:

> "Indicated in treatment of Dysmenorrhea, Menorrhagia Anti-Abortive, with anodyne and tonic properties."
>
> "For dysmenorrhea, suppressed menses, etc., a dessertspoonful three times daily, before or after meals."
>
> "To relieve pain due to uterine disorders, a dessertspoonful every three hours, or increased to a tablespoonful, at the discretion of the attending physician."

A circular wrapped around the bottle declares that Hydras is:

> "A valuable preparation to the physician in the treatment of dysmenorrhea, colic, cramps, spasm, palpitation incident to pregnancy, and the various pains resulting from diseases of the female sexual organs."

It is further claimed that:

> "In the dysmenorrhea of young girls due to some mechanical difficulty, as anteflexion or of a congestive character, of suppressed menses from exposure to cold and other causes of a similar character, Hydras will prove efficient and can be administered freely without danger."

The value of hydrastis in the treatment of the diseases and conditions mentioned is problematical at best, and the small amount present in Hydras is wholly useless. As for the other constituents, cramp bark (*Viburnum opulus*), helonias (false unicorn—*Chamælirium luteum* or *Helonias dioica*) and scutellaria (skullcap—*Scutellaria lateriflora*) are drugs which are practically ignored by most writers on materia medica and therapeutics.[1] Dogwood (*Cornus florida*) is a mildly astringent aromatic bitter for the use of which there is no scientific evidence.[2]

To sum up: Of the five ingredients of Hydras (aside from alcohol and aromatics), one (hydrastis), which apparently gives the preparation its name, is present in unimportant amounts; three (cramp bark, helonias and scutellaria) are therapeutically unimportant; the fifth (dogwood) has never been shown to have any specific action on the uterus. The potent constituent, therefore, appears to be the alcohol.

But, even if every one of the several drugs said to be contained in Hydras were possessed of distinct therapeutic properties, and if each were present in known and therapeutically active amounts, still the combination in fixed proportion would be irrational. No one could foresee the joint effect of the five drugs in the several conditions for which the mixture is advertised. Hydras is evidently meant to appeal to the thoughtless and to be used at random; witness the suggestion made in the advertising that

> "Owing to its palatability, it is acceptable to patients with impaired digestion, and will serve as a stomachic tonic, promoting appetite and digestion."

A useless alcoholic nostrum "administered freely" to women and girls is as dangerous as the recommendation for such administration is reprehensible.

This preparation is semisecret. The recommendations for its use in specified diseases which appear on the label and in the advertising accompanying the bottle are sure to lead to its ill-advised use by the public. The claims made for its curative properties are exaggerated and unwarranted. The name, in view of the small content of hydrastis, is misleading. Finally, the combination of five drugs, even if individually they were of therapeutic value, is irrational. Hydras, consequently, is inadmissible to New and Nonofficial Remedies for conflict with Rules 1, 4, 6, 8 and 10, and publication of this report is authorized.

[EDITORIAL COMMENT.—Products like "Hydras" are the bane of scientific medicine. The physician who prescribes them could with just as much reason prescribe any of the various alcoholic "patent medicines" of the "women's tonic" type. In fact, his patients would be running less risk of contracting the alcohol habit if he prescribed the "patent medicines" as these nostrums usually have less alcohol than is contained in their "ethical" prototypes—and alcohol is the only really important drug in practically all of them. Whatever one may think of reputable pharmaceutical houses who put out products of the "Hydras" type, the fault really lies with the profession which tolerates such therapeutic monstrosities.]

Correspondence

Fetus of Abnormal Weight

To the Editor:—I was interested in the report of a child of abnormal weight, by D. P. Belcher, M.D., in THE JOURNAL, Sept. 23, 1916, p. 950, especially as you have added a "comment" detailing several other such cases with credible records. The following case is not for publication particularly, but simply to add to your record of actual cases of overweight, newly born infants.

On Feb. 16, 1914, I delivered a primiparous woman, aged 31 years, and perfectly normal physically, being a little more than the normal height and weight, of a living male child which weighed a very little over 18 pounds twenty-four hours after birth.

The pelvic measurements as I found them before labor were normal, or as I thought at the time, a good generous normal.

The labor was not extended beyond safe limits and she did not work harder apparently than she has since in giving birth to a normal sized child. No instrumentation was at any time felt to be necessary or even expected to be so, as the descent of the head and its rotation went on in the usual way and at about the usual speed.

One or two things attracted my attention during and after the labor: the normal size of the placenta with the small amount of fluid in the membranous sac; the large size of the umbilical cord, the vessels being very tortuous; the marked elasticity of the maternal soft parts, the stretching of which seemed to be almost without limit, so that after labor the perineum was absolutely intact, even to the mucous membranes at the fourchette.

If the data I procured at the time were correct there is no doubt that the pregnancy was at least fourteen days over the normal limit.

WILLIS S. COOKE, Otego, N. Y.

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[1] See reports of the Council, THE JOURNAL, Jan. 9, 1915, p. 165; Jan. 23, 1915, p. 359; Nov. 27, 1909, p. 1836; March 27, 1915, p. 1093.

[2] See Reports Council Pharm. and Chem., 1912, p. 36.

Danger to the Infant in Nitrous Oxid Oxygen in Labor

To the Editor:—I am desirous of obtaining statistics covering the United States, so far as possible, relative to the danger to infants from the use of nitrous oxid oxygen gas in labor. I should be glad to have information from any of your readers who have had such complications in their practice.

R. R. Ferguson, M.D., Chicago.
4175 Irving Park Boulevard.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DAKIN'S SOLUTION — USE OF MAGNESIUM CHLORID

To the Editor:—1. Please give me the formula for Dakin's solution. 2. What is the strength of magnesium chlorid solution used in dressing wounds?

M. I. Yannons, M.D., Electric, N. C.

Answer.—1. In August, 1915, Dr. H. D. Dakin, formerly director of the Herter Laboratories of New York, but now serving as bacteriologist in France, read a paper on antiseptics before the Academy of Sciences at Paris (*Presse méd.*, society proceedings, Aug. 5, 1915. Research in Antiseptics, *Brit. Med. Jour.*, Aug. 14, 1915, p. 261. The So-Called New Antiseptic, editorial, The Journal, Sept. 4, 1915, p. 880). He described the making of a neutral solution of hypochlorous acid—claimed to be less irritating than either a hypochlorite with a caustic cation (as Ca or Na) or an acid solution of hypochlorite—as follows:

Two hundred gm. of chlorinated lime are added to 10 liters of water in which 140 gm. of sodium carbonate (anhydrous) have been dissolved. The mixture is thoroughly shaken, and after half an hour the supernatant liquid is siphoned off of the precipitated calcium carbonate and filtered through cotton. The clear liquid thus obtained is made neutral by adding boric acid solution (containing from 25 to 40 gm. of boric acid) until a drop does not redden with phenolphthalein as an indicator.

This was erroneously called the "Dakin-Carrell new antiseptic." Dakin later disclaimed that it was at all new (Dakin's Disclaimer of Novelty in the "New" Antiseptic, editorial, The Journal, Feb. 5, 1916, p. 430). It may be looked on as simply Labarraque's solution (sodium hypochlorite [NaOCl]) made neutral with boric acid. The prepared solution loses its strength. An important point which seemingly has been overlooked is that the strength of the bleaching powder has not been determined; as is well known, the product is exceedingly variable (A Recent Report on Foods and Drugs, The Journal, Aug. 26, 1916, p. 695).

In the same paper Dakin discussed the action of hypochlorites, believing that they reacted with proteins, forming chloramins (>NCl). Such chloramins are antiseptic. He and others, therefore, proposed a "new antiseptic" (Ibs, H. D.; Cohen, J. B., and Kenyon, J.: Studies in Antiseptics, II, on Chloramine, *Brit. Med. Jour.*, Jan. 29, 1916), sodium para-toluene-sulpho-chloramid ($CH_3C_6H_4SO_2Na:NCl.3H_2O$), which is being investigated in Europe. It is claimed to be less irritating and more stable than a hypochlorite solution, but of about the same antiseptic efficiency. It has been accepted by the Council on Pharmacy and Chemistry for New and Nonofficial Remedies under the name of Chlorazene (The Journal, Sept. 30, 1916, p. 1021).

2. Magnesium chlorid is extremely hygroscopic, and is kept in solid form only with difficulty. We are unable to find any references to its use as a surgical dressing.

VACCINATION AND SMALLPOX IN JAPAN

To the Editor:—I am endeavoring to secure vaccination in the public schools here and, of course, am meeting with the usual amount of opposition from the "antis." They fired their first broadside in the public press last evening in which they advanced the argument that in Japan they enforce a nation-wide compulsory vaccination and have for many years, but that in spite of this, they had in recent years the most serious epidemic of smallpox of any civilized country. Can you give me any data on this argument?

Charles F. Lynch, M.D., Health Officer, Lansing, Mich.

Answer.—The above query was referred to the Japanese Consulate in Chicago. The following reply was received:

To the Editor:—In response to your letter of Sept. 11th, I advise you that vaccination against smallpox is compulsory and enforced all over Japan. The latest regulation for the enforcement of vaccination is the Law No. 35, promulgated on the 14th of April, 1909. The said law was preceded by the Notifications of the Department of the Home Affairs in 1876 and the Decree No. 34 of *"Dajokan"* (the Cabinet) of 1885 which had the same object in view. The present law was passed by the Diet and was duly approved by the Emperor, and is technically stronger and more efficient. The attached statistics will show the practical results of the aforesaid ordinances and present legislation.

The statement that Japan has had "in recent years the most serious epidemic of smallpox" was made, I believe, with the incidents of 1908 in mind. But, according to a reliable information from a Japanese physician who is now staying in this city for medical study, most of those cases are accounted for by an undue confidence on the part of our people of their immunity from the disease caused by scarcity of the epidemic in the preceding years, and their subsequent negligence of vaccination. I think that this information is very well supported by the figures in the attached statistics for the following years which show the result of revived enforcement of vaccination.

S. Kurusu, Consul for Japan, Chicago.

Smallpox in Japan 1885-1914

Year	Number of Cases of Smallpox	Number of Deceased Thereof	Population
1887	39,779	9,967	39,069,691
1888	4,052	853	39,607,234
1889	1,324	328	40,072,020
1890	296	25	40,453,461
1891	3,608	721	40,718,677
1892	33,779	849	41,089,940
1893	41,898	11,852	41,388,313
1894	12,418	3,342	41,813,215
1895	1,289	268	42,270,620
1896	10,704	3,388	42,708,264
1897	41,946	12,276	43,228,863
1898	1,752	362	43,763,855
1899	1,215	245	44,270,495
1900	111	4	44,825,591
1901	92	4	45,446,369
1902	46	7	46,041,768
1903	72	6	46,732,876
1904	1,188	237	47,219,566
1905	278	62	47,678,396
1906	496	109	48,164,761
1907	1,034	437	48,819,630
1908	18,075	5,837	49,588,804
1909	106	26	50,254,471
1910	80	13	50,984,844
1911	202	34	51,753,934
1912	14	1	....
1913	108	39	....
1914	485	110	....

[Comment.—The Japanese "argument" is a favorite one with the antivaccinationists. It has been effectively answered many times, but effective answers are no more convincing to antivaccinationists than they are to antivivisectionists. Kitasato, Director of the Institute for Research in Infectious Diseases of Tokyo, one of the most eminent of living bacteriologists, discussed the subject of "Vaccination and Smallpox in Japan" at length in The Journal for March 25, 1911. The figures quoted by Mr. Kurusu are identical with those given in Kitasato's article, although the former gives the later data. In Japan, as in other countries, the compulsory vaccination law is rigidly enforced only in times of epidemics. In the intervals it is only partially enforced. The epidemics of Japan occurred in '87, '92 and '93, '97 and 1908. During each epidemic, the vaccination laws were enforced and the disease promptly disappeared, as shown by the rapid fall of cases from 39,779 in 1887 to 4,052 in 1888; from 41,898 in 1893 to 1,289 in 1895; from 18,075 in 1908 to 106 in 1909. In the intervals between epidemics in Japan, as in all other countries, the law was not rigidly enforced and the number of unvaccinated persons increased and formed the material on which the next epidemic developed. Instead of furnishing an argument against vaccination, the health reports of Japan since 1885, the year in which the vaccination law was passed, form one of the most substantial arguments in favor of the efficacy of vaccination in the control of smallpox.

The number of cases reported in 1908 is 18,075 out of a population of 49,588,804. This is one twenty-seventh of 1 per cent., or one case in 2,700 population. The opponents of vaccination refer to this epidemic as "the most serious epidemic of smallpox in any civilized country." Yet in prevaccination days, smallpox caused from one tenth to one half of all the deaths.

As usual the antivaccination argument is based on half knowledge and distorted facts.]

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

Connecticut: Homeopathic, New Haven, Nov. 14. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

District of Columbia: Oct. 10-12. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Florida: Homeopathic, Jacksonville, Nov. 10. Sec., Dr. J. B. Griffin, St. Augustine.

Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.

Illinois: Chicago, Oct. 10-12. Sec., Dr. C. St. Clair Drake, Springfield.

Iowa: Des Moines, Oct. 17-19. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Kansas: Topeka, Oct. 10-12. Sec., Dr. H. A. Dykes, Lebanon.

Maine: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Michigan: Lansing, Oct. 10-12. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Mississippi: Jackson, Oct. 24-25. Sec., Dr. J. D. Gilleylen, Jackson.

Nevada: Carson City, Nov. 6. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, 438 E. State St., Trenton.

New Mexico: Santa Fe, Oct. 9. Sec., Dr. W. E. Kaser, East Las Vegas.

Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

West Virginia: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

Medical Education in South America

Dr. C. M. Macedo was the delegate from the Academia de Medicina of Peru to the recent Pan-American Congress at Washington, and his report is published in the *Cronica Medica* just received. He says that the political features of the congress overshadowed the scientific, the delegates all feeling that they could serve their country best by taking advantage of the exceptional occasion to cement the bonds of friendship, of *confraternidad Americana.*

MEDICAL SCHOOLS IN SOUTH AMERICA

"Next in interest," he continues, "were the discussions on medical education. They threw into bright relief certain advantages of the systems followed in South America over those in vogue in the United States. Medical schools in Latin America are relatively few, and the fact that they are of a high grade cannot be ascribed solely to the greater efficiency of the state in its intervention in higher education. Among other reasons, the solid and central organization of the medical schools gives them a great influence and unquestioned authority in all that concerns medicine. It places them in exceptional conditions for coming into direct contact with the people, extending their influence into the national life by teaching hygiene, etc. This was one of the ideals emphasized at the Washington congress, and it is already realized by the long established medical school at Lima. The medical faculty at Lima is not only a teaching but also an administrative body, the center and aggregate of valuable forces. It confers its diplomas in the name of the nation, and it places the graduate professional man under the protection of the central government, which is practically sovereign in all that concerns the practice of the medical sciences and pharmacy in Peru. It thus enjoys already what——to judge from the ideas expressed at the Washington congress——best guarantees the legal practice of medicine in a country.

ENTRANCE REQUIREMENTS

"There was practical unanimity of opinion at the congress on the necessity for a solid training in biologic sciences as an indispensable requirement for entrance to the medical school, and on the necessity for addition of a fifth year to the course in those schools which require only four now. The importance given to this theme in the program of the congress conformed to the laudable desire to give greater force to the campaign which the high medical body of the United States has undertaken with the purpose of exalting the prestige of the profession in that country, giving a more scientific character to medical instruction, increasing the years of study, and paying more attention to selecting high grade men than to increase the numbers of graduates.

COMMERCIALISM IN MEDICAL SCHOOLS OF UNITED STATES

"Medical education was unable to hold aloof from the current of commercialism which signaled the progress of that great republic from the middle of the last century. Its medical schools had to adapt themselves to the exigencies of contemporaneous life, and they sacrificed their high scientific aim to utilitarian purposes, endeavoring to give an essentially practical instruction in the shortest possible time, thus running the risk of fostering in students and graduates merely an interest exclusively for diagnosing sickness and treating it. Such a state of education in the medical schools is far from corresponding to the progress of the medical sciences in the United States, which is due to the magnificent work at institutes devoted to medical research, and to the isolated achievements of many men of exalted scientific spirit. The medical schools of Latin America have never reduced their years of study, and have always made every effort to conserve the old system, giving to the instruction a scientific value and to the members of the profession the self devotion of the priest. They already possess a course of instruction which can be adapted to the new tendencies and to the growing impulse of medical progress in these later days.

THE MEDICAL SCHOOL AT LIMA

"It is with great complacency that we can laud the wise foresight of the master minds of our medical school at Lima. Inspired by the old traditions of ample clinical culture, they have always insisted on two years of preparatory studies in the natural sciences and seven years of medical training, during which the student is obliged to visit the hospitals daily. The result of this is that the faculty of medicine of the University of Lima is in a favorable condition to conform to the new orientation of the universities, which is, to transform them into centers of scientific research without detracting from their task of offering thorough instruction in the scientific truths already acquired—teaching to observe and training in experimental work, educating not only clinicians but investigators as well."

INTERCHANGE OF PROFESSORS AND STUDENTS

Macedo remarks that the interchange of students and professors is scarcely possible as yet, owing to the differences between the medical schools in the two Americas. But when they become more of a uniform pattern, the benefits from such interchange, he admits, would be enormous. In conclusion, he expatiates on the work of the institutes for scientific research in the United States, their important contributions to the modern progress of surgery and hygiene and, above all, on the magnificent organization of its medical societies, which, realizing the deficiencies in medical education, have started the profession on the road of scientific progress.

Mutual Responsibility.—No one class of society can dissociate itself from another class, however low in the scale, and say that it has no duties and no responsibilities regarding it. "Men cannot live isolated," says Carlyle; "we are all bound together for mutual good or mutual misery, as living nerves in the same body. No highest man can disunite himself from the lowest."—Ashley, Infant Mortality.

Book Notices

Diseases of the Digestive Tract and Their Treatment. By A. Everett Austin, A.M., M.D. Cloth. Price, $5.50. Pp. 552, with 85 illustrations, including ten color plates. St. Louis: C. V. Mosby Company, 1916.

This book is evidently intended mainly for the student and general practitioner. It is not sufficiently complete to be of great value to the specialist. It contains, however, most of the essential facts of clinical importance relating to the medical diseases of the gastro-intestinal tract. The classification of the subject into the three main divisions of (1) general characteristics, (2) special gastric diseases, and (3) special intestinal diseases, with appropriate subdivisions under each heading, is practical and useful, both for teaching and for ready reference. Most of the illustrations are excellent; some, however, are exaggerated, as, for instance, those of stenosis on pages 76 and 77. Some of the roentgenograms appear to be retouched. This is not a bad fault in a textbook, but it should be noted in the legends. The roentgenograms showing the normal stomach add to the value of the book because direct comparison with illustrations of pathologic conditions is thus made possible. In connection with diagnosis, the strong emphasis on the importance of the history is noteworthy. The value and limitations of gastric analysis are well described. In general, the handling of the difficult subject of dietetics is satisfactory for practical purposes, but 2,025 calories, mentioned on page 226 as the total food value for a diet in malnutrition, seems rather low. On the whole, the drug therapy recommended is simple and rational. There is a noteworthy absence of the complex, unscientific type of prescription. Repeated references are made to many of the useful, official preparations, particularly the artificial mineral waters, such as the effervescent, artificial, Carlsbad and Kissingen National Formulary formulas.

Theoretically, atropin sulphate and magmatis magnesia, N. F., are incompatible as prescribed on page 265. It is probable, however, that the atropin under these conditions will be absorbed. The discussion of the use of alcohol on pages 205 and 206 lacks sufficient emphasis on the point that although alcohol stimulates the secretions of the gastro-intestinal tract, it, at the same time, inhibits the digestive power of the ferments. In a few instances, drugs of doubtful value have been recommended. Semiproprietary combinations are also occasionally mentioned where pharmacopeial preparations are available. To intimate, as on page 94, that it is permissible to shake out of a bottle the required amount of two powders without weighing is dangerous advice to a student, whether the substances are markedly toxic or not. While due weight is given to those conditions that require only medical therapy, the importance of surgery in the rational treatment of diseases of the gastro-intestinal tract is clearly outlined. There are, however, some further minor adverse criticisms. The Ehrlich reaction recommended on page 48 is of little value in the diagnosis of hepatic diseases. A description of amebic dysentery and the emetin treatment is lacking. It is surprising that so important a subject should be omitted. There is a noteworthy lack of references to medical literature. The book is in no sense a complete treatise on the subject, but it is a useful summary.

Embryology, Anatomy and Diseases of the Umbilicus, Together with Diseases of the Urachus. By Thomas Stephen Cullen, Associate Professor of Gynecology in the Johns Hopkins University. Illustrated by Max Brödel. Cloth. Price, $7.50 net. Pp. 680, with 269 illustrations. Philadelphia: W. B. Saunders Company, 1916.

One would scarcely believe that a volume of 680 pages could be written exclusively on the umbilicus; but this work is a demonstration of the possibility. Furthermore, everything contained therein is important and an essential part of a complete treatise on the subject. The embryology and anatomy of the region are first considered; then follows an elaborate presentation of the congenital anomalies and pathologic conditions affecting the part. Not only are the diseases of the umbilicus itself presented, but also all the conditions which may arise from persistent remains of fetal structures, such as the omphalomesenteric duct, the allantois, or urachus, and Meckel's diverticulum. The literature of the world has been searched for illustrative cases, so that no statement is made which is not backed up by actual experience. The illustrations are by Brödel, and this is a guarantee of their excellence. A complete bibliography supplements each chapter. The work is an excellent one and the author is to be congratulated on the very thorough and comprehensive manner in which he has presented the subject. It is a credit not only to him, but also to American medicine.

Miscellany

Drugless Cults in Ohio

The State Medical Board of Ohio is now investigating the more difficult cases of drugless healers who are applying for "limited practice" certificates, under the Platt-Ellis law, on the ground that they were engaged in continuous practice for five years prior to the amendment of the law. According to the *Ohio State Medical Journal* for September the board is having some amusing experiences.

One of these applicants, a Mansfield healer, had applied originally for a license to practice theosophy, but as that was not recognized by the law as a system of healing, he later amended his application to include suggestive and psychotherapy. On the advice of one of the board's investigators, the applicant was summoned to Columbus to explain his practice to the board. He came, very fussy and very important.

"I understand," said President Siemon, after consulting the investigator's report, "that you have been treating infectious and contagious diseases."

"Nothing lately but tuberculosis," the healer replied. He then added, professionally: "I've been getting some very nice results."

Dr. Siemon coughed, and inquired timidly by what system the results were obtained. Here is the exact answer:

"By the power of thought and the grace of God."

Dr. Sherman suggested that he exemplify his explanation a bit, and tell the board just how the same was applied in healing the lungs. Again the answer was very specific and definite:

"God put man on earth to live and do good. Don't do no evil."

He refused to explain further. The board members seemed at a loss as to further questioning, but Dr. Upham asked:

"You say that you treat tuberculosis and other diseases. How do you recognize these conditions?"

The healer turned to him, with a rather fatherly and half pitying look, and answered promptly:

"Why, by seeing them."

Dr. Siemon then ventured an inquiry as to the applicant's use of local applications in the treatment of cancer. The good brother answered promptly:

"Well, I don't use applications no more, much. I used to, occasionally. I had success by putting a little rotten apple on the sore. I—"

He was promptly excused.

At the same meeting of the board a woman applicant for a license to practice "suggestive therapy and mental healing" appeared to argue her case. In answer to a suggestion that she explain her system, she turned impressively to Dr. Siemon and said:

"Yes, doctors, I have taught others to heal the afflicted and I will now teach you."

With a smile, she then explained that it was only necessary to take three red silk threads, knotted carefully, and pass them slowly before the patient, commencing at the top of the head. While doing this you repeat in German a couplet which strongly resembles, "Eenie, meenie, miney, mo." Mix in a strong portion of faith, and the trick is turned. Very simple, and it works in almost any condition. She said that after learning it from her mother she had personally treated tuberculosis, erysipelas, and "lots of other bad diseases." She was excused.

Medicolegal

Not Entitled to Practice Under Present Law—Reasons for Legislation

(*Gay vs. State (Tex.), 184 S. W. R. 200*)

The Court of Criminal Appeals of Texas affirms a conviction of Defendant Gay of unlawfully practicing medicine. The court says that, because of the law, there was no error in refusing to permit the defendant to testify that he graduated in the State University of Louisiana in the Medical Department, in 1868, and went to Texas and immediately thereafter engaged in the general practice of medicine in its various branches and continued therein from 1868 until the complaint was filed against him herein. No such testimony by him, under the circumstances, would be any defense whatever. Nor did the court err in refusing the testimony of others along the same line. The only authority to practice medicine which he had registered in the district clerk's office of the county was a certified copy from the district clerk of another county, dated Dec. 7, 1914, of what showed on its face was a mere temporary license issued Dec. 8, 1892, by a member of the medical board under the old law as it then existed, and by its own terms was good only until the next regular meeting of the medical board of the district mentioned. Under no circumstances could it be the verification license under the law as it has been since 1907. By Section 15 of the act of 1907, all the old physicians were given a year, but no longer, to get the new verification license from the board created by it, without standing any examination. However, by placing Article 757 of the penal code in the revision, instead of said Section 15, it was intended, and only intended, they should still not be cut off entirely, as Section 15 provided, but given another opportunity to get a verification license by complying with said Article 752, and they still have that opportunity. The defendant not having availed himself of the opportunity within the year after the act of 1907 went into effect, and still not doing so after the law was reenacted in the revision giving him still the opportunity, but practicing contrary to and in face of the law, must suffer the consequences of his own acts.

To protect the lives, and preserve the health of the people is one of the chief objects and duties of government. In order to help to do this, the legislature of the state, since the establishment of the state government, has all along, and from time to time, enacted laws to prevent the incompetent person, the faker and the fraud from deceiving the sick and afflicted under their false claim to "cure all," and from fleecing them of their money, and at the same time fully provide for the proper license of those who prepare themselves by a thorough study and knowledge of the human body, and the diseases and ailments to which it is subject, and thus prepare themselves to properly administer to, and treat the sufferer. One of the best methods heretofore devised to accomplish this, and let all the people know who were competent and authorized, was to require, as a prerequisite to practice, a proper authority duly recorded in the district clerk's office of the county of the residence of the practitioner, which any and every one could see for himself, and that method still prevails. At an early day, a diploma from a reputable medical college, duly so recorded, was required, and perhaps was all that was then required. It was not long till the faker and fraud took advantage of this, and procured and recorded diplomas from medical colleges, which sold diplomas outright to any and every one who paid the price, and without any previous study or preparation. Also, it developed that many young men, for lack of means or other reasons, were unable to attend college and procure a diploma, but who studied at home and under the instruction and assistance of local physicians fully prepared themselves to practice as well as those who attended colleges and procured a diploma. For all such the legislature provided medical examining boards, where such young men could stand examinations and procure a license to practice without any diploma. In the course of time, another class had grown up, which consisted of those worthy and competent practitioners who, without license or diploma, by many years of study and practice, had demonstrated their competency to practice. All three of these classes were duly provided for and protected by the various enactments of the legislature, from time to time.

Damages for Negligent Treatment of Fracture Necessitating Amputation

(*McAlinden vs. St. Maries Hospital Association (Idaho), 156 Pac. R. 115*)

The Supreme Court of Idaho affirms a judgment in favor of the plaintiff, conditioned on his waiver to make it $8,640, instead of $12,000. The court says that the plaintiff, while in the employ of a lumber company, one Thursday morning sustained a simple comminuted fracture of both bones of the right leg at a point about 2 inches above the ankle joint. The lumber company had an arrangement with the defendant association whereby the latter, in consideration of a monthly fee paid by the employees into a hospital fund, treated them in cases of accident or illness. The plaintiff was taken first to a hospital of the defendant at another place, and on the following Monday afternoon to the one at St. Maries. The negligence complained of consisted in the placing on his leg, on said Thursday, of a circular plaster of Paris cast and a failure to remove or split it while he was at the first hospital, thereby causing a venous constriction of the limb, whereby it became infected with moist gangrene, which necessitated amputation near the juncture of the upper and middle third of the tibia and fibula. The defendant contended that the conditions which developed fully justified the use of the cast, and that the failure to remove or split the same, other than as was done, resulted in no injury to the plaintiff and was not the proximate cause of the amputation of the injured limb, but that this was due to dry gangrene caused by arterial injury. The court thinks the evidence was sufficient to support a verdict in favor of the plaintiff. If it were possible for men learned in the science of medicine and surgery to agree as to the exact result that will follow a given injury under certain treatment, or what is the proper treatment of a given injury, all doubt, touching the question of whether a physician or surgeon has properly treated the patient for the injury and just what constitutes diligent and skilful or negligent and unskilful treatment, might be removed. But where eminent physicians and surgeons emphatically disagree in their opinions, the most salutary method thus far provided for the administration of justice in cases of this kind is to submit these disputed questions of fact to a jury composed of twelve men of widely different walks of life and of radically different intellects, and permit them to weigh and average the whole evidence and arrive at a final unanimous conclusion. Whether the defendant's physician and surgeon exercised that degree of skill and learning possessed by the average member of the medical and surgical professions in good standing in the community, and used that reasonable care and diligence according to his best judgment in treating the plaintiff's injured limb that the average member of the profession would have used, were questions of fact exclusively for the jury to determine. This rule is not changed by reason of the fact that men learned in the science of medicine and surgery have given conflicting testimony touching the required and approved treatment of an injury. While it may be true in this case that the jury in reaching its verdict was not in a position to say beyond the possibility of a doubt that any one single fact in evidence or the absence of any one condition established conclusively the negligence of the defendant's physician and surgeon in placing the cast on the injured limb at the time and in the manner in which it was done, and in his failure to split the cast and thus permit free and uninterrupted venous circulation, yet if, from all the testimony and circumstances of the case, there was evidence sufficient to establish a prima facie case, the conclusion reached by the jury based on this evidence will not be disturbed on appeal. The court, however, thinks that $8,640 should compensate the plaintiff for the pain and suffering, as well as the loss of the injured limb, so far as such loss could be properly compensated in dollars and cents. An examination of a number of authorities from other states showed that courts have invariably, for similar injuries, held verdicts in excess of the amount fixed by this court to be excessive.

Lawful Prescribing of Morphin

(Fyke vs. State (Tex.), 184 S. W. R. 197)

The Court of Criminal Appeals of Texas reverses a judgment of conviction of defendant Fyke, a physician, who was charged with having unlawfully prescribed morphin for the use of an alleged habitual user of morphin. The latter testified that she had become bedridden, and when she first called the defendant in, he had to treat her for peritonitis and a swollen condition of the groins and inflammation of the bowels. It appeared that he administered the morphin for two purposes: first, to relieve her of her present suffering, and, second, to cure her of her habit, succeeding in both. The court holds that if the defendant gave the medicine to relieve the woman of pain at the time he was called in, this should not have been made the basis of a conviction; that if he, as a lawful practicing physician, administered morphin to his patient, who was suffering with peritonitis and abscesses in the groin, and it was known to him, and he did it for that purpose, he would not be violating the Texas statute. Moreover, the jury should have been instructed that, if they had any reasonable doubt as to whether or not he prescribed the drug in good faith, believing it to be necessary in the treatment of such diseases, it would be their duty to acquit. If they had such reasonable doubt, he was entitled to the benefit of the doubt, although the jury should find and believe that the patient was a habitual user of the drug. Nor would the defendant be guilty of a violation of the statute if, in treating or curing her of the habit itself, he administered the drug in such way as it assisted in curing the habit. Excluded testimony wherein it was offered to be shown by the defendant that the size of the dose of morphin gradually grew less, until it altogether ceased, under his treatment, should have gone before the jury. It bore directly on the case, and was pertinent to show his good faith in using the morphin to cure the habit of using that drug. It will be observed, from a casual reading of Article 748 of the penal code, that its denunciations are leveled at practitioners, or prohibits practitioners from administering morphin to habitual users of that drug or any of the drugs mentioned. It is also discernible on the face of the statute that it was not intended to prevent practitioners from administering this drug in case of sickness, or to alleviate pain, or to cure the habit of using morphin. In other words, its provisions seem to be directed against the named physicians or practitioners with a view of prohibiting them from prescribing or administering these mentioned drugs to habitual users in order to continue their use. It does not interdict the administration of these drugs when it is necessary to alleviate pain or to cure the habit. Therefore, if the practitioner administers it to alleviate such pain, or uses it in good faith where the party is sick, or as a means of finally curing the habit, it is not within the statutory denunciation.

Society Proceedings

COMING MEETINGS

Am. Assn. for the Study and Prev. of Inf. Mort., Milwaukee, Oct. 19-21.
American Association of Railway Surgeons, Chicago, Oct. 17-19.
American Public Health Association, Cincinnati, Oct. 24-27.
Clinical Congress of Surgeons, Philadelphia, Oct. 23-28.
Delaware State Medical Society, Milford, Oct. 9-10.
Kentucky State Medical Association, Hopkinsville, Oct. 24-27.
Minnesota State Medical Association, Minneapolis, Oct. 11-13.
Mississippi Valley Medical Association, Indianapolis, Oct. 10-12.
Nevada State Medical Association, Reno, Oct. 10-12.
New Mexico Medical Society, Albuquerque, Oct. 11-13.
Southern Medical Association, Atlanta, Nov. 13-16.
Vermont State Medical Society, St. Johnsbury, Oct. 12-13.
Virginia State Medical Society, Norfolk, Oct. 24-27.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, LXXIV, No. 3

1 Adenocarcinoma of Corpus Uteri; Nearly Complete Removal by Curet. 2. Ectopic Chorio-Epithelioma of Pelvis. R. T. Frank, New York.—p. 369.
2 Case of General Edema of Fetus. H. C. Williamson, New York. —p. 376.
3 Case of Carcinoma of Cecum in Girl Twenty-Three Years of Age. J. R. Eastman, Indianapolis.—p. 380.
4 Congenital and Acquired Retropositions of Uterus; Their Differentiation and Relative Significance. A. Sturmdorf, New York. —p. 386.
5 Case of Syncytioma Malignum. K. Adachi.—p. 397.
6 *Protective Action of High Carbohydrate Diet and Oxygen on Liver Cells in Experimental Chloroform Poisoning, with Its Possible Application in Pre-Eclamptic Toxemia. R. T. Lavake, Minneapolis.—p. 401.
7 *Rupture of Scar of Previous Cesarean Section. P. Findley, Omaha. —p. 411.
8 *Results from Pituitary Extract in Obstetrics; Report of Case of Rupture of Uterus Following Its Use. L. G. McNeile, Los Angeles.—p. 432.
9 *Relationship Between Pelvic Disease and Manic Depressive Insanity. G. Gibson, Brooklyn.—p. 439.
10 Sarcomatous Change in Uterine Fibroids. W. J. Maroney, New York.—p. 445.
11 Etiology of Sterility in Women. G. B. Miller, Washington, D. C. —p. 450.
12 Lessened Fertility of Women, Especially American Women. I. S. Stone, Washington, D. C.—p. 454.
13 Indications for and Advisability of Artificial Sterilization. R. Y. Sullivan, Washington, D. C.—p. 458.
14 Tuberculous Peritonitis. C. R. Hyde, Brooklyn.—p. 466.
15 Endocrine Glands in Their Relation to Female Generative Organs. W. Timme, New York.—p. 474.
16 Syphilis of Uterus. D. W. Prentiss, Washington, D. C.—p. 480.
17 Congenital Occlusion of Bile Ducts. J. Foote and R. Hamilton, Washington, D. C.—p. 521.

6. **Action of High Carbohydrate Diet and Oxygen.**—Lavake states that Opie and Alford are justified in believing that a high carbohydrate diet might be of marked value in pre-eclamptic toxemia and his own experiments point to the fact that the administration of oxygen, as advocated empirically by Stroganoff, or treatment in the open air may have a rational pathologic basis for support.

7. **Rupture of Cesarean Scar.**—Sixty-three published cases are analyzed by Findley. He is convinced that a perfectly healed cesarean wound may be relied on to resist the forces of labor, but in view of the fact that the integrity of the wound is an unknown factor in all cases, he says, we are constrained to exercise the utmost caution in the conduct of every case in pregnancy and labor following cesarean section. Failure to secure perfect healing is accounted for by departure from the principles of suture proposed by Sänger and by septic infection of the uterine wound. The possible existence of latent gonorrheal infection may defeat the most painstaking efforts to secure perfect wound healing. When cesarean section has been followed by a fever course the uterine wound should be regarded as insecure in event of a subsequent pregnancy, and should call for a repeated cesarean section at the onset of labor. Sterilization and hysterectomy should replace conservative cesarean section when infection is known to exist. The alternative invites faulty wound healing, if not more disastrous results. Transverse fundal, extraperitoneal and cervical incisions have not lessened the liability of rupture in subsequent labors, but, on the contrary, have probably increased the hazard. The possibility of rupture of the scar following cesarean section does not justify sterilization, but rather calls for the exercise of masterly control in event of a subsequent pregnancy. All such cases should be hospital cases and labor should be anticipated by timely repetition of cesarean section at the onset of labor if the uterine wound is known to be defective or if some cause for obstruction to the delivery of the child through the natural passage exists. Version, high forceps, uterine tampons, hydrostatic bags, and pituitary extract should never be employed in the presence of a cesarean scar.

8. **Results from Pituitary Extract in Obstetrics.**—In the case reported by McNeile the conditions present before the drug was given were a well engaged head, complete dilatation, ruptured membranes, and a decrease in the strength of the uterine contractions. The fault to be found with its use in this case lay in the nonrecognition of an obliquely contracted pelvis.

9. **Pelvic Disease and Manic Depressive Insanity.**—Gibson states that no mental improvement may be expected to follow an operation performed on the pelvic organs of a woman who is suffering from a psychosis which is characterized by dementia. An operation for the correction of lesions in the pelvis is justifiable in a woman who has manic depressive insanity and some improvement may be hoped for if the operation is performed in the first or second attack. The pelvic pathology is not the cause of the psychosis but may act as the exciting cause of an attack in a woman of neuropathic stock. The effect of the operation may be an indirect one by improving the general physical condition of the patient.

Archives of Pediatrics, New York

September, XXXIII, No. 9

18 Meningococcus Meningitis with Unusual Hemorrhagic Manifestations and Demonstration of Diplococcus in Skin. C. T. Sharpe, New York.—p. 641.
19 Autoserum Treatment of Chorea. A. L. Goodman, New York.—p. 649.
20 *Early Morning Toxic Vomiting in Children. T. S. Southworth, New York.—p. 654.
21 *Twelve Cases of Spasmophilia, Etiology and Treatment. F. P. Webster, Portland, Me.—p. 658.
22 Case of Hirschsprung's Disease with Bibliography to January 1, 1916. R. Cadwallader, San Francisco.—p. 665.
23 *Studies on Parenteral Infections. J. R. Gerstley, Chicago.—p. 671.
24 *Unusual Case of Hydrocephalus. R. D. Moffett, New York.—p. 679.

20. Abstracted in THE JOURNAL, July 8, p. 146.

21. **Spasmophilia, Etiology and Treatment.**—Webster is of the opinion that spasmophilia is due to overfeeding, especially of carbohydrate food, more especially in fermentable form, and that dietetic treatment similar to that of Grulee is most effectual.

23. **Parenteral Infections.**—From the study of 200 cases of parenteral infection Gerstley concludes that parenteral infections in many cases are associated with a mild or moderate diarrhea. If the child is allowed to drink as he sees fit, this diarrhea rarely develops into a severer disturbance. It almost never does in children on a mixed diet. The very few cases of severer disturbances which developed followed no rules that Gerstley could discover. They did not depend on: (*a*) anatomic situation of the infection, as bronchitis, otitis or cystitis; (*b*) degree, length or severity of the infection; (*c*) on constitutional inferiority of the child, or on (*d*) the outcome of the disease. Gerstley believes that in many cases the initial diarrhea and vomiting occurring before admission to the hospital are due to the invariable dose of castor oil, and some clinical charts show diarrheas associated with coughs occurring in the hospital, conditions which seem also to be related to the medication in some way, as, for example, aromatic spirits of ammonia. In some cases the cough disappears as the nutrition improves.

24. **Unusual Case of Hydrocephalus.**—This case of hydrocephalus began at birth and, Moffett says, in all probability was not so much due to the fact that the spinal fluid was secreted in too large a quantity, for if this were the case the head would have filled more rapidly after puncture than it did, but it was due to a lessened absorbing power of the membrane covering the brain and of the spinal cord. Only 15 c.c. of spinal fluid was obtained by lumbar puncture, which would indicate that there was undoubtedly some obstruction in the aqueduct of Sylvius. The exact nature of this obstruction could not be determined as no postmortem examination was available.

Boston Medical and Surgical Journal

September 21, CLXXV, No. 12

25 *Rat and Infantile Paralysis. M. W. Richardson, Boston.—p. 397.
26 Some Medical Aspects of Workmen's Compensation Act. F. D. Donoghue, Boston.—p. 400.
27 Major Divisions of Mental Hygiene — Public, Social, Individual. E. E. Southard, Boston.—p. 404.
28 What Recent Investigations Have Shown to Be Relation Between Mental Defect and Crime. A. W. Stearns, Boston.—p. 406.
29 Epilepsy. E. Flood, Boston.—p. 408.
30 Idiosyncrasy to Cow's Milk; Its Relation to Anaphylaxis. F. B. Talbot, Boston.—p. 409.
31 Treatment of Tuberculosis in Infancy. W. W. Howell, Boston.—p. 411.

25. **Rat and Infantile Paralysis.**—The following facts supporting the theory that the disease is transferred by rodents, insects, or both are offered by Richardson. (1) Summer incidence of the disease; (2) the resemblance of the disease in its epidemiology to malaria and yellow fever has been noted more than once; (3) the positive results of Rosenau and also of Anderson and Frost, together with the successful experiment of Flexner with the bedbug. That the bedbug might be the intermediate link in the chain seemed to Richardson highly improbable in view of the fact that infantile paralysis attacks with almost equal frequency all strata of society. The possible relation of the rat to infantile paralysis was first brought to Richardson's attention in 1910 through an observation made by Dr. Charles E. Simpson, state inspector of health. In investigating an epidemic of the disease, Dr. Simpson observed the fact that many rats, whose homes had been in a town dump, were compelled, because of a fire in that dump, to seek refuge in the neighboring houses. In these houses infantile paralysis seemed to be unduly prevalent. Another experience pointing in the same direction occurred in a small country neighborhood occupied as a summer colony by a number of city residents. The only immediate unusual factor to be assigned for this epidemic was the removal, from one situation to another, of an old barn. The barn cellar was dug up and improved, and, during this operation, the affected children played in the excavation. The inference is, of course, that many old rat holes were destroyed and that the accumulation of years in the way of rat disease and fleas may have been distributed broadcast to the outside world. A third observation, but a rare one, was made in a Massachusetts city where, in an infected district, many rats were said to have been found dead. In another city a muddy river and its tributaries honeycombed to a greater or less extent the municipality. The location of the cases of infantile paralysis seemed to have a remarkable relation to this stream and its branches. Indeed, the whole Massachusetts experience seems to indicate that the disease has been endemic along its rivers, most of which are polluted by sewage to a greater or less extent. The possible association of the water rat was thus indicated.

The great increase in poliomyelitis during the last twenty-five years has been explained as due to the great increase in facility of transportation all over the world, so that infinitely increased human contact has become possible. The same argument would apply, however, to the transfer of infected rats from one locality to another. Indeed such transfer in freight cars and ships carrying grain, cattle, pigs, etc., must be common. The relation to the railroads of cases of infantile paralysis has been noticed by a number of observers. Nothing could be more probable than that children living near railroads should play in rat infected freight cars. Infected rats, furthermore, if dropped from freight cars, would necessarily seek their food in the immediate neighborhood. In the transfer of the infection from the rat to man, the agency of the flea is assumed, although the possible contamination of food by rodent excretions might well be considered. The insect transfer might be simply mechanical or it might require a preliminary cycle of development of the virus in the flea. Furthermore, the possible rôle of cats, dogs and other animals, or even human beings, as carriers of infected fleas, would be apparent. Moreover, in grossly unsanitary surroundings, the fleas might carry infection from one child to another directly. These theories, Richardson says, explain better than any other hypothesis submitted the epidemiologic facts as observed in infantile paralysis.

Colorado Medicine, Denver

August, XIII, No. 8

32 Tonsils and Their Relation to Systemic Infections. D. A. Vanderhoof, Colorado Springs.—p. 233.
33 Postpartum Hemorrhage, Its Management. J. Lindahl, Denver.—p. 238.

34 Some Difficulties in Early Diagnosis of Tabes Dorsalis. P. Work, Pueblo.—p. 245.
35 Gas Oxygen Anesthesia and Its Limitations. J. W. Seybold, Denver.—p. 248.
36 Records of Plague. W. H. Crisp, Denver.—p. 250.

Journal of Abnormal Psychology, Boston

August-September, XI, No. 3

37 Irrelevancy of Dreams. L. H. Horton.—p. 143.
38 Utilization of Psychanalytic Principles in Study of Neuroses. J. J. Putnam, Boston.—p. 172.
39 Permutations Within Sphere of Consciousness. T. Burrow, Baltimore.—p. 178.
40 Analysis of Manifest Delusions from Subject's Point of View. E. E. Southard, Boston.—p. 189.

Journal of Biological Chemistry, Baltimore

September, XXVI, No. 2

41 Effect of Amino-Acid Content of Diet on Growth of Chickens. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 293.
42 Effects of Temperature and Fever on Synthesis of Ethereal Sulfuric and Urochloralic Acids in Organism. H. Ito, Japan.—p. 301.
43 *Accumulation of Uric Acid in Tissues During Suppression of Urine. H. G. Wells, Chicago.—p. 319.
44 *Fate of Ingested Starch in Phlorhizin Diabetes. F. A. Csonka, Pittsburgh.—p. 327.
45 *Experimental Studies on Creatin and Creatinin. Protein Feeding and Creatin Elimination in Pancreatic Diabetes. W. C. Rose, Galveston, Texas.—p. 331.
46 *Id. Protein Feeding and Creatin Elimination in Fasting Man. W. C. Rose, F. W. Dimmitt and P. N. Cheatham, Galveston, Texas.—p. 339.
47 *Id. Fate of Creatin and Creatinin when Administered to Man. W. C. Rose and F. W. Dimmitt, Galveston, Texas.—p. 345.
48 Relation Between Configuration and Rotation of Epimeric Monocarboxylic Sugar Acids. P. A. Levene and G. M. Meyer, New York.—p. 355.
49 Optical Rotation of Epimeric a-Hexosaminic Acids. P. A. Levene, New York.—p. 367.
50 Conjugated Sulfuric Acid of Funis Mucin (Mucoitin Sulfuric Acid). P. A. Levene and J. López-Suárez, New York.—p. 373.
51 Creatin in Human Muscle. W. Denis, Boston.—p. 379.
52 Aromatic Constituents of Urine. Nonphenolic Volatile Oils of Cow Urine. R. J. Anderson, Geneva, N. Y.—p. 387.
53 Id. Nonphenolic Volatile Oils of Goat Urine. R. J. Anderson, Geneva, N. Y.—p. 401.
54 Id. Nonphenolic Volatile Oils of Horse and Human Urine. R. J. Anderson, Geneva, N. Y.—p. 409.
55 *Lipoids ("Fat") of Blood in Diabetes. W. R. Bloor, Boston.—p. 417.
56 *Chemical Nature of "Vitamins." Isomerism in Natural Antineuritic Substances. R. R. Williams and A. Seidell, Washington, D. C.—p. 431.
57 Relation of Quality of Proteins to Milk Production. E. B. Hart and G. C. Humphrey, Madison, Wis.—p. 457.
58 Nitrogen Determinations by Direct Nesslerization. Total Nitrogen in Urine. O. Folin and W. Denis, Boston.—p. 473.
59 Id. Nonprotein Nitrogen in Blood. O. Folin and W. Denis, Boston.—p. 491.
60 Id. Ammonia in Urine. O. Folin and W. Denis, Boston.—p. 497.
61 Id. Urea in Urine. O. Folin and W. Denis, Boston.—p. 501.
62 Id. Urea in Blood. O. Folin and W. Denis, Boston.—p. 505.
63 *Relative Excretion of Phenols by Kidneys and by Intestine. O. Folin and W. Denis, Boston.—p. 507.
64 Effect of Addition of Alkali to Sea Water on Hydrogen Ion Concentration. A. R. Haas, Cambridge, Mass.—p. 515.
65 Translocation of Seed Protein Reserves in Growing Corn Seedling. C. J. V. Pettibone and C. Kennedy, Minneapolis.—p. 519.
66 *Influence of Color from Sodium Picrate in Determination of Creatinin in Blood and Urine. F. H. McCrudden and C. S. Sargent, Boston.—p. 527.
67 Relation of Amid Nitrogen to Nitrogen Metabolism of Pea Plant. B. Sure and W. E. Tottingham, Madison, Wis.—p. 535.

43. **Uric Acid in Tissues.**—A young woman, previously in good health, took about 17 grains of bichlorid of mercury. She lived nine days under close observation. During the entire time she excreted but 96 c.c. of urine in spite of intravenous injections of alkaline salt solution (Fischer's solution) and hypertonic sugar solution, and renal decapsulation. Necropsy was performed less than one hour after death by Dr. B. O. Raulston, who kindly preserved the organs and Wells analyzed the viscera for uric acid. The result of these analyses is definite. After practically complete suppression of urine for a period of nine days, despite a practically purin free diet and approximate fasting during that period, the tissues contained relatively large amounts of uric acid which could be readily isolated pure in quantities sufficient for analysis. In four other bodies of persons dying with either approximately normal or but slightly impaired renal function, little or no uric acid could be recovered by the same methods. It is, therefore, certain says Wells that after complete suppression of urine there may occur an accumulation of uric acid in the tissues not observed in the bodies of persons whose kidneys are functioning. Such an observation is not in favor of the hypothesis that the human body has the power of destroying uric acid, although it is by no means conclusive evidence to the contrary.

44. **Phlorhizin Diabetes.**—According to Csonka starch given to completely phlorhizinized dogs is not utilized but is eliminated quantitatively in the urine as "extra glucose." There was not observed any difference in the failure to utilize the starch of wheat flour and the starch of oatmeal.

45. **Protein Feeding Creatin Elimination in Diabetes.**—Protein feeding in dogs after complete extirpation of the pancreas did not in Rose's experiments lead to the disappearance of creatin from the urine as does similar feeding in normal fasting animals. While protein feeding does not reduce the creatin output to zero, there is a slight decrease in the amount eliminated, which is attributed to the utilization of that amount of sugar represented by the difference between the ratios 3.65:1 and 2.8:1 (beta-glucose of Mandel and Lusk). The behavior of the creatin elimination in phlorizin and pancreatic diabetes offers additional, and Rose believes conclusive proof of the dependence of the creatin elimination on the carbohydrate utilization.

46. **Protein Feeding and Creatin Elimination in Fasting Man.**—Contrary to the generally accepted idea, protein feeding in starving man promptly reduces the creatin output to nil. The amount of acetone bodies present in the urine during short fasts (three to four days) is not sufficient to render the creatin-creatinin figures unreliable. Four times the quantities of acetone and diacetic acid eliminated in the present experiments were entirely without effect on the creatinin readings.

47. **Fate of Creatin and Creatinin when Administered to Man.**—The ingestion of large doses (20 grains) of creatin in man leads to a very perceptible increase (0.30 to 0.49 gm.) in the output of creatinin. This increase in urinary creatinin is attributed to a conversion of creatin into its anhydrid, and not to an increase in the output of endogenous creatinin. The ingestion of large doses (16 grains) of creatinin is not followed by the appearance of creatin in the urine. This indicates that the reaction creatin creatinin plus water is probably not a reversible one in the human organism. No evidence was obtained by Rose and Dimmitt indicating a transformation of creatin or creatinin into urea by the body cells. On the contrary, urea is probably not a catabolic product of these substances.

55. **Blood Lipoids in Diabetes.**—A group of patients in various stages of the disease all living in one house, under the care of a single physician and in charge of a single nurse was studied by Bloor. The treatment given these patients consisted essentially of fasting till sugar free and then building up a tolerance for carbohydrate and protein. A notable feature in the treatment was that considerable attention was given to the fat of the diet. In severe diabetes the blood lipoids were all markedly increased, up to 100 per cent. or more of the normal values. In mild diabetes the lipoids may be normal. In general the more severe or long standing the diabetic condition the more marked was the abnormality in the blood lipoids. In spite of the high values the relations between the lipoids were practically those of normal individuals, indicating that the fat metabolism was essentially normal. There was a tendency, however, for the fat to accumulate in excess of the other constituents and this fact and possibly also the high lipoid values foreshadow the lipemia. The high lipoid values noted occurred entirely in the plasma, the composition of the corpuscles remaining practically normal. The fact that cholesterol increased parallel with the fat in diabetic blood, even in severe lipemia gives further support to the earlier assumption that cholesterol has a part and probably an important part in fat metabolism. For the same reason the determination of cholesterol in the plasma (a relatively simple process) should give valuable information regarding the lipoid content of the blood in diabetes. In the present series no definite relation could be

found between high blood lipoids and the occurrence of acetone bodies in the urine.

56. **Chemical Nature of Vitamins.**—Williams and Seidell suggest, on the basis of their research, that an isomer of adenin is the chemical entity responsible for the characteristic physiologic properties of the "vitamin" under investigation.

63. **Relative Excretion of Phenols by Kidneys and Intestine.**—A colorimetric method for the determination of phenols in stools is described by Folin and Denis. From a study of the urinary and intestinal phenol excretion in normal men, the conclusion is reached that normally, and in the absence of diarrhea, laxatives or enemas, a very small fraction (from 7 to 20 per cent.) of the phenols formed is eliminated by the intestine.

66. **Determination of Creatinin in Blood and Urine.**—From the data obtained by McCrudden and Sargent they are convinced that in the determination of creatinin in the blood the color due to creatinin is such a small proportion of the total color that analysis gives no information whatever concerning the amount of creatinin present; the slight variations obtained in duplicates can be accounted for by slight variations in the amount of picric acid in the solution. In the light of these experiments it is clear that all that has been written hitherto concerning the physiology of creatinin and creatin needs careful revision; much of it will have to be modified, some of it—all that concerning creatinin and creatin in the blood, for example—will have to be rejected altogether.

Journal of Nervous and Mental Disease, Lancaster, Pa.

September, XLIV, No. 3

68 *Acroparesthesia. J. J. Putnam, Boston.—p. 193.
69 Recurrent Poliomyelitis; Second Attack After Period of Three Years. E. W. Taylor, Boston.—p. 207.
70 *Clinical Value of Defense and Muscle Reflexes. Importance of Latter in Spinal Localization. T. H. Weisenburg, Philadelphia.—p. 217.
71 Family Spastic Paralysis. J. H. W. Rhein, Philadelphia.—p. 224.

68. **Acroparesthesia.**—Referring to the use of quinin in this affection, Putnam says, that there is no question that this drug, when given in doses of 10 or 15 grains, or even more, is exceedingly beneficial when the numbness is present in a paroxysmal form. But he does not believe that one does wisely to continue it for very long, or that one can use it as a final remedy. The benefit to be derived from it is rather of a similar sort to that obtained through the same means in the typical neuralgia of the superorbital branch of the fifth nerve. While the results are often very striking, the final effect is rather to postpone an attack than really to cure it. In acroparesthesia, quinin might help to break up a morbid habit, and Putnam has used it only for that purpose, giving a large dose on three successive nights and repeating this treatment once a week.

70. **Clinical Value of Defense and Muscle Reflexes.**—Exaggerated muscle reflexes, Weisenburg says, are constantly present in pyramidal lesions and are of equal importance with increased tonicity and increased tendon reflexes. In spinal localization they are of value, for in destructive lesions they are either absent or diminished in the peripheral area corresponding to the lesion. In such cases the muscle jerks may be increased just above the lesion but are always exaggerated in the parts of the body below the lower limit of the lesion, even though the skin and tendon reflexes are diminished or lost. In incomplete lesions of the spinal cord the muscle reflexes are exaggerated up to the upper limit of the lesion. In a gradually extending upward paralysis such as is produced by a pressure myelitis the exaggeration of the muscle reflexes keeps pace with the increase of the paralysis and is an indication of an extension of the lesion. The most important conclusion that can be drawn according to the author is that the exaggeration and more especially the absence of a muscle reflex is an indication of the state of the reflex arc in the spinal segment corresponding to that particular muscle.

Journal-Lancet, Minneapolis

September 15, XXXVI, No. 18

72 Acute Mastoiditis. A. E. Johnson, Watertown, S. D.—p. 527.
73 Suppurative Mastoiditis—Surgical Emergency. F. J. Putnam, Sioux Falls, S. D.—p. 531.
74 Transplantation of Bone in Fractures. M. S. Henderson, Rochester, Minn.—p. 540.
75 Local Anesthesia. L. E. Daugherty, St. Paul.—p. 544.

Kansas Medical Society Journal, Topeka

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76 Indications and Modern Methods for Blood Transfusions. E. S. Edgerton, Wichita.—p. 251.
77 Fractures. R. C. Lowman, Kansas City.—p. 255.
78 Team Work in Medicine. J. T. Axtell, Newton.—p. 258.
79 Some Obstetric Emergencies. F. T. Van Eman, Kansas City, Mo.—p. 260.
80 Early Diagnosis and Treatment of Syphilis. W. K. Trimble, Kansas City, Mo.—p. 266.

Medical Record, New York

September 16, XC, No. 12

81 Some Practical Notes on Blood Pressure. G. V. N. Dearborn, Cambridge, Mass.—p. 478.
82 Pathologic and Therapeutic Bearings of Elimination of Body Heat. J. B. Nichols, Washington, D. C.—p. 492.
83 Coins and Medals in Medicine. W. J. Mallory, Washington, D. C.—p. 495.
84 General Principles to Be Observed in Bone Transplantations. C. A. McWilliams, New York.—p. 498.
85 State Medical Service as Contrasted with Panel System for Care of Industrial Workers. A. C. Burnham, New York.—p. 500.
86 Speech, Its Culture and Refinement; What Is Done for It in Holland. N. J. P. Van Baggen, Hague, Holland.—p. 502.
87 Medical Education in Chemistry. F. S. Hammett, Los Angeles.—p. 503.

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88 Present Status of Chronic Multiple Arthritis, with Special Consideration of Infection as Etiologic Factor. G. R. Elliott, New York.—p. 529.
89 Malignant Transformation of Benign Intestinal Growths. F. C. Yeomans, New York.—p. 537.
90 Fracture and Dislocation of Proximal End of First Metacarpal Bone and Fracture of Trapezium. C. W. Perkins, New York.—p. 539.
91 Report of Seventy-Seven Cases of Acute Poliomyelitis Treated in New York Throat, Nose and Lung Hospital by Intraspinal Injections of Epinephrin Chlorid. P. M. Lewis, New York.—p. 540.
92 Reflections on Poliomyelitis. D. W. Wynkoop, Babylon.—p. 545.
93 Clinical Delimitation of Hysteria. M. Solomon, Chicago.—p. 546.
94 Fatality Following Acute Otitis. I. W. Voorhees, New York.—p. 548.

New York Medical Journal

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95 Epilepsy. C. A. L. Reed, Cincinnati.—p. 529.
96 Reed's Bacillus of Epilepsy. A. J. Hinkelmann, Galesburg, Ill.—p. 531.
97 Pathogenesis and Treatment of Epilepsy. H. A. Cotton, E. P. Corson-White, Philadelphia, and W. W. Stevenson, Trenton, N. J.—p. 532.
98 Toxic Manifestations of Epilepsy and Their Rational Treatment. R. H. Spangler, Philadelphia.—p. 534.
99 Pelvic Infection. A. J. Walscheid, New York.—p. 540.
100 Hemiplegia. W. Martin, Atlantic City, N. J.—p. 544.
101 Secondary Syphilitic Lesions of Tongue. C. Saison, Paris.—p. 547.
102 Medicine and Surgery in Modern Warfare. B. Jablons, San Francisco.—p. 549.
103 Treatment of Bladder and Urethral Papillomata. G. Greenberg, New York.—p. 553.
104 Invariable Blood Stain. B. G. R. Williams, Paris, Ill.—p. 555.

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105 Psychology of Diseases of Respiratory Tract. G. Hudson-Makuen, Philadelphia.—p. 577.
106 Hospital Treatment of Simple Chorea. P. Bailey, New York.—p. 580.
107 Infective Pulmonary Endarteritis Occurring with Patent Ductus Arteriosus. M. Manges, New York.—p. 581.
108 Acute Anterior Poliomyelitis. A. Gordon, Philadelphia.—p. 583.
109 Anterior Poliomyelitis: Aftermath. L. O. Wight, New York.—p. 585.
110 Occupational Specialization in Defective. H. M. Friedman, New York.—p. 587.
111 Congenital Syphilis. W. J. Heimann, New York.—p. 592.
112 Problems of Adolescence in Relation to Social Hygiene. H. W. Wright, San Francisco.—p. 596.
113 Bothriocephalus Latus Infestation. A. I. Rubenstone, Philadelphia.—p. 599.
114 Cysto-Urethroscope for Diagnosis and Therapeutics. C. Morales-Macedo, New York.—p. 600.

New York State Journal of Medicine

September, XVI, No. 9

115 *Gynecologic Surgery in Hystero-Neurasthenic Patients. H. S. Crossen, St. Louis.—p. 427.
116 Genital Reflexes and Their Rôle in Production of Symptoms Arising in Pelvis. R. R. Smith, Grand Rapids, Mich.—p. 429.
117 Functional and Organic Differentia in Nervous Diseases as Shown by Cases. T. A. Williams, Washington, D. C.—p. 435.
118 *Acute Epidemic Poliomyelitis—Contact Infection. P. A. E. Sheppard, Boston.—p. 442.
119 Recent Ideas Concerning Diagnosis and Vaccine Therapy of Iridocyclitis; Report of Case. L. M. Francis, Buffalo.—p. 447.

120 Eye in General Practice. H. W. Cowper, Buffalo.—p. 454.
121 *Endoscopy of Esophagus and Upper Air Passages in Children. C. J. Imperatori, New York.—p. 456.
122 Responsibility of Physician in Control of Cancer. A. J. Brown, New York.—p. 462.
123 Bird Shot Found in Appendix. J. N. Vander Veer, Albany.—p. 465.
124 Fractures. C. O. Barney, Syracuse.—p. 466.
125 Pin Worms as Cause of Appendicitis. A. W. Armstrong, Canandaigua.—p. 470.

115. Abstracted in The Journal, June 24, p. 2124.

118. **Acute Epidemic Poliomyelitis.**—Sheppard cites a considerable number of cases divided into eight groups in which the grouping around some common source of infection is of such a character as to strikingly point to acute epidemic poliomyelitis being a contact infection which would establish the contagiousness of the disease. Sheppard urges that acute epidemic poliomyelitis be handled by the health authorities as a contact infection.

121. **Endoscopy of Esophagus.**—Imperatori urges that endoscopy of the esophagus and upper air passages in children and also in adults, should be made use of more than it is, as a means of precise diagnosis.

Northwest Medicine, Seattle, Wash.

August, XV, No. 8

126 Some Needs of Profession. J. R. Brown, Tacoma.—p. 251.
127 Suppurations of Lung and Pleura with Their Surgical Indications. S. E. Lambert, Spokane.—p. 253.
128 Chronic Myocarditis with Embolic Manifestations and Fever Simulating Clinical Course of Bacterial Endocarditis; Report of Case. I. C. Brill, San Francisco.—p. 257.
129 Treatment of Certain Forms of Sterility in Female. A. C. Martin, Seattle.—p. 260.
130 Infant for Adoption. J. B. Manning, Seattle.—p. 264.
131 Pyloric Stenosis in Infancy. P. D. McCornack, Spokane.—p. 266.
132 Toxemia of Pregnancy, Some Thoughts Suggested by Three Recent Cases. F. T. Hyde, Port Angeles.—p. 268.

Pennsylvania Medical Journal, Athens

September, XIX, No. 12

133 Tuberculosis, Some Words to General Practitioner. W. Brinton, Philadelphia.—p. 885.
134 Concentrated Sunlight in Treatment of Tuberculous Lesions. F. A. Johnston, Socorro, N. M.—p. 891.
135 Sectional Method of Teaching and Studying Macroscopic Anatomy. J. P. Schaeffer, Philadelphia.—p. 894.
136 Dermatitis Caused by Cosmetics and Wearing Apparel, Particularly Those Containing Paraphenylendiamin. F. C. Knowles, Philadelphia.—p. 897.
137 Plea for More Necropsies. S. M. Martsolf, Westover.—p. 900.
138 Local Anesthesia in Minor Surgery. C. W. McElhaney, Greenville.—p. 904.
139 Radium in French Military Surgery. W. H. Cameron, Pittsburgh.—p. 906.
140 Pain as Indication for Surgical Interference. R. J. Behan, Pittsburgh.—p. 908.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

September, XXIV, No. 9

141 Differential Diagnosis Between Gastric Ulcer, Gallstones and Diffuse Gastritis. W. T. Grove, Eureka, Kan.—p. 253.
142 Pelvic Mechanotherapy. F. A. Harper, Pittsburg, Kan.—p. 267.
143 Clinical and Pathologic Aspects of Primary Sarcoma of Large Intestine. C. Potter, St. Joseph, Mo.—p. 276.

Texas State Journal of Medicine, Fort Worth

September, XII, No. 5

144 Some Phases of Typhoid. M. L. Graves, Galveston.—p. 209.
145 Isolation of Bacillus Typhosus from Bile in Typhoid. B. Reading, Galveston.—p. 211.
146 Ovarian Transplantation; Report of Cases. W. D. Phillips, New Orleans.—p. 213.
147 Disordered Menstruation as Symptom of Disease. H. L. D. Kirkham, Houston.—p. 218.
148 Postoperative Insanity. W. L. Secor, Kerrville-on-the-Gaudalupe.—p. 220.
149 Diagnosis of Pernicious Anemia. G. C. Kindley, Dallas.—p. 222.
150 Sympathetic Ophthalmia. J. H. Burleson, San Antonio.—p. 225.
151 Symptoms and Treatment of Deflected Nasal Septum. H. L. Warwick, Fort Worth.—p. 226.
152 Temporal and Subconjunctival Medication in Certain Eye Conditions. R. B. Sellers, Fort Worth.—p. 229.
153 Foreign Bodies in Trachea, Bronchi and Esophagus; Case Reports. J. L. Burgess, Waco.—p. 231.
154 Case of Typhus. H. L. McNeil, Galveston.—p. 234.

Wisconsin Medical Journal, Milwaukee

September, XV, No. 4

155 Some of More Common Diseases of Skin. O. H. Foerster, Milwaukee.—p. 105.
156 *Gastric and Duodenal Ulcer in Newborn. T. W. Nuzum, Janesville.—p. 111.
157 Nurse Midwife. F. J. Taussig, St. Louis.—p. 113.
158 Limitations of Surgery in Treatment of Pelvic Inflammations. P. Findley, Omaha.—p. 116.
159 *Eighty-Two Cultures Taken from Physicians' Clinical Thermometers. W. R. Ramsey and H. M. Schoberg, St. Paul.—p. 118.

156. **Gastric and Duodenal Ulcer in Newborn.**—Nuzum cites two cases of such ulcers occurring in infants. A strong healthy girl, 24 hours old, suddenly vomited some 2 or more ounces of blood after which she was very pale and weak and showed very marked symptoms of loss of blood. This occurred on two other occasions and she lay at the point of death for sometime. She finally rallied, made a slow recovery and up to the time she was 10 years old was a healthy fine girl. Nuzum is convinced that this was a case of gastric ulcer, which was present before birth and which started to bleed on account of the distention of the stomach by the mother's milk and consequent peristalsis, or by both. A fine baby girl cried lustily following a natural delivery, nursed well, and seemed well in every way until about 14 hours old when the nurse noticed a spot of blood on the diaper. Nuzum made a diagnosis of hemorrhage from a duodenal ulcer and instituted active treatment for the same, but to no avail. She continued to pass clotted blood during the night, went into collapse and died when 24 hours old. A postmortem was permitted. There was a firm band of organic adhesions about one-half inch wide extending from the ulcer site on the duodenum to the gallbladder, also some friable adhesions and a plastic exudate. A small quantity of blood had oozed through the perforation into the peritoneal cavity. The mucosa around the tiny ulcer was smooth and soft, not noticeably different from that in the normal parts.

159. **Cultures Taken from Clinical Thermometers.**—Total cultures taken by Ramsey and Schoberg were eighty-two. Of this number, thirty-three were sterile; forty-nine contained organisms of various kinds. Streptococci occurred in thirteen cultures. One thermometer which gave a pure culture of streptococci had been used in the mouth of a patient with facial erysipelas a few hours before and had been washed in water, and dipped in alcohol before returning to the case. Five others, from thermometers used in scarlet fever patients contained streptococci in large numbers. *Staphylococcus albus* and citrus were present in thirteen cultures. Pneumococcus occurred in one culture. The remainder had various organisms, large spore forming bacilli, hay bacilli, mould fungus, etc. The authors emphasize that careless washing will not suffice but that thorough washing with running water and then alcohol will render them clean. A thermometer case containing some solution such as alcohol or formaldehyd solution, in which the thermometer could be carried, would lessen greatly the possibilities of infection, as several thermometers were examined which were carried in this way and all were sterile.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 2, II, No. 2905

1 Distribution of Typhoid and Paratyphoid Infections Among Enteric Fevers at Mudros, October-December, 1915. C. J. Martin and W. G. D. Upjohn.—p. 313.
2 *Brilliant Green and Telluric Acid in Isolation of Typhoid-Paratyphoid Bacilli. A. Leitch.—p. 317.
3 *Local Treatment of Burns on Naval Hospital Ship. R. J. Willan.—p. 318.
4 Extension Treatment of Gunshot Fractures. E. W. H. Groves.—p. 320.
5 *Mechanism of Saline Dressings. K. Taylor.—p. 321.
6 Recent Epidemic Outbreaks of Acute Poliomyelitis. A. G. Robb—p. 324.
7 Three Cases of Bubonic Plague Arising in England. A. R. Short.—p. 327.

2. **Isolation of Typhoid-Paratyphoid Bacilli.**—For the isolation of typhoid-paratyphoid organisms from urine Leitch tried a slight modification of the Browning-Mackie method in 1,100 specimens. Equal quantities of urine and brilliant green peptone water (the dye being in a concentration of 1

in 100,000 in the latter) were mixed and incubated for twenty-four hours, and a loopful from each was spread on MacConkey plates. In only one case was an organism of the group isolated—a paratyphoid A. In almost all other cases the plates were sterile. Leitch regards the method of Browning, Gilmour and Mackie as a useful one in detecting a number of carriers of typhoid paratyphoid that are liable to be overlooked by the ordinary procedure. Both methods should be done together as a check on each other. Owing to the saving of time, if one method alone has to be used Leitch would use the brilliant green.

3. **Local Treatment of Burns.**—The treatment employed by Willan was as follows: The blisters were punctured and the contents drained under strict aseptic precautions, the surface being first sponged with phenol solution, 1 in 20. If it was a recent burn he applied the service picric acid dressing as the first dressing. Early sepsis in burns has an unmistakable odor, and the sense of smell can detect it early. If there was no smell the first dressing was left on for two days, when it was removed in order to puncture any further blisters which might have formed. An ointment was applied, made of equal parts of boric ointment and petrolatum. This was plentifully spread on strips of white "surgeons' lint," and was changed once daily. If the dressing had the septic smell the infected part was fomented with boric fomentations every four hours. The fomentation was four ply, and the covering jaconet projected for one-half inch beyond the margins of the fotus in order to keep in the moisture. When the area cleared up—that is, when all sloughs, etc., had separated and a clean surface was left—the above mentioned ointment was similarly applied once a day, according to the amount of pus which had been secreted from the raw surface.

If the burn was aseptic the loose skin of the blisters was not removed, but was left to act as a protection to the exposed deeper and painful layer of the skin. If the burn was septic all loose skin was cut away. The dressing next to the skin was covered by wool containing a small amount of mercury perchlorid. The whole dressing was fixed by a bandage loosely applied. Face masks were not used except when a fomentation was required. With face burns the nose, cheeks and lips were frequently smeared with the ointment, which was gently massaged in with the convex surface of a teaspoon. Out of twenty-eight cases, fifteen were aseptic, and all these recovered. The remaining thirteen cases were septic to a greater or lesser degree, and five of them succumbed, but one of these had other serious injuries. Four of the cases were virulently septic, and two fatal cases developed erysipelas.

5. **Mechanism of Saline Dressings.**—What clinical evidence asks Taylor is there of the success of the treatment with hypertonic salt dressings? Aside from the claims of its author, there have been scattered reports in its favor appearing in various medical journals. There is also a strong minority which is disappointed in the treatment. It is claimed that the infection is not diminished and that the wound is left in poorer condition by its use than would have been the case if it had been left alone. Attempts are made to reinforce the weak antiseptic action of the high sodium chlorid content by the addition of a more active germicide. This is merely additional evidence that it has proved unsatisfactory. Taylor has seen it used rather extensively, and has not been convinced that it produced the results claimed for it. The saprophytic bacterial flora persisted quite as long as with the ordinary methods of antiseptic treatment, and the separation of sloughs did not appear to be appreciably hastened. He has in addition, felt that edema of the tissues around the wound occurred more frequently after the use of hypertonic saline than with other dressing solutions, possibly as the result of an increased deposit of salt. Furthermore, the recuperative reaction in the wound appeared to be retarded.

Indian Medical Gazette, Calcutta

August, LI, No. 8

8 Likewise and Contrary Wise. R. Bryson.—p. 281.
9 Diarrhea and Continuous Fever Due to Oysters. W. D. Keyworth.—p. 286.
10 Treatment of Trachoma by Excision of Tarsus and Tarsal Conjunctiva of Upper Lid. W. E. S. Moncrief.—p. 294.

Lancet, London

September 9, II, No. 4854

11 Analysis of Living Matter Through Its Reactions to Poisons. A. R. Cushny.—p. 459.
12 Study of Shell Shock. C. S. Myers.—p. 461.
13 *Effect of Trench Warfare on Renal Function. J. W. McLeod and P. Ameuille.—p. 468.
14 Diagnostic Value of Tubercle of Choroid. S. Stephenson.—p. 472.
15 Trench Pyrexias; Their Prevention and Treatment. B. Hughes.—p. 474.
16 *Dressing of Septic Gunshot Wounds. W. B. Davy.—p. 475.
17 Case of Persistent Fever. G. L. Turnbull.—p. 476.
18 Bayonet Wounds of Chest. S. D. Rhind.—p. 477.
19 Shiah Pilgrimage and Sanitary Defences of Mesopotamia and Turco-Persian Frontier. F. G. Clemow.—p. 488.

13. **Effect of Trench Warfare on Renal Function.**—From the results obtained from the study of a considerable number of cases the authors are of the opinion that exposure alone has probably nothing to do with the causation of a number of the cases of nephritis observed in France, especially the milder ones; and that if it has a part in the etiology of the more severe cases it will be similar to that exhibited in many infectious diseases, namely, that of setting up a defective circulation in an organ so as to render it less capable of resisting bacterial invasion. Transitory albuminuria is very common among all troops, especially those making considerable physical efforts, and the majority of these albuminurias can be classed with the so-called "fatigue" albuminuria. There exist, especially among the British troops, an excess of cases of symptomless albuminuria apart from those just mentioned, which cannot all be classified as chronic nephritis and which probably correspond to the surprisingly mild type of nephritis which has been so often observed during this campaign among the British troops. Diet appears to be the most likely explanation of this excess of transitory albuminuria and mild nephritis and may also contribute toward the development of the more severe cases. In support of this last conclusion it may be pointed out: that the authors' experiments have demonstrated that the average soldier is consuming an amount of protein food in excess of his requirements, and is, therefore, throwing an undue strain on his excretory organs; that the relative rarity of acute nephritis among younger officers is generally admitted; and that the unusually numerous cases of gingivitis which come under observation probably indicate that the men are suffering to some extent from the restriction of fresh vegetable food, which is usual, and to some extent inevitable, for troops in the front line and not uncommon farther back.

16. **Dressing of Septic Gunshot Wounds.**—Davy is impressed with the fact that from a therapeutic point of view the dressing, or rather the redressing, of a septic wound is as unnecessary as, and much more harmful than the redressing of a wound that is expected to heal by first intention. A redressing is of diagnostic value only, and it is the last diagnostic test that should be applied. A redressing should be looked on as an operation only to be undertaken after careful thought, and an unnecessary dressing should be regarded with as much regret as an unnecessary operation. Most redressings are entirely unnecessary, and it is the better recognition of this that is Davy's plea.

Medical Journal of Australia, Sydney

August 12, II, No. 7

20 Fractures of Lower Extremity. R. H. Russell.—p. 107.
21 Intensive Specific Treatment of Epidemic Cerebrospinal Meningitis. D. A. Welsh and W. S. Brown.—p. 113.
22 Operation Specimen Containing Inflamed Appendix, Pyosalpinx, Hydrosalpinx, Fibrotic Uterus and Fibroid Polyp, Technic Employed. R. Worrall.—p. 117.

August 19, No. 8

23 Arsenobenzol Substitutes for German Salvarsan. E. H. Molesworth.—p. 129.
24 Danysz' "102" (Luargol) in Treatment of Malignant or Acute Syphilis. Dalimier and Levy-Fränckel.—p. 130.
25 Pyorrhea Alveolaris. A. J. Wright.—p. 131.
26 Roentgenology and Radium Therapy Abroad. H. Harris.—p. 133.

Practitioner, London

September, XCVII, No. 3

27 *Abdominal Wounds in War. C. Wallace.—p. 201.
28 Recent Work in Orthopedics. E. R. Carling.—p. 232.
29 Recent Literature on Typhus. C. B. Ker.—p. 238.

30 Reaction of Child to Faulty Environment. H. C. Cameron.—p. 246.
31 *Gonorrhea Treated by Electrolysis; Results in One Hundred Cases. C. Russ.—p. 256.
32 Drug Progress. D. M. Macdonald.—p. 260.
33 Passive Ergotherapy in Obesity. J. S. K. Smith.—p. 264.
34 *Clinical Significance of Sinus Arrhythmia. L. T. Thorne.—p. 274.
35 Prognosis and Prophylaxis in Eclampsia. G. I. Strachan.—p. 279.
36 Bearer Work at Front. H. W. Spaight.—p. 288.

27. **Abdominal Wounds in War.**—The advisability of early operation, in the great majority of gunshot wounds of the abdomen, Wallace says, may now be said to be established on a firm basis. The question is now: What cases are best left alone? In a large series of cases there will be many that are past help. In 511 cases there were 145 in which any surgical operation was out of the question. Of the remaining 366 patients no operation was considered advisable in 56 instances. Of this latter number, 15 cases were, in all probability wounds of the liver. Some were cases of doubtful abdominal penetration, which arrived late, and presented no symptoms suggesting involvement of a hollow viscus. A few were cases of uncomplicated traumatic hematuria. Wounds of the liver furnish most of the cases of undoubted penetration which it is advisable to leave alone. The kidney furnishes a few as well, and about the propriety of leaving both these alone there is no difference of opinion. All are agreed, too, that wounds of the small gut area should be explored. There is still some doubt about the best course to pursue in cases of suspected stomach injury, and in wounds which apparently involve only the colon. A chart made of some hundreds of abdominal injuries shows that two thirds of the projectiles enter anterior to the lateral line of the body, when viewed from the front, and one third behind this line. On the whole, the posterior wound is the more dangerous. An anteroposterior wound in the upper part of the abdomen is the least dangerous, and a side-to-side wound lower down the most dangerous, though there is little to choose between the latter and anteroposterior hypogastric or buttock and hip wounds.

A chart made of a large series of cases that were too bad for operation, and in which a single entry wound was represented by a dot, and an in-and-out wound by a line, shows a darkened fan-shaped area, the apex of which is in the left costal margin. This chart seems to show that, of the cases that come under observation, the most dangerous wound is one of the left lower hypochondrium or upper lumbar region, for many such cases are too bad for operation. A chart with all the entrance wounds plotted shows a tendency for the dots to collect toward the sides of the body. This is probably connected with the presence of the great vessels in the mid line. Of the cases that arrive at the casualty clearing stations, wounds of the solid viscera are very much less fatal than those of the alimentary tube. When a fatal result ensues, the cause of death is, for the most part, hemorrhage. There is some evidence to show that wounds of the spleen and kidney vessels and of the liver veins are fatal before the cases reach the operation table. Wounds of the small intestine show a mortality of 63.8 per cent.; the large intestine, 60 per cent.; the stomach, 43.75 per cent.; while the total hollow viscera mortality is 64.5 per cent. This latter mortality shows the increased danger of multiple injuries, and is largely accounted for by colon injuries complicating those of the stomach and small gut. The small gut injuries are serious from their multiplicity, the large gut injuries from their infectivity.

31. **Gonorrhea Treated by Electrolysis.**—This series is composed of sixty-nine acute and thirty-one chronic cases. The average number of treatments required in the acute cases was sixteen (minimum = 5 and maximum = 34). In the chronic cases the average number of treatments necessary was twenty (minimum = 14 and maximum = 35), the duration of the disease in this group being from fourteen days to five years before commencing electrolysis. Besides treatment by electrolysis, Russ only uses vaccine for rheumatic cases, and orders a little sandalwood oil after the discharge has become slight.

34. **Clinical Significance of Sinus Arrhythmia.**—Thorne is convinced from observation of many cases in adults, especially young adults, that the presence of any kind of irregularity in the cardiac rhythm is not a normal condition, and that it should not be disregarded. People in whom arrhythmia is present are more liable to suffer from a cardiac breakdown, under mental or physical strain, than are those who have a perfectly regular pulse.

Sei-I-Kwai Medical Journal, Tokyo

August, XXXV, No. 8

37 Diabetes Mellitus Among Japanese. (To be continued.) S. Iwai. —p. 43.

Bulletin de l'Académie de Médecine, Paris

August 22, LXXVI, No. 33, pp. 121-136

38 *Plague in the Senegal. (Epidemie de peste qui a sévi à Dakar et au Sénégal d'avril 1914 à février 1915.) Kermorgant.—p. 126.
39 *Magnesium Hypochlorite in Surgery. Dubard.—p. 134.

August 29, No. 34, pp. 137-162

40 *Results of Vaccination Against Typhoid in the French Navy. A. Chantemesse.—p. 140.
41 *Inexpensive Substitutes for Butter, Lard and Olive Oil. (De l'utilisation de nos corps gras coloniaux, pour remédier à l'insuffisance de nos corps gras métropolitains.) E. Maurel.—p. 145.
42 Lip Reading for Deafness from Wounds in War. (La surdité de guerre bilatérale totale: Rééducation auditive ou lecture sur les lèvres.) M. Lannois and F. Chavanne.—p. 150.
43 Simplified Artificial Leg. (Note sur quelques appareils nouveaux de prothèse du membre inférieur.) T. Tuffier and Seron.—p. 159.

38. **Plague in Western Africa.**—Kermorgant gives the details of a bubonic plague epidemic in the Senegal from April, 1914, to February, 1915. The natives concealed their sick at first and the epidemic thus got a foothold. During the nine months there were recorded 8,686 cases of plague, with a known mortality of 1,425 cases; the population totals 20,000. Among the Europeans there were only seven cases with three deaths. The entire civilian population of the towns affected were vaccinated three times and all bore it well. At Dakar 8,000 natives were given a total of 13,596 vaccinations and throughout the Senegal 129,752 vaccinations were made. The children had the disease in the mild ambulant, bubonic form. A campaign against rats was undertaken with periodical "sulphuration" of the sewers, besides the use of traps, poisons, bounties and rat virus. There was an abnormally high mortality during the period of the epidemic in dogs, cats, rabbits, poultry and monkeys in captivity. The cattle and horses also died off in large numbers. No explanation for this high mortality could be found except that it was traced to plague bacilli in two cats, one monkey and a tame civet cat. The epidemic at Dakar was apparently stamped out twice and flared up again, so there were really three epidemics.

The natives like to bury the dead in the midst of their villages, and consequently a systematic transference of the natives to new villages was an important part of the campaign. The site of the old villages was burned over with huge bonfires and walled off with logs, stumps and brush. No one was allowed to return to them or cultivate the ground. The plague in this epidemic seemed to have been communicated by man to the rats of the region as no infected rats were found until late in the epidemic. As soon as the suspects were isolated and the contaminated huts burnt down scarcely any new cases developed. The first cases were of the pneumonic type, fatal in less than three days. Under serotherapy and camphorated oil the less severe bubonic type was successfully combated when the case was seen in time or the patient had been vaccinated against plague.

39. **Magnesium Hypochlorite in Surgery.**—Dubard commends in high terms a 1 or 2.5 per cent. solution of magnesium hypochlorite as absolutely harmless while its bactericidal power is considerable, and its preparation simple and inexpensive. As a disinfectant for the wounded it is proving superior to any others yet known, including Dakin's fluid. He commends it especially to obstetricians and midwives.

40. **Vaccination Against Typhoid in French Navy.**—Chantemesse states that there have been only 136 cases with 7 per cent. mortality among the 80,000 men who were vaccinated, while there were 525 cases with mortality of 14 per cent. among 60,000 not vaccinated. The figures include the

entire period of the war, and both typhoid and paratyphoid. Only one fatal case of typhoid occurred in a man who had been completely vaccinated, and in this case staphylococci were isolated from the meninges. Three of the fatalities were from paratyphoid. Two whole pages of this report are blank, the contents having been struck out by the censor.

41. **Substitutes for Butter and Lard.**—Maurel shows that according to general habits the daily allowance of fat consumed is about 1 gm. per kg. of the normal weight of the adult. About half this amount is eaten in the form of meat, milk and eggs, the other half being taken to add savor to dishes. "There is such a scarcity of fats now," he says, "that there is actually a famine in fats. The census of hogs in France, Dec. 31, 1913, showed 7,047,750 head, but in July, 1916, there were only 4,448,366, a falling off of 36 per cent., and the price of lard has risen accordingly." He urges that greater use should be made of peanut oil and coconut oil which are produced in abundance in the French colonies in Africa. They are wholesome, inexpensive, and entirely satisfactory for cooking and salad oils, as he has long proved at his own table.

Paris Médical

August 19, No. 34, pp. 149-164

44 *Factitious Phlegmons and Jaundice to Escape Military Service. (Maladies provoquées ou simulées en temps de guerre.) Chavigny.—p. 150.
45 Filiform Drainage of Infected Fractures. (Le drainage des fractures de guerre infectées et le traitement des pseudarthroses.) H. Chaput.—p. 153.
46 Devices for Auto-Extension of Fractured Limb. L. Senlecq.—p. 156.
47 Bloodletting Without Venesection. (La saignée sans phlébotomie.) L. Plantier.—p. 160.
48 Lesions in the Bones Not Discoverable by Roentgenoscopy. (Lésions osseuses non décelables par la radioscopie.) B. De Laborie.—p. 162.

44. **Factitious Phlegmons.**—Chavigny says that there is no really scientific irrefutable proof that can be advanced to show that a given phlegmon is not a natural process but has been induced by artificial means. This is generally subcutaneous injection of turpentine or gasoline. The fact that they occur in epidemic form and on the same part of the body is presumptive evidence of fraud. The injection of turpentine and gasoline leaves no traces on the skin, and the redness, heat and tumefaction are the same as in the most respectable phlegmon, but there is less pain and there is no glandular involvement. Fluctuation is pronounced the fourth or fifth day but the turpentine phlegmon contains little or no pus, only a mass of gangrenous scraps of subcutaneous cellular tissue. The pus of a gasoline phlegmon is a whitish thick jelly. The petroleum abscess smells strongly of petroleum. All these substances destroy bacteria so the pus is aseptic.

44. **Jaundice from Injection of Picric Acid.**—Chavigny's tests have apparently demonstrated that picric acid dust, inhaled in the manufacture of munitions, etc., does not pass into the urine and it is not used to adulterate foods enough to have it show in the urine. Hence when it is found pronounced in the urine in persons subject to military duty, this is presumptive evidence that it was taken to induce the jaundice which always follows.

Presse Médicale, Paris

August 31, XXIV, No. 48, pp. 381-388

49 *Infectious Icterus with Febrile Recrudescences. M. Garnier.—p. 381.
50 Improved Auto-Extension and Immobilization Apparatus for Compound Fracture of Femur. (Le traitement des fractures compliquées de la cuisse par un appareil réalisant toutes les conditions désirables pour la thérapeutique de pareilles blessures.) J. Ducuing.—p. 383.

49. **Infectious Jaundice with Febrile Recrudescence.**—Garnier calls attention to the febrile recrudescence which is a special feature of certain cases of infectious jaundice. It must not be mistaken for a febrile complication, as it is merely part of the disease. In a typical case related, after a week of apyrexia, during which the pulse had returned to normal and the amount of urine was approximating normal, the temperature ran up high again and kept febrile from the twelfth to the twentieth day of the jaundice, the high plane of the temperature suggesting typhoid while the general condition grew worse again, but the jaundice showed no aggravation, although the urine grew darker in color and scantier in amount. The liver evidently suffered during the febrile recrudescence, but not to such an extent as during the onset of the disease. The cyclic recrudescence in several cases cited might be superposed, the curves being so much alike. Study of the blood in twenty-three cases revealed paratyphoid B in one case but in the others the blood seemed to be sterile.

Revue de Chirurgie, Paris

April, XXXV, No. 4, pp. 481-635

51 *Emergency Treatment of Wounds of the Joints. (Le traitement des plaies articulaires dans les ambulances.) A. Schwartz and P. Mocquot.—p. 481.
52 *Shell Wounds of the Knee. (Plaies pénétrantes du genou. Résultats obtenus pendant un an (1914-1915) à l'hôpital de Commercy.) J. Martin.—p. 587.
53 Remote Results of Operative Treatment of War Wounds of Nerves; Fourteen Cases. A. Basset.—p. 609. To be continued.

51. **Emergency Treatment of Wounds of Joints.**—Schwartz and Mocquot devote over 100 pages to analysis of eighty-seven cases of war wounds of the knee, wrist or ankle, with the ultimate outcome after operative treatment in the ambulance. They comment on the wide range of the injuries that may be induced, from the simplest to the most mutilating and infected, and discuss the diagnosis and indications with each type.

52. **Shell Wounds of the Knee.**—Martin analyzes thirty cases of shell wounds of the knee encountered among 3,000 wounded soldiers who have passed through his hands. The hole made by the projectile permits more or less complete drainage so there is none of the pain and swelling we are accustomed to with a knee affection outside of war conditions. The temperature running up may be the only sign of the gravity of the case. In the early months of the war Martin followed the traditional methods, arthrotomy, resection for arthritis persisting after drainage, amputation. The disastrous results forced a change to systematic exploration of the joint and early resection when found necessary, and at once the outcome became immeasurably better, with no mortality, while 42 per cent. died of the nineteen cases in the first group.

Revue Médicale de la Suisse Romande, Geneva

August, XXXVI, No. 8, pp. 449-536

54 *Tuberculosis and the School. (Tuberculose et école.) L. Jeanneret.—p. 449.
55 *When Shall We Operate in Gallstone Trouble. (Les indications opératoires de la lithiase biliaire.) G. Patry.—p. 479.
56 Tumor in Cerebellopontine Angle in Woman of Sixty-One. H. Preisig.—p. 510.

54. **Tuberculosis and the Schools.**—Jeanneret declares that it is at school and by the school that society can root out tuberculosis. The physician has not only the right, it is his duty to utilize the school because it is here only that effectual prophylaxis can be applied. If there is no case of open tuberculosis in the environment, the infant may escape infection. Between 3 and 5 the lymphatic glands arrest any tubercle bacilli entering the organism. This localization in the glands may be the extent of the tuberculosis invasion. The child is not diseased, he is merely tuberculized, sensitized. The organism keeps on the defensive and gives a positive response to the tuberculin tests all through life, up to advanced age, testifying to a relative immunity. We can assume that practically every child is infected before it reaches 15. It is our task to distinguish between those who are holding their tubercle bacilli harmlessly imprisoned in their glands, and those whose bacilli are more active and flood the blood stream now and then with their toxins. The child does not develop normally, looks frail and the digestion is deranged, gastric anachlorhydria leading to intestinal trouble. These *tuberculisés évolutifs* are the candidates for phthisis in later life.

Jeanneret emphasizes that tuberculosis in schoolchildren is always "closed." The children do not infect each other. They contract the disease in their homes or from the teacher. Every schoolchild should have his health chart, the *fiche sanitaire*. On this should be recorded his weight every month and his height twice a year. The weight divided by the height gives a reliable index of the physiologic balance. The health chart should also record the tint of the mucous membranes, and whether the child is pale or ruddy, a good or bad student, and likewise any complaints or anomaly that may be noticed. The Pirquet skin test is indispensable. Once positive, it need not be repeated but, if negative, it should be repeated once a year. With health cards like this, kept up to date, the children with evolving tuberculosis are automatically sifted out, and these require closer examination, including roentgenoscopy.

Jeanneret regards sunlight as the great regenerator in childhood. He has the children's gymnastic work done in the open sunlight, the children stripped to the waist. (His success with "outing sunbaths," preventive heliotherapy, was described in these columns, June 17, 1916, p. 2043.) This idea of exercising with the upper part of the body exposed to the air has spread until now the Swiss soldiers systematically exercise in this way. He adds that gymnastic exercise for children from 6 to 12 should be predominantly thoracic. The child has special need of oxygen, and the only means to increase the supply of oxygen is by developing the respiratory function by gymnastic exercises of the chest. This develops the chest and lungs, keeps the costal articulations flexible, and thus materially reduces the predisposition to tuberculosis. Training of deafmutes in phonetic exercises has aided much in reducing the predisposition to tuberculosis in this group. Fully an hour in the course of the day should be devoted to gymnastic exercises in every school. He describes ten basic exercises: one is to place the hands on the abdomen, the forefingers meeting at the umbilicus. Take a slow deep breath, pressing on the abdomen, then releasing it under slow expiration. The exercises with the arms and trunk are done to correspond with deep inspiration, letting the arms fall or raising the trunk during expiration. The last exercise on his list is bending forward until the palms can touch the floor, then raise the body during inspiration and bend over again during expiration.

55. **Indications for Operative Treatment for Gallstones.**—Patry expatiates on the importance of distinguishing between the various factors causing disturbances from the presence of gallstones. Some require operative measures and others do not. On the whole, he declares, the general treatment of lithiasis is medical. Operative treatment should be reserved for cases of acute angiocholitis; acute cholecystitis when the symptoms indicate that the infectious process is spreading; and a stone impacted in the common bile duct when the liver shows signs of alteration. In all other types of gallstone trouble the decision whether to operate should be left to the patient. One can count almost absolutely on a complete cure and with the minumum of risks if the general condition is good.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 26, XLVI, No. 35, pp. 1089-1120

57 Methylene Blue and Methyl Violet as Local Disinfectants. (Beitrag zur Therapie mit Anilinfarbstoffen.) E. Baumann.—p. 1089.
58 *Cases of Myoclonia Epilepsy. P. Wolfer.—p. 1105.

58. **Myoclonia-Epilepsy.**—Bührer published in 1901 a case of myoclonia-epilepsy in a girl of 18, and Wolfer here describes another case, in a boy of 15, the brother of the girl. Another sister has seizures but no myoclonus. Neither of the cases of myoclonia offer any further bases for theories as to the etiology. It seems probable, however, that both the peripheral and central nervous system and the musculature are functionally damaged as a family trait. No benefit was derived from any treatment except transient relief from sedatives.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 24, XXXVII, No. 68, pp. 1057-1072

59 Mode of Action and Indications for Autoserotherapy. (Studio preparatorio per conoscere il meccanismo di azione e le indicazioni della auto-siero-terapia.) E. Belliboni.—p. 1058.

August 27, No. 69, pp. 1073-1088

60 *Subphrenic Abscess; Six Cases. A. Franchini.—p. 1074.

August 31, No. 70, pp. 1089-1104

61 *Diagnosis of Asiatic Cholera. F. Pancrazio.—p. 1090.

60. **Subphrenic Abscess.**—Franchini reports six operative cases of subphrenic abscess, and ascribes his success in all to the avoidance of general anesthesia and the scrupulous after care, but above all to the convenient mode of access he followed. He resected the tenth rib from the back and incised the parietal pleura for 8 or 9 cm. The lips of the incision were then sutured in a circle to the bulging portion of the diaphragm pushed up by the abscess. An incision in the diaphragm released the pus and gas of a fecal odor. The cavity was cleared out and dried with gauze and two large drains introduced. The woman for some time before the abscess had had symptoms of acid gastritis. In some cases he sutured to the skin the lips of the incision in the diaphragm. In a few of his cases the abscess was accompanied by pleural effusion, percussion showing the resonance of the lung, then the dulness over the pleural effusion, below this an area of tympanitic resonance and below this the liver dulness.

61. **Diagnosis of Cholera.**—Pancrazio remarks that while the diagnosis of cholera is usually self-evident, yet occasionally cases are observed in which the syndrome deceptively simulates acute poisoning and others in which it is so mild that cholera is scarcely suspected. He has had cases in which bacteriologic tests were repeatedly negative and even after death the cholera vibriones were found only in the bile. The mild cases are particularly puzzling, especially when cholera is not epidemic. The essential feature of cholera, he declares, is the more or less intense intoxication of the organism. This alone explains the fulminating cases in which the diarrhea and vomiting are extremely mild throughout, but necropsy discloses serious lesions in the kidneys, liver and heart. The asthenia and the changes in the voice are best explained by this assumption. These, with the diarrhea without pains and without meteorism, warn of cholera; they are all usually present even in the mildest cases. When Pancrazio notices sudden, extreme weakness, even without other symptoms, he begins to investigate at once whether there has been any liability to contact with cholera.

Policlinico, Rome

August 27, XXIII, No. 35, pp. 1043-1066

62 *Asepsis versus Antisepsis in Treatment of Wounds in War. (Intorno alla cura delle ferite settiche.) G. Ruggi.—p. 1043.

August, Surgical Section No. 8, pp. 225-256

63 Pyogenic Obligatory Anaerobic Bacterium Found in a Compound Fracture. (Bacillus putrificus var. non liquefaciens.) F. Putzu. —p. 225.
64 *Experimental Research on Cutting Wounds of the Kidney and Reimplantation of Severed Segment. (Sulle estese ferite da taglio del parenchima renale e sul reimpianto di segmenti renali.) G. Serafini.—p. 236.

62. **Asepsis in Treatment of Infected Wounds in War.**—Ruggi's many years of experience have convinced him that the extremely complicated and delicate natural processes of defence and repair in an infected wound are best promoted by first clearing out the wound and providing ample drainage and then leaving it absolutely alone. Any pressure in the wound, either from accumulation of secretions or by movements increasing the pressure, changing dressings, exploration, palpation, all tend to disturb the delicate biologic processes going on in the wound, and not only spread the germs around in the wound but spread them so they will invade the rest of the body or their toxic products thus be disseminated. Even the slightest displacement of any of the tissues in the wound permits germs to proliferate in the intervening spaces, in the lymph spaces and along the tendon sheaths, etc., thus permitting the germs to get into the arterioles or finer ramifications of the veins. The aim in treatment therefore should be to prevent the formation of a closed cavity, open it if already formed, and ensure ample drainage of all its recesses, keep the injured limb absolutely still with immobilizing apparatus and change the dressings only when absolutely necessary. In his service, the dry aseptic gauze applied to the thoroughly drained wound is left untouched unless pain, hemorrhage or rising temperature call for its renewal. Whenever the temperature runs up abruptly to 38 C. (100.4 F.), cautious examination of the

wound will show then some obstruction of drainage and the temperature drops when this is remedied. The temperature may run up abruptly and drop soon again even after a change of dressings, merely from some of the toxic products being absorbed in the course of the manipulations. He does not use any antiseptics except for the mouth and for much soiled wounds seen at once. Those reaching him at Bologna have passed the stage when this would be effectual. He cites a few typical charts, including one of a soldier seven days after comminuted fractures of the humerus, radius and ulna of the right arm. Amputation seemed inevitable as the devastation of both bones and soft parts was enormous; the whole was opened up, drained with gauze, and a dry gauze dressing applied, with plaster immobilization of the arm. The temperature was not permanently normal until the fortieth day. During the first phase, with predominant remissions of the fever, the dressings were changed seven times in the course of the twenty-seven days, and the plaster cast three times. During the thirteen days of the second phase, the intermissions of the fever predominating, the dressings were changed three times and the plaster once. The chart shows that each fever peak was followed by a change of the dressings and this by an abrupt decline. After the first week, two weeks passed before the dressings required changing, except the outer layers for cleanliness. His remarks apply only to the material in his service at Bologna, which is not reached by the wounded until several days after their injury.

64. **Cutting Wounds of the Kidneys.**—Serafini's experiments were made on rabbits and demonstrated that the kidney can be smoothly cut and sutured again without much damage provided the line of cleavage is parallel to that of the vessels of the parenchyma or, if slanting across the plane of the vessels of the parenchyma, if the lesions are not too extensive and too deep. If the cut extends half through the kidney, the attempt to preserve the part of the kidney below may prove disastrous. Resection is indicated here; it leaves a functionally capable stump of the organ. These statements apply only to smooth cuts; when there is contusion with crushing of tissues nephrectomy is usually indicated. None of the twelve animals died in consequence of the smooth cut or developed infiltration with urine or perirenal hemorrhage. A few stitches or turning in of the lips of the wound prevented complications, even when the cut had extended into the kidney pelvis. Few traces of the deep incision were left when it was parallel to the vessels of the parenchyma, but extensive zones of necrosis developed below when the vessels had been cut. In his experiments on five rabbits with reimplantation of the segment cut off from the kidney, the implanted portion always crumbled or mortified or softened into an amorphous mass.

Siglo Medico, Madrid

August 19, LXIII, No. 3271, pp. 529-544

65 *Diagnosis and Treatment of Glaucoma. A. Barraquer.—p. 530.

65. **Diagnosis and Treatment of Glaucoma.** — Barraquer says that there are hundreds of victims every year in Spain because the general practitioners fail to recognize glaucoma. When it develops in an acute form with vomiting and headache, they ascribe it to deranged digestion with casual neuralgia. When it develops insidiously, in a chronic form, it is mistaken for senile cataract. He urges that medical students should be trained especially in diagnosis of acute glaucoma, iritis and cataract, and in the advice to give patients with squint and myopia to ward off aggravation. Students should also be taught to recognize asthenopia and the ocular origin of dizziness and headache in some cases, and the relations between disturbances in vision and disease of the various organs outside of the eye. The practitioner is often misled when a patient in bed for any trouble or one coming to the office complains of intense headache and states that he has just had an attack, cannot sleep, has no appetite, and cannot see well. The pulse is accelerated, the tongue coated and the eyelids are swollen, the eyes bloodshot and lacrimating, with mydriasis and diminished depth of the anterior chamber—all coming on within a few days. The hyperemia, pushing forward of the lens and iris and the fogginess of the general vision are the revealing symptoms of glaucoma and should exclude simple neuralgia. Equally important is it to detect glaucoma in its prodromal stage, from the colored halo around the flame of lamps or candles, with transient feeling of oppression over the eyebrows. This condition may be mistaken for ophthalmic migraine, but there is no headache with this insidious type of glaucoma, and the symptoms persist lónger than with migraine.

Russkiy Vrach, Petrograd

XV, No. 27, pp. 625-648

66 Opening Address at First Annual Meeting of Russian Radiologists. O. D. Khvolson.—p. 625.
67 *Study of the Biologic Action of the Roentgen Rays. (K voprosu o biologicheskom dieistvii Roentgen'ovskikh lutchei.) M. I. Nemenoff.—p. 629.
68 Cysts of the Prostatic Vesicles. G. I. Baradulin.—p. 632.
69 War Wounds of Bladder. (Ognestrielniya raneniya mochevogo puzirya.) S. L. Timofieff.—p. 633. Commenced in No. 25, p. 578.
70 War Wounds of the Skull. V. V. Lavroff.—p. 636. Concluded in No. 29.—p. 683.
71 *Galvanometer as Substitute for Clinical Thermometer. (Novii sposob izmiereniya temperaturi cheloviecheskago tiela: primienenie termoelementa i galvanometra.) D. N. Sholaster.—p. 640.

No. 29, pp. 673-696

72 *Pathogenic Importance of Tenia Nana. Relation of Helminthiasis to Epileptiform Attacks. (O patologicheskom znachenii karlikovago tziepenya.) A. E. Shtsherbak.—p. 673.
73 *Dietetic Treatment of Gastric Hyperacidity. (O vozmozhnosti ponizit kislotnost zheludochnago soderzhimago dietoi.) P. I. D Sushtshevskaia.—p. 679. Commenced in No. 28, p. 656.
74 War Wounds of the Skull. (Ob . . . raneniakh cherepa. Habliudeniya za l-ui god voeni.) V. V. Lavroff.—p. 683. Commenced in No. 24, p. 560.
75 Radiotherapy of Uterine Cancer. (O liechenii radioaktivnimi veshtshestvami raka matki.) V. A. Polubinski.—p. 689.

67. **Biologic Action of the Roentgen Rays.**—Among the results of the experiments on dogs related by Nemenoff, is the striking proliferation of the interstitial cells and the cells of the prostate gland when the testicles were exposed to the Roentgen rays. He explains this by the fact that the Roentgen exposures do not modify the supply of nourishment to the testicle, and as the generative cells, the cells of external secretion, are destroyed under the influence of the rays, the other cells get the benefit of the nourishment which otherwise would have gone to the generative cells. He agrees with Bouin and Ancel that the interstitial cells are the ones responsible for the internal secretion and the secondary sexual characters. Castration, by removing the whole of the testicle, sweeps away both the external and the internal secretion, but exposure to the Roentgen rays annuls the germinative function fully as effectually, while not interfering with the internal secretion unless by increasing it, owing to the better nourishment of all the cells outside of the oversusceptible generative cells.

Of course it is impossible to apply directly to man the results of experiments on animals, but these striking phenomena involuntarily suggest a connection with the proliferation of the cells of the prostate in the elderly. This hypertrophy of the prostate occurs exclusively at that period of life when the genital functions usually are dying out. His research shows that Wilms' suggestion to treat it with Roentgen exposures is directly contraindicated. He recalls further the temporary retrogression of mammary tumors and the subsidence of uterine myomas after ovariectomy, and the atrophy of the prostate liable to follow castration. On the basis of these and other data cited, he propounds the following question: "If the dystrophy induced by Roentgen exposures of the testicle can lead to hypertrophy of the elements of internal secretion and this to proliferation of the parenchyma of the prostate, is it not possible that the growth of benign and malignant tumors may also be the result of atypical proliferation of tissues under the influence of dystrophy of certain elements in glands with an internal secretion?"

71. **Galvanometer as Substitute for Clinical Thermometer.**—Sholaster relates that maximal thermometers are extremely scarce in Russia just now and very expensive, and he

describes a method with which it is possible to register the body temperature with two wires attached to a galvanometer.

72. **Pathogenic Importance of Dwarf Tapeworm.**—Shtsherbak relates the history of a girl of 8 who presented what was assumed to be chronic true epilepsy. This was the verdict of several neurologists and pediatrists who were consulted. They made apparently thorough examinations, searching the stools for helminths' eggs on several occasions but never finding any. This diagnosis proved to be erroneous, as the trouble was finally traced to the presence of tenia nana. He knows of only thirty-six clinical cases on record of the tenia nana as parasite in man, and 11 were published in Russia. Analyzing the nervous manifestations in his case, throughout the entire long history of the disturbances there was evident a combination of epilepsy, hysteria and migraine. Some of the attacks seemed to be exclusively an epileptic seizure or a hysteria fit or an attack of migraine or various combinations. This suggested helminthiasis, and the stools were examined anew but nothing abnormal was found on repeated examination, but the third examination showed the eggs of the tenia nana and after the child had been finally freed from the parasites her nervous system recovered its tone and there has been no further "epilepsy" during the nearly six years to date. Thymol proved the most effectual of the drugs used in expelling the parasites, but male fern was used freely also, as is described in detail.

73. **Cure of Hyperacidity by Simple Dietetic Measures.**—Sushtshevskaia relates five cases in minute detail to demonstrate that it is possible to train the deranged stomach into approximately normal functioning by long continued dieting, even with the restricted resources of rural practice. She refers in particular to hyperacidity.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 26, II, No. 9, pp. 705-804

76 *The Preclinical Courses in Medical Schools. (Inrichting van het praeclinische onderwijs.) G. van Rijnberk.—p. 705.
77 *Physiology of the Lacrimal Passages. II. (Over zelfstandige vasomotorische drukschommelingen in het traankanaal.) G. F. Rochat and C. E. Benjamins.—p. 711.
78 *Epilepsy and Dipsomania. G. C. Bolten.—p. 731.
79 Case of Abnormal Volitional Movements of the Eyes. (Een geval van abnormale willekeurige oogbeweging.) W. Koster.—p. 748.
80 *Pathogenesis of Paroxysmal Hemoglobinuria. P. Daniels.—p. 753.

76. **Medical Education.**—In this third article on this subject, van Rijnberk translates nearly in full, with running comment, L. F. Barker's address, "Relation of the Preclinical Courses to the Work of the Clinical Years," published in The Journal, Feb. 26, 1916, p. 631. Van Rijnberk's final comment is in the words *Pia vota!* by which he evidently means "devoutly to be wished, but not much hope of being realized!" (See also Abstract 52, p. 1051.)

77. **Physiology of the Lacrimal Canals.**—Rochat and Benjamins report extensive research on the rabbit lacrimal apparatus, its relation to the respiration rhythm, its peristalsis under normal conditions, under the influence of nicotin, and under stimulation applied to the depressor and other nerves. There seems to be a vasomotor automatism of central origin. They locate this center in the floor of the fourth ventricle, controlling the lacrimal canal on the same side.

78. **Epilepsy and Dipsomania.**—In this third study of certain aspects of epilepsy, Bolten discusses its relation to dipsomania. He concludes its eighteen pages with the statements: "Dipsomania is a symptom complex that is caused by periodically recurring dysphoria. All troubles and disturbances on a basis of degeneration may induce it, so that hysteria, neurasthenia, epilepsy, and all degenerative and psychopathic conditions may bring on dipsomania. . . . Many cases of dipsomania belong to the group of mild manic-depressive psychoses. The depression is the immediate cause. The dipsomaniac does not drink because he enjoys drinking but because he wants to overcome his dysphoria, and hence he may use alcohol, cocain or narcotics. He has no special craving for alcohol, but only for something to drive away the blues."

80. **Paroxysmal Hemoglobinuria.**—Daniels reviews what has been written to explain the pathogenesis of paroxysmal hemoglobinuria, and points out that clinical experiences do not sustain the assumption that the trouble is of the nature of anaphylaxis. In both there is leukopeny, lymphocytosis, and reduction of complement, with clinical manifestations and falling blood pressure, but with anaphylaxis the temperature drops while it rises with paroxysmal hemoglobinuria and the blood coagulates extra fast, instead of coagulation being retarded, as with the anaphylactic shock. On the other hand, there is much to sustain the assumption that the blood in these cases contains a hemolytic amboceptor, an autohemolysin, which is the cause of the phenomena when it becomes activated by an especially low temperature.

Hygiea, Stockholm

LXXVIII, No. 15, pp. 1089-1184

81 *Intermeningeal Hemorrhage at Birth with Meningitis from Bacillus Subtilis. (Meningealblödning med infektion av B. subtilis hos ett spätt barn.) G. Lindberg.—p. 1089.
82 *Nonoperative Treatment of Hemorrhoids. (Några ord om hæmorroidbehandlingen med suppositorier.) V. Berglund.—p. 1113.
83 *Cholesteatoma Removed from Frontal Sinus. (Ett fall av cholesteatom i pannhålan.) A. Hæggström.—p. 1122.

81. **Intermeningeal Hemorrhage and Its Infection in Young Infant.**—Lindberg relates that a six weeks' babe was brought to the children's clinic at Stockholm with symptoms of purulent meningitis. The child had been born two weeks before term, and weighed 4,050 gm. The circumference of the head was 35 cm. Delivery was spontaneous after four hours of labor, but intermeningeal hemorrhage occurred and purulent meningitis developed. Puncture on each side of the anterior fontanel revealed pus, apparently restricted to the subdural space of the right hemisphere. An incision along the right coronal suture evacuated a large amount of thick, somewhat malodorous pus, and the circumference of the head was reduced by 2.5 cm. as about 150 c.c. of pus was thus removed. The immediate results were good, after the shock of the operation had been overcome. A serous discharge kept up and the appetite and weight improved, but the meningitis spread to the base of the brain and the child died sixteen days after the operation. A bacillus was found constantly in the pus in pure culture and also in the blood in the heart after death, which conformed in every respect to what we know of the *Bacillus subtilis.* He knows of only one case on record of fatal subtilis infection, and the few other clinical cases of subtilis infection on record were all in adults. Lindberg compares this case with others on record. Necropsy in his case showed that the operation had answered its purpose. In that region there was only serous fluid in the subdural space. The meningitic changes found at the base of the skull were of a later date. If the infection had been less virulent or the operation had been done earlier, the child might have recovered. No portal of entry for the infection could be discovered. It is possible that it was derived from the bowels by way of the blood.

82. **Nonoperative Treatment of Hemorrhoids.**—Berglund shows that suppositories, as generally used, are held back by the inner muscular ring and do not touch the hemorrhoids proper. There is thus little if any medicinal action from them. This is obviated by shaping the suppository to taper from the widest point near the upper end, and apply pressure to drag it down into the hemorrhoid region. This he accomplishes by hooding the suppository with a compress. It is placed in the center of the compress and thus hooded it is inserted in the anus, the ends of the compress hanging out of the anus and exerting sufficient pressure to hold the suppository down in the hemorrhoid region while the melting medicinal substance acts on the hemorrhoids, and any that escapes from the anus is caught on the compress ends below.

83. **Cholesteatoma in the Frontal Sinus.**—A physician of 39 noticed that his right eye was gradually becoming displaced, but there were no visual disturbances nor abnormal secretion, only at times he had headache restricted to the brow over the right eye. The trouble proved to be a cholesteatoma in the right frontal sinus, which it had enlarged, destroying the walls on the side of the brain and orbit and pushing the latter downward and outward. The growth was successfully removed through an incision in the brow.

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OBSTETRIC SURGERY A MODERN SCIENCE

ITS SCOPE AND LIMITATIONS *

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Last to share in the general advance in modern medical science has been obstetrics. While there remain unsolved problems in the pathology of pregnancy and parturition, a considerable gain has been made in reducing the mortality and morbidity of parturition from hemorrhage, septic infection and shock, and in securing a sound anatomic recovery for the mother, and this with a lessened risk for the child. The application of the principles of surgery to obstetrics has made this possible. The development of antisepsis and asepsis marked the beginning of a new era in general surgery. The application of antisepsis to the parturient woman resulted in deaths from poisoning by antiseptic agents. At this time abdominal surgery had a high mortality rate because antiseptic solutions were commonly introduced within the peritoneal cavity. When we learned to limit the application of antiseptics to the exterior of the body, to our hands, instruments and appliances, general surgery was vastly improved, abdominal surgery became possible, and obstetric science entered on a new era.

While puerperal septic infection became far less frequent at this time, a contracted pelvis still had terrors for the obstetrician, the immediate repair of lacerations was imperfectly carried out, and many pathologic conditions in the abdomen and pelvis complicating labor received no attention. Antiseptic and aseptic obstetrics, while enthusiastically received and practiced in hospitals, was not thoroughly done in private houses and, while a considerable improvement in mortality and morbidity in hospitals was obtained, a far less proportionate gain was made in private practice.

At this time we firmly believed that puerperal septic infection never arose except by actual contamination from without during labor. We had not sufficient experience in dealing with appendicitis, pyosalpinx and other intrapelvic and abdominal conditions to recognize the fact that a focus of infection might be present in the pelvis or abdomen of the patient before labor began. We also failed to recognize that bacteria in the vagina may make their way into the uterine cavity after labor, and that it is impossible to know how virulent these germs in their new surroundings may prove.

The development of modern obstetric surgery dates from the perfection of the classic cesarean section, when Saenger accurately closed the uterine muscle and peritoneal covering separately. The mortality and morbidity of the classic section immediately fell to a rate corresponding to that of other abdominal operations. Next came the observation that patients infected during labor became so through repeated examinations after the membranes had ruptured, conveying bacteria from the vagina into the uterine cavity. Especially dangerous are unsuccessful attempts at delivery, which bruise and lacerate the tissues and deposit bacteria on open surfaces. It was observed that, while the instruments themselves and the hands of the operator might be sterile originally, and that while an attempt might be made to sterilize the vagina, repeated manipulation and examination so injured the epithelium of the genital tract that infection almost certainly occurs. While, theoretically, it may be possible to sterilize the vulva and vagina, it is practically a difficult task. When the lesson was learned that internal examinations should be made as rarely as possible; that diagnosis during labor should be made by palpation and auscultation and pelvimetry, and that it is a matter of gravity and responsibility to attempt vaginal delivery during labor, patients were brought to section uninfected and the results of the operation materially improved.

There still remains a relic of bad practice in the fact that the attempt is sometimes made to deliver the unengaged head by forceps. While this may rarely be successful, it often fails, and the unsuccessful attempt frequently leaves the patient wounded and infected. It is difficult to eradicate from the mind of the general profession the belief that one need not wait for engagement and molding for the successful application of forceps; but, until this is abandoned, there will remain from this source a considerable maternal and fetal mortality and morbidity.

The modern conception of the genital tract at labor was for a time greatly confused by conflicting reports from bacteriologists concerning the condition of the vagina and cervix. There is abundant evidence that bacteria, morphologically identical with virulent bacteria, are present in the vagina during pregnancy and at the beginning of labor. Their virulence can only be determined by transplanting them on a favorable soil. Some streptococci under these circumstances become hemolytic or directly poisonous, and others show much less virulence. The attempt completely to sterilize the vagina during labor cannot be carried out with absolute accuracy, and repeated attempts may injure the patient and result in infection. These con-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

ditions are of importance in considering the question of the immediate repair of lacerations. The lochial discharge from the apparently healthy uterus cannot be considered as absolutely sterile for, should it escape into the peritoneal cavity after cesarean section, infection may result. Should the lochia be retained in the uterus without drainage, infection may develop. Hence, when the genital tract has been invaded by the hand or instrument of the obstetrician, it is incumbent on him to see that the uterus drains freely during the puerperal period. This is old knowledge, but made reasonable and plain by modern research. Bacteriology has established no important facts concerning puerperal septic infection, but explains the phenomena previously observed by careful clinicians. When we remember that the genital tract must have drainage after labor, it is seen that any attempt at immediate repair, to be successful, must not interfere with this condition of primary importance. So immediate closure of the torn cervix, if improperly performed, may result in the retention of lochia and infection. And the same is true of the immediate repair of the pelvic floor and perineum.

For the mother, modern obstetric surgery aims to obviate the dangers of contracted pelvis and disproportion between mother and child; to deal successfully with foci of infection or pathologic conditions of the pelvis or abdomen complicating labor; to repair the lacerations in the genital tract produced by labor, and thus to restore the mother to a sound anatomic condition after parturition. While these results are certainly important, modern obstetric surgery does far more in the interest of the child. Delivery by abdominal section is the safest artificial method of delivery. Not only is the life of the child saved, but also injuries to the nervous system which may seriously jeopardize its health are avoided.

The anatomic scope of modern obstetric surgery embraces delivery through the cervix and vagina with or without enlargement of the bony pelvis. By symphyseotomy and pubiotomy the dimensions of the bony pelvis can be substantially increased. Modern obstetric surgery also enables the obstetrician to solve a complex problem when conditions arise which justify the prevention of further reproduction. While he will always be on his guard against those who try to persuade him to operate without good reason, in cases in which there is a history of repeated difficult and dangerous parturition, the parents having living children, and further parturition would be attended with unusual suffering and risk, and husband and wife request sterilization, it may properly be done. In the case of feebleminded and degenerate individuals, the consent of parents or guardian may justify the same procedure. When the mother is attacked by a disease which renders parturition exceedingly dangerous, the operation is justifiable. Here experience shows that to meet the demands of modern surgery, the operation may not only render the woman sterile but also remove the tubes and ovaries and the body of the uterus and also the appendix. The question of leaving one or both ovaries must be decided on the merits of each case, with reference to the age and the general condition of the patient. The surgeon is a true conservative, and when he invades the abdomen, for whatever reason, he aims to leave the patient in such a condition that future interference may not become necessary.

Modern obstetric surgery includes the small class of cases in which the anatomic conditions may render vaginal delivery possible, but the physiologic elements necessary for spontaneous parturition are absent and the suffering caused by uterine contraction may be more than the patient can safely bear. The term "physiologic incompetence" for labor has been suggested to describe this condition. In some of these cases the macroscopic or gross anatomy of the patient may be normal, but some condition of the uterine muscle may be present which renders efficient uterine contractions impossible and vaginal delivery dangerous. Elective cesarean section without labor is very successful in these cases, and may be repeated with success.

Do the results of modern obstetric surgery, as compared with the results obtained by spontaneous labor, justify its existence, or have we lost the art of obstetrics and substituted for it a surgical monstrosity?

The maternal mortality of labor is difficult to estimate outside of institutions. The natural desire to avoid injurious criticism frequently leads to an inaccurate report concerning the death of patients in the puerperal period. It is fair to state, however, that the maternal mortality of spontaneous labor is a fraction of 1 per cent. under ordinarily favorable conditions. The mortality of spontaneous labor for the child is the mortality of asphyxia and, while it is difficult to obtain exact statistics concerning this, it is not a negligible factor in considering the results of spontaneous labor. Under the general head of birth pressure, fetal mortality may result in spontaneous labor from visceral hemorrhage.

If we place in direct contrast with this the results obtained by the classic cesarean section, when mother and child are in good condition, it is not unusual to find a series of cases ranging from forty to sixty without maternal death. If larger series of cases are taken, a mortality of from 2 to 3 per cent. is stated. In my experience, in 151 cases of patients not septic and not toxic at the time of operation, the maternal mortality was 0.066 per cent.

As regards the fetal mortality in classic cesarean section in cases in which mother and child are in good condition, I may quote the statement made by the author of the most recent American textbook, that "cesarean section is the most certain method of delivering a living child which exists." My experience fully agrees with this statement.

It would be interesting to know whether an essential improvement has taken place in artificial delivery through the vagina by the development of modern obstetric surgery. This limits vaginal delivery by forceps to cases in which the head is well engaged, avoids attempts at vaginal delivery when contracted pelvis or disproportion exists and, after such delivery, disinfects and drains the uterus and repairs lacerations.

The statistics of the older methods of performing this operation give a maternal mortality of between 1 and 2 per cent. In my experience, forceps delivery followed by antiseptic drainage of the uterus and immediate repair of lacerations has given no maternal mortality or morbidity in sixty-eight private patients, while in hospital cases this procedure has had no direct mortality.

High maternal morbidity following the use of forceps is stated by Gans[1] from the Königsburg clinic as

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[1] Gans: Monatschr. f. Geburtsh. u. Gynäk., 1908, xxvii, No. 4.

21 per cent., and of these, 3.82 per cent. were cases of severe septic infection. In estimating the frequency of lacerations in forceps cases, episiotomy was required in 24.73 per cent., and of these patients 51.06 per cent. sustained lacerations during delivery. The perineum was considerably lacerated in 16.9 per cent. To avoid extensive lacerations of the cervix, it was necessary to incise the cervix in 5.65 per cent.

The fetal mortality following the use of forceps varies in proportion to the mode of application. In the so-called low forceps operations, the fetal mortality of the Sloan Maternity was approximately 10 per cent., in medium operations 19.2 per cent., and in high operations 38.5 per cent., an average of 14.5 per cent. In the Königsburg clinic the fetal mortality attending the use of forceps was 12.45 per cent. In this clinic the high application of forceps had a mortality of 33.33 per cent. for the children.

Gans made an effort to trace the subsequent history of children delivered by forceps. In seventy cases one had failed to develop normally, and birth pressure had unquestionably been the cause of retarded growth. Another child delivered by the easy application of forceps had an injury to the muscles at the back of the neck and head producing contraction. In four there was a history of convulsions, and these had been difficult deliveries without apparent injury at the time of birth, although two of the children had scars on the cranial bones caused by forceps. It is interesting to note that in Gans' cases, among the primiparas delivered by forceps, one third of them had not again become pregnant after several years. This indicates some injury to the genital tract which interfered with conception.

The fact that version and extraction is accompanied by a comparatively high mortality makes it difficult to compare this procedure with delivery by cesarean section if the interests of the child are to be taken into account. The same criticism applies to the induction of premature labor which is accompanied by a maternal mortality of approximately 1 per cent. and a high fetal morbidity and mortality.

The indiscriminate application of cesarean section as a last resort is not modern obstetric surgery, but is the old and familiar error which for so long a time prevented the development of modern obstetric science. In cases in which repeated attempts have been made at delivery, and infection has developed, if delivery is effected by abdominal section, it must be accompanied by the removal of the fallopian tubes and the body of the uterus. Should this be declined, craniotomy or some form of embryotomy is indicated. The decision to limit the classic cesarean section to proper cases is a modern decision and has resulted in great improvement. The indiscriminate application of delivery by cesarean section when the mother is suffering from some dangerous disease is an error of the past and not the best teaching of the present. In eclampsia, for many years, the rule was to deliver the patient immediately, and the violent and dangerous method known as forced labor was responsible for many deaths. The indiscriminate application of cesarean section to eclamptic cases has thus been shown to be an error, and the limitation of the operation to a very small percentage of cases is a modern advance.

When we consider the limitations of modern obstetric surgery, we come on a condition which is general throughout medicine at the present day. The development of laboratory work and the use of so-called instruments of precision has led to the neglect of clinical observation made by the senses only. We study the pulse more by a blood pressure apparatus than by the finger. We rely more on bacterial cultures for a knowledge of the general condition of the patient than our powers of observation — by vision and touch. In obstetrics we are too apt to rely on given measurements as indicating the choice of operation, rather than a thorough study of the individual case. Modern obstetric surgery should be limited carefully by a thorough knowledge of the natural phenomena of labor, by the practice of palpation and auscultation in all cases, and, above all, constant observation in diagnosticating the engagement of the presenting part. No more common or dangerous error is made in studying labor than to mistake the unnatural position of the head of excessive lateral obliquity for a normal engagement. What is described by some writers as presentation of a parietal bone is often mistaken for a vertex presentation and for engagement. If delay occurs in labor under these conditions, the forceps are applied improperly and unsuccessfully. Modern obstetric surgery should be carefully classified and limited by accurate physical examination of the patient, and the tendency to resort to abdominal section should be strictly kept within certain bounds.

In the treatment of patients infected during labor, the obstetrician may be tempted to resort to section when craniotomy should be performed and, if section is chosen, to leave behind the body of the septic uterus. A further error in these cases consists in dropping the septic stump and closing the abdomen without drainage. In cases suspected but not proved to be septic, when the woman is young and in fairly good condition, the effort may be made to save the uterus by packing and draining it with 10 per cent. iodoform gauze; but, when there is good reason to believe that septic infection is present, delivery by section should not be resorted to unless the operator is prepared to remove the tubes and body of the uterus and to leave the stump outside the peritoneal cavity.

In this paper I have abstained from discussing different methods of performing cesarean section. In the hands of competent obstetricians several methods are successful and, as the obstetrician acquires wider experience, he will choose his method in accordance with the needs of the individual case.

The most important and essential limitation in modern obstetric surgery is the choice of those persons who shall practice it. Modern obstetric surgery can best be done by obstetricians, and not by general surgeons or by gynecologists. The technical performance of delivery by abdominal section is in many cases comparatively simple, and the general surgeon and gynecologist are inclined to vary the monotony of their practice by short excursions into the field of obstetrics; but they lack the practical experience which is the basis of all sound judgment in deciding to perform an obstetric operation and in choosing the best method.

Modern obstetric surgery has been slow in development because human life has been cheap. Compensation has been willingly given for the removal of abdominal tumors with a reasonable certainty that they would not return. But the birth of a child is the beginning of trouble and expense for a considerable period of years, and the legal value of human life is its wage earning capacity. This is well exemplified in the experience of a young general practitioner who had been trained in modern methods of antisepsis. He was called to attend the patient in her home and made every effort to secure a proper aseptic technic. The husband interrupted him in this, saying that this was an ordinary case of confinement and that he could not afford to have all this done for his wife. The enormous waste of human life going on at present has created a sudden and renewed interest in obstetrics, and the time is ripe for securing a permanent advance in this branch of medicine. The multiplication of hospitals throughout the country, the opening of maternity wards, and the better training of medical students will produce a certain number of obstetricians capable of properly performing modern obstetric surgical operations. To these men cases of complicated labor will come and will receive proper attention with a corresponding lessening in maternal and fetal mortality and morbidity and a decided increase in the working capacity, reproductive ability and general health of women.

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MEDDLESOME MIDWIFERY IN RENAISSANCE *

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According to the Bureau of Census, in 1914 there died in the United States 10,518 women during childbirth. This figure represents the deaths in two thirds of the estimated population of the United States. On this basis we must admit that there are about 15,000 deaths from childbirth in this country every year. This number does not take into consideration the postponed mortality, as, for example, that from operations undertaken to correct the bad effects of childbirth, and that from conditions which are not readily ascribed to the fact of childbirth, such as endocardial disease, nephritis from puerperal infection, etc.; nor does it include those deaths in which the women are buried under another diagnosis, either ignorantly or intentionally. I feel that no exception will be taken to the statement that there die annually in the United States 20,000 mothers during childbirth. The mortality of the newborn children also is noteworthily high, although it is impossible to show by statistics how many children die every year from the immediate and remote effects of childbirth. Most of us, however, certainly those connected with hospitals, know that too many children are lost at birth, or from the late effects of either spontaneous or instrumental delivery.

Of great importance is the continued excessively high morbidity of both mothers and babies as the result of labor. One of the most striking facts of the modern hospital treatment of parturient women is the still high percentage of women who have moderate degrees of fever during the puerperium, in spite of most rigorous aseptic and antiseptic precautions. According to the report of the Census Bureau, 4,664 women died of sepsis in 1914, but it is impossible to even guess how many women suffered from puerperal infections and carry the marks of the disease. If we estimate the mortality of all cases of puerperal infection as 5 per cent., this would mean that there were about 100,000 infected puerperae in the United States in 1914. This estimate is, I am sure, too low. All the hospitals with which I have been connected for the last twenty-five years show varying percentages of puerperae with fever. At times as high as 15 per cent. has been reported. These women in the majority of instances are not very sick, the fever seldom goes above 102 F., and if it does it is not high long. The temperature is usually ascribed to other causes, but it is most often due to a mild pelvic infection with which the puerpera is well able to cope. But although the women recover, often quite promptly, the pelvic inflammation leaves permanent traces in the form of peritoneal adhesions or parametric thickenings, and later uterine displacements. This fact was emphasized by Emmett long ago, but it deserves repeating. The patient recovers and leaves the care of the obstetrician, but she comes back again for relief of distressing symptoms which he will find it hard to relieve. The procession of women passing through our dispensaries and private consulting rooms, repeating monotonously the statement, "Doctor, I have never been well since my baby was born," should draw our attention to the fact that things are not right in obstetric practice.

I have studied my case cards carefully and find that the majority of women who have borne children suffer from physical damage due to childbirth. As a cause of uterine disease, in my gynecologic practice, childbirth is much more frequent than gonorrhea. True, vesicovaginal and other fistulas and complete perineal lacerations are more seldom met, as compared with olden times, but minor degrees of laceration, prolapsus uteri, etc., are certainly no less frequent. If we were to judge from the prevalence of operations corrective of uterine displacements, we would have to say they are more frequent than formerly, but we are nowadays submitting more of these cases to operation.

As a producer of invalidism and semi-invalidism, the lacerated cervix is, in my opinion, more often culpable than a corresponding degree of perineal laceration. The patulous os allows the cervical mucous membrane frictional contact with the septic vagina; the open cervix permits the entrance of bacteria into the uterus; the diseased mucosa is a focus of infection, and even low grades of inflammation can produce bad aftereffects. The lymphatics, being loaded continually with bacteria and toxins, become inflamed, the connective tissue in the uterine ligaments soon takes part in the process. Parametritis postica is almost a constant attendant on chronic cervicitis. Backache, bearing down sensations, constipation, dysmenorrhea, semi-invalidism, are the symptoms of parametritis postica. Sooner or later, the infection travels upward along the lymphatics to the uterus, and chronic metritis results. Some authors call the enlarged, fibrous, heavy uterus simply myometropathia. I prefer the other term. Sturmdorff has most graphically described this condition and I agree fully with him that one of the most frequent causes of this disease is the lacerated cervix. I do not need to mention the other evil results of laceration of the cervix, but the tendency toward cancer, although discussable, should be borne in mind.

I feel sure that the accoucheur does not accord the cervix the dignity it deserves. Its mucous membrane is very delicate and easily torn; it is very sensitive to untoward influences, especially infection, and if the latter once obtains a foothold, the eradication of the same is almost impossible. The cervix is the center of the tendinous supports of the uterus. It may be likened to the hub of a wire wheel. The cervix is the protector

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of the asepticity of the uterine cavity. Yet consider to what insults this organ is exposed. The steel divulsors which have a stretching force of 200 pounds or more; the tearing open by so-called manual dilatation; the cervical incisions; the gentlest of all, but still damaging colpeurynter.

Another structure whose physiologic and pathologic dignity is not adequately appreciated is the web of connective tissue supporting the uterus, the bladder and the rectum. While tons of literature have been written on the levator ani and pelvic floor, the importance of injury to this connective tissue supporting webbing has received scant notice. It may be torn or overstretched by the forces of labor or operative interference, or it may be thickened and distorted by inflammatory conditions, as was mentioned before.

Much more could be said along these lines, but sufficient has been brought out in this introductory manner to serve the purpose of certain generalizations I wish to make.

The methods nature employs to expel the child are best adapted to accomplish the purpose. They will produce the minimum amount of traumatism to the maternal soft parts, the least degrees of dislocation of the hollow pelvic organs, and will expose the child to the smallest amount of danger. The essence of these methods of nature is slow dilatation of the passages, and gradual, temperate advance of the child through them. This advance is accompanied by well-planned movements of adaptation and rotation of the child, the whole, when consummated naturally, being a beautiful mechanical accomplishment, and it usually results in only a small amount of damage to either mother or baby.

There is a notion, which both the public and the profession have entertained for many years, and which is becoming more prevalent among the profession of late, that natural labor should be curtailed as much as possible. This latter fact is partly explained by the agitation in the lay press for relief from the suffering of childbirth, and partly by the general operative furor which has gripped the profession. The old, time-tried, time-proved, and time-honored "watchful expectancy" in the conduct of labor has been replaced by a polypragmasia, pernicious in its effects, immediate and remote, and for both mother and child. Methods to shorten the time of labor have been multiplied and great virtues have been claimed for them. One writer brazenly advances as a virtue the saving of the obstetrician's time and sleep. Without doubt, protracted and painful labor does weaken the parturient and requires a longer convalescence, but there are no permanent effects. In natural labor a few hours more or less makes no difference in the immediate recovery. Study of the rapidity of the recovery of women after delivery will show that the main factor in producing slow convalescence is the injury inflicted by labor, or operative delivery. The amount of surgical trauma determines the smoothness of the recovery, even more than the stress of the nerves. The women recover from the latter after the first good sleep, but require much longer to recover from their wounds. From this point of view we must commend the use of anesthetics in the early stages of labor. They permit the parturient canal to be properly dilated. Unfortunately, some of them have the disadvantage of endangering the child and thus necessitating operative interference on its account. The number of injuries spared by the anesthetic is thus made up by the artificial deliveries.

I wish to call your attention to the most common of the evils which have gained foothold in obstetrics. First among the practices which should be condemned as meddlesomeness are attempts to cut short the period of dilatation of the cervix. As already explained, indeed, as every accoucheur knows, the only way to dilate the cervix safely is nature's way. Manual dilatation always tears the cervix. Colpeurynters often do so, and almost invariably, if traction is put on them, and in addition, they pull the cervix downward while the uterine action pulls it upward. Overstretching and dislocation of the cervix result, and gynecologic and urologic disease follows. Furthermore, danger of infection attends all these maneuvers, no matter how aseptically the operation is carried out. True, the women seldom die of sepsis, but the morbidity, immediate and postponed, is high.

Another form of interference is the indiscriminate use of twilight sleep, gas and oxygen and other anesthetics. I have to admit that I use anesthetics too often and too liberally. I know that as the direct result of my administration of morphin and scopolamin, of ether, gas, etc., I have increased the frequency of forceps operations, of lacerations, and of postpartum hemorrhage in my practice. In the dispensary service of the Chicago Lying-In Hospital postpartum hemorrhage is very rare, in my own practice it occurs much oftener. The same is true of the forceps operation. While I almost never deliver a woman without some form of anesthetic I am trying to reduce the amounts required to render the woman comfortable.

Another practice that should be eliminated is making the parturient bear down before the cervix is fully dilated and the head passed through it onto the pelvic floor. The dislocation of the cervix, the stretching of the paracervical tissues, is one of the potent causes of procidentia uteri. How much difference is there between pulling the cervix down with the obstetric forceps and forcing it down by powerful premature bearing down effort? Even after the head has come to rest on the pelvic floor it is wise to moderate the bearing down efforts. We should try to save the levator ani and the pelvic fasciae from too rapid distention and too brisk distraction from their attachments. The desire for rapid delivery should be curbed, unless danger threatens the mother or child, and the forces of nature should be restrained in the interests of the soft parts and the fetal brain. An extra half-hour spent by the accoucheur in this part of the delivery may save the woman from permanent relaxation of the pelvic floor, cystocele, rectocele, and possibly later operation. For this reason I cannot sympathize with the revival, made at the New York Lying-In Hospital, of the obstetric delivery chair. Slow, spontaneous delivery should be the object sought, not rapid delivery.

Too frequent vaginal examinations, "ironing out the perineum," must also be condemned. The danger of such manipulations is in the installation of mild infections which later lead to invalidism. Occasionally such a mild infection leads to fatal pulmonary embolism, and again a virulent sepsis results. For these reasons the rectal examination should be substituted for the vaginal in nearly all cases of labor. It is astonishing what may be accomplished by the rectal examination and it requires very little practice to acquire efficiency in it. I have conducted the majority of my cases by means of this method of exploration. Interns in the Lying-In Hospital often boast of the fact that they make hardly one vaginal examination in twenty deliveries, and we have diagnosed face, brow, breech, occiput posterior presentation, prolapse of arm and cord, contracted pelvis, etc., in this simple, painless, harmless and rapid manner. I cannot urge too strongly this point.

Of all the meddling practices, giving pituitary extract is the most dangerous to mother and child. Sixteen cases of rupture of the uterus produced by pituitary extract are on record.[1] Dr. Stowe, my associate, knows of two. Others have been recounted to me, and I doubt not that many more have occurred and have never been reported. Hardly a month passes but what I learn of cases in which the baby has been lost in labor rendered pathologic by pituitary extract. I myself have observed the bad effects of pituitary extract on the child. Lacerations of the cervix and perineum are frequent results of the violently rapid delivery under the influence of the drug. I have used it a great deal. First I gave 15-minim doses. Now I give 3 drops and on special indication only. Recently I gave 3 drops to a woman weighing 180 pounds and the resulting contraction of the uterus was so powerful and prolonged that I had to put the patient asleep with ether. This contraction lasted more than five minutes and the fetal heart tones almost ceased. Pituitary extract should not be used except in the presence of a real, scientific indication, and it is governed by the same conditions as the forceps operation, that is, the head must be engaged, the cervix completely dilated, no mechanical disproportion between the child and maternal parts, etc.

The abuse of the obstetric forceps is an old charge against the profession, and, regrettable as it is, we must repeat it today. In the practice of some obstetricians the majority of deliveries are done by the forceps. Most often the indication is "bed time" or "office hours" or some other set appointment, such as an operation or golf. Often, too, the forceps are used to correct bad practice in the early conduct of labor, for example, the use of a colpeurynter, which has displaced the head, allowing the cord to prolapse, or abnormal rotation of the head; or administration of twilight sleep during which the child's life is endangered; or giving pituitary extract, which has resulted in tetanus uteri and threatened danger to the fetus from asphyxia; or permitting too early bearing down efforts, which have tired the woman out so that she has no strength left for the actual delivery.

Another form of meddlesomeness is the too frequent cesarean operation. In some communities it seems that the only method the obstetricians know of solving the knotty obstetric problems is to cut them. I believe some accoucheurs do not do enough cesarean sections. I know that hundreds of women are mutilated by forceps deliveries and their babies killed, and all this could be prevented by cesarean section. I believe the indication for section should be broadened in placenta praevia, in eclampsia, and in the anomalies of the mechanism of labor. Yet one is appalled when the flimsy indications for the frequent operation are discovered. The main reason is the ignorance of obstetrics; indeed, sometimes one must ask, with Holmes, Is obstetrics a lost art?

Even in the treatment of abortion there is too much meddling. It is usually possible to stop the bleeding and procure complete dilatation by tampon, and yet it has been recommended to cut the cervix in such cases, in order to empty the uterus. Hirst even believes we should not try to induce therapeutic abortion by the usual methods, but do vaginal cesarean section at once. Now it is still possible to empty the uterus in two stages, letting nature do most of the work, and it will be done with less permanent damage than by a cutting operation.

In conclusion, let me urge that we depart not too far from our trust in the natural forces of labor, that we still uphold the policy of "watchful expectancy" or, if you prefer, "armed expectancy," that we remember that the obstetrician's duty is not to make of labor a surgical operation, but to conduct it as a natural function, interfering only when called on by the necessity of preventing undue suffering, or saving fetal or maternal life.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DAVIS AND DE LEE

Dr. Charles S. Bacon, Chicago: I would emphasize what was said about the irregular contractions of the uterus simulating fibroid tumors because that is a point often overlooked. I have known serious mistakes to be made in this connection. I would also emphasize the importance of the exact diagnosis of the station of the child before undertaking the forceps operation because I believe that very often forceps are applied to the head still in the inlet with the idea that the head is engaged and that the operation is easy, when, as a matter of fact, we have a high forceps operation. Care in the external examination, as shown by Dr. Zinke, would show in every one of these cases the location or the station of the child. I would raise only one question in what I heard of the paper this morning, the value or even the propriety of packing the uterus after drainage, because I do not believe that packing drains; it has rather the opposite effect, that of increasing the danger of contamination. It prevents drainage rather than improves it. I would like to call attention to one operation that was omitted, and that is, opening the pelvic girdle in the cases of moderate contraction of the pelvis where, after the test of labor and after the time for the safe performance of cesarean section has passed we must choose between destroying the child or doing something that may save it and the mother. Especially in multiparas can hebosteotomy be performed. The advance in obstetric surgery, I think, can be shown by the disappearance in the last twenty years of the term, accouchment forcé, that dreaded operation which was the only thing to be done in cases of forced delivery before the opening of the cervix and the development of the methods for which we are indebted to Dührssen which have made possible the rapid opening of the uterus in the few cases where it is necessary. I would also call attention to the importance, in cases in which early emptying of the uterus is necessary, of hysterotomy as sometimes more conservative than dilatation and curettement.

Dr. Rudolph Wieser Holmes, Chicago: For a number of years there has been very little if any material improvement in the life expectancy of the unborn child: Körosi (1874) showed that 6.05 per cent. of the infants of Budapest died within fourteen days. Williams (1915) showed that in his clinic the mortality was 7.05 per cent. In one large clinic, in 1897 the stillbirths aggregated 3.65 per cent., while in 1913 the stillbirths had gone up to 4.82 per cent. in spite of the reputed beneficence of the cesarean operation. I am heartily in sympathy with Dr. Davis in many of his comments, but I cannot let the opportunity go by without a protest against the widespread, promiscuous performance of cesarean section. Just the other day I prevented a cesarean section on a woman, quadripara, with three living children, the first of which alone was at all difficult; the indication placed by the physician was that he "didn't want to tear her perineum." I was informed by a man in one of our Middle West towns that more cesarean babies were born than were ushered in normally and this was not entirely a facetious remark. Cesarean section has been applied altogether too broadly, and the revulsion is surely coming within a brief period. I am convinced that most of the complications which have been placed as indications may be more scientifically treated along pure obstetric lines; in too many instances the application of the operation is an expression of the attendant's inability to handle the case along such lines, for the cesarean operation, unfortunately, is the most simple abdominal operation, technically, that we have. In the treatment of placenta praevia, I have often interjected the query to my students, How many men would do cesareans if they took all day, and the hystereurynter would accomplish delivery in twenty minutes? There would be few. I heartily agree with Dr. Davis that in general cesarean section is not the appropriate treatment for eclampsia; it is now nearly twenty years since Stroganoff began his defense of his eclamptic treatment—and has the lowest mortality of any authority in the world—it only shortly will mean that Stroganoff will come into his own, and receive the recognition which is his due, that delivery, per se, is not the treatment for eclampsia. Peterson has fostered this tendency to operative treatment by his paper on cesarean section for eclampsia, where he divides the sections performed before and after 1908 with a fetal mortality of 12 and 3 per cent., respectively; however, if no deaths be eliminated the mortality jumps to 40.9 and 15.5 per cent., respectively. Dr. Davis did not touch on the vulnerability of the uterine scar after cesarean section, with the probability of rupture in subsequent labor. I have investigated this matter and find that there is an exceedingly high danger of this appalling catastrophy occurring. In the instances in which I have been able to inspect the scars after cesarean sections I find that 16.6 per cent. were vulnerable; Harrar, in 50 cases, found 16 per cent.; Asa Davis, in 33 cases, found 18.1 per cent. had vulnerable scars or the scars had ruptured; v. Leuwen, in 117 cases, found the scar was thinned in 20, 17 per cent. This is a real danger and should be recognized that any woman who has had a cesarean section has about one chance in six of possibly having a uterine rupture.

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[1] McNeile: Am. Jour. Obst., 1916, ii.

Dr. E. Gustav Zinke, Cincinnati: To teach obstetrics is one thing; to practice it is another; to exercise good judgment in the management of cases is still another. It was Lawson Tait who first suggested cesarean section for placenta praevia. On his advice a few cesarean sections were performed, eight in all, before 1900; five of the mothers lived, and six of the children were saved. In 1901, I recommended the cesarean operation for placenta praevia on theoretical grounds alone. Not a man present was willing to support the stand I had taken. My views were roundly condemned. Today, the justification of cesarean section for placenta praevia, under certain circumstances, is admitted by all. Every case of placenta praevia is a surgical case. If carefully studied before labor the diagnosis of placenta praevia may frequently be made before hemorrhage appears. In the hospital, in the care of a good obstetric surgeon, a timely cesarean section will give more satisfactory results than any other method of delivery in these cases.

Dr. John Osborn Polak, Brooklyn: I believe with Dr. Davis that the success of obstetric surgery depends on (1) the diagnosis; (2) the training of the individual operator, and (3) the asepsis. Regarding rupture of the section scar in the uterus following cesarean section, the work done by Findlay recently, not yet published, has conclusively shown in the sixty-two collected cases that no rupture has taken place in the scar of a cesarean wound, except where there has been definite morbidity, infection of some kind. This shows us that every labor case should be studied as to its diagnosis, that every questionable case should be given a test of labor under aseptic management. Then when we have a complication and the woman has had the test of labor we are in position to do cesarean section, extraperitoneal, intraperitoneal or transperitoneal as the choice may be, and our mortality will be practically nil. This is not the result at present throughout the country in the indiscriminate use of this operation.

Dr. A. J. Rongy, New York: I wish to emphasize the importance of doing a pubiotomy in cases in which cesarean section may not be performed on account of presupposed infection. In the hospital with which I am connected we have done thirty pubiotomies in women, the majority of whom have had two or three dead babies. The women had been attended by a general practitioner and when brought to the hospital, attempts at delivery with forceps had been made which presupposed infection. These women being very anxious for living babies pubiotomy was done; no mother was lost and but six children. By cesarean section the mortality would have been at least 30 per cent., and we would have lost probably eight or nine of the mothers. In placenta praevia also pubiotomy is a life-saving operation. Another important point is the ability to diagnose the size of the baby while in the uterus. This has an important bearing on the matter of induction of labor in the early part of the ninth month.

Dr. E. P. Davis, Philadelphia: I did eight symphysectomies and then stopped because I did not like the operation. I am in hearty accord with Dr. Holmes in his desire to stop unnecessary cesarean sections and I certainly hope that he will succeed in this effort. Modern obstetric surgery has for a most important part the repair of injuries occurring at labor, and I consider no vaginal operation complete unless the surgeon gives attention to repair of cervix, pelvic floor and perineum. I have not seen intravaginal gauze drainage tend to infection, nor have I seen the uterus rupture after cesarean section. I have had a number of patients on whom I have done cesarean section go through a spontaneous labor. Once a cesarean section does not, in my experience, mean always a cesarean section. For placenta praevia the operation should be immediate, so soon as the diagnosis is made. I believe that injuries to the genital tract and appendages do cause neoplasms. I do not believe in unnecessarily shortening labor; I have no sympathy with the modern fad in that regard. It is the condition of the individual patient, and not the number of hours, or days, or the convenience of the obstetrician, that alone is to be considered. Two things operating against success in modern obstetric surgery are: (1) failure of the man who sees the case first to make a diagnosis; he does not practice palpation; he does not know engagement when it is there; thinks it is there when it is not, and he interferes improperly and sends his funeral to the hospital; (2) visceral disease complicating obstetric operations. Women do not die of hemorrhage and sepsis, but of changes in the liver and kidney, the result of prolonged toxemia.

Dr. Joseph B. DeLee, Chicago: I wish to subscribe most heartily to the remarks of Dr. Davis. A point of great importance is that of rectal examination. It is too bad that we took so long to learn it. Prolapse of the cord, posterior occipital presentation, breech, face, brow, all I have diagnosed by rectal examination. Another point is that chloroform is not absolutely essential to the general practitioner. I have been a general practitioner, I am still practicing where the general practitioner practices, and I find that the husband can give the patient ether as well as chloroform. The only disadvantage is the increased size of the obstetric outfit occasioned by the ether can, and this is negligible.

Statistics of Industrial Accidents.—How largely the matter of industrial accidents enters into the cause of our social ills, I am not prepared to state definitely, but with a record of from 40,000 to 45,000 killed wage earners annually and with an additional 200,000 working days lost on account of nonfatal accidents among the rest of our working population, I make bold to opine that it constitutes one of the largest causes of poverty and consequent dependency. Translated into actual dollars and cents, taking the minimum of 40,000 killed at a value as producing members of society of $5,000 each, and $2 as an average wage of the nonfatally injured, we have the economic loss sustained to the nation as a whole on account of industrial accidents represented by the very munificent sum of $600,000,000 annually.—Carl M. Hansen.

OBSTETRICS AND GYNECOLOGY UNDER IDEAL CONDITIONS IN A GENERAL HOSPITAL *

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There is at the present time a remarkable spirit of unrest in medical centers and in medical organization throughout this country. We have but recently seen the curriculums leading to the degree of doctor of medicine expanded from an indefinite course covering two or three years to a scientific course of four and in some cases five years. Clinical and laboratory instruction have almost entirely superseded the old didactic methods, outpatient services are being highly organized and medical educators are discussing now the advisability of a compulsory fifth or hospital year.

These remarkable changes may be attributed to two factors: first, the ever increasing and exacting demands of science, and second, the pressure from the industrial world for greater and greater efficiency. The reflection of this demand for an increase of scientific precision and industrial efficiency is markedly shown in present-day hospital management. Hospital organization and management were, and are still in some places, regarded as political spoils. For this reason it has seemed to me that it may be of interest to you to hear of the organization of an obstetric-gynecologic service in a city hospital, under the direct control of the department of charities of the city of New York, which from its foundation is an attempt at better and higher things, both from the points of scientific work and industrial efficiency.

The Greenpoint Hospital is located in a densely populated and growing section, with a capacity of 200 beds, devoted to the care of acute cases. It is a modern hospital with modern equipment, made up of three departments, medicine, surgery and obstetric gynecology, each of which is under the direct and continuous charge of a chief; with well-equipped pathologic and Roentgen-ray laboratories, under the care of paid residents, and a trained resident in each of the three departments, six interns on a rotating service of two years, and fourth year medical students as clinical clerks.

The description of this service would perhaps better begin with the arrangement of our staff, which may be considered under three divisions, (1) visiting staff, (2) dispensary staff and (3) house staff.

The visiting staff consists of a gynecologist and obstetrician in chief, in direct charge of a fifty-bed service, twenty-five obstetric and twenty-five gynecologic beds. The service is continuous. There are two associate gynecologist-obstetricians, also on continuous service, alternating every four months, one being on the obstetric division while the other is on the gynecologic division.

The dispensary staff is intimately associated with the hospital, one of the associates serving directly on this staff. The dispensary staff is divided into two sections, each section taking three days a week, there being two men in each section.

The house staff consists of a resident, intern and clinical clerks (fourth year medical students), the resident being a well-equipped ex-intern who serves for an indeterminate period of time, receives a small remuneration, $480 a year, in addition to the experience he of necessity acquires. The intern is a part of the general hospital rotating service; he serves four months as gynecologic-obstetric intern and then passes to the next position.

The points about this service which I wish to emphasize are as follows:

1. A gynecologic-obstetric service of fifty beds under the supervision of one chief on continuous service.
2. A dispensary staff intimately associated with the hospital.
3. A house staff in charge of an experienced man who is not subject to a regularly recurring change.

The desirability, even the necessity, of these points in a modern hospital should be apparent. The old and in the past ever annoying question of interns is well cared for by having the service during the absence of the visiting under the supervision of a resident who is sufficiently trained to assume responsibility, and will as a rule serve at least a few years. This man comes to know the desires of his chief, and takes a more personal interest in his work, for he is not to change to another service in three, four or six months' time. The resident acts as senior to the rotating intern, assisting and guiding him in his work.

The dispensary staff, which is intimately associated with the hospital, is necessary for the mutual benefit of both the hospital and the dispensary. High-type men soon become restless under the old routine of dispensary work, but open up to them the occasional privilege of personally following a case through its entire hospital course and work which in the past was considered dull and routine becomes intensely interesting. Such a dispensary staff also serves as a continual check on the character of work done in the hospital, for these men, being capable of interpreting operative results, will call continuously to the attention of the chief the ultimate character of treatment being received by the patients.

A continuous service for the chief means a higher average standard of treatment for the patient, which is the primary factor to consider in regard to hospital efficiency. It means a wider opportunity for scientific endeavor and therefore a more satisfactory service from the standpoint of the chief.

Within the memory of many of us the obstetrics in most of the general hospitals was under the direct care of men in charge of medical service, who made no claim to special obstetric knowledge, and in fact at the present time it is notorious that the gynecology in many general hospitals is still being cared for by the general surgeon.

Much credit is due to commissioners John A. Kingsbury and Henry C. Wright, who were directly responsible for the staff arrangement of the hospital. They conceived the idea and decided on the advisability of the appointment of an advisory committee from the various departments of medicine consisting of six of Brooklyn's foremost men, whose duty it was to nominate three men whom they considered suitable to act as the three chiefs. The original advisory committee plus the three chiefs form an advisory board, who act in conjunction with the commissioner for the best interests of the hospital.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The general character and quality of the work done in each of the three departments are regularly inspected and reported on by the members of the advisory committee.

ABSTRACT OF DISCUSSION

Dr. John Osborn Polak, Brooklyn: This paper shows what may be accomplished by the combination of obstetrics and gynecology under one head. By combining these two departments the service rendered is improved and fundamental pathology in women becomes better understood, which entitles us to recognition even from the general surgeon. Dr. Holden has presented the organization in a city hospital, and in our organization at the Long Island College Hospital we have the same general plan of one head, controlling both departments, a resident and an intern staff. From my experience of twenty odd years, hospital obstetrics cannot be well done without the assistance of trained help. The intern after two or three months of obstetrics does more harm and as bad work as the ordinary practitioner. With the resident system well developed one can keep his men for from two to five years and give them sufficient work to train them. These men gradually supersede the assistant visiting staff. The routine work is taken off of the shoulders of the attending physician, yet the responsibility is placed with him because he has to check up everything that is done. These men go from these institutions and develop better obstetrics and better gynecology in other places. It has been a most illuminating experience to see what the proper development of residents in obstetrics and gynecology will do for a service. We had a service for nearly twenty years which did not run above 300 cases a year. Since the introduction of the resident system some six years ago the cases have increased from 300 to 1,500 a year. Under this system these residents work in the dispensary, follow the case to the hospital and have operative privileges under the direction of the chief.

Dr. Charles S. Bacon, Chicago: It is interesting to observe how rapidly patients are going to the hospital for confinement. In several of the large city hospitals from one eighth to one fourth of all the beds are taken by obstetric patients. In the description of the hospital given by Dr. Holden two things seem to be lacking. One is an arrangement for teaching students. That the hospital should not be made use of for medical students is a great pity. They could obtain so much benefit and be of so much use to the hospital. Another thing which is lacking is provision for research work. The laboratory in such a hospital ought to be under the control of the obstetrician and his resident and there should be ample provision for laboratory work.

Dr. Henry P. Newman, San Diego, Calif.: We should congratulate students who are privileged to profit by such instruction, but it must be recognized that, in order to fit one for the practice of obstetrics as a specialty, and the same is true of gynecology, requires, as a paramount essential, a much wider experience, a more thorough working knowledge of the intricacies of complicated cases, and a more intimate understanding of the individual patient than can be obtained in the class room or from textbook formulas.

Dr. Frederick C. Holden, Brooklyn: We have senior medical students who act as clinical clerks. They come in groups of six for three months, one month in each of the three departments. The second floor of the laboratory building has five large rooms used for pathologic work and animal experimentation. We have a paid resident pathologist and his work is supervised by an attending pathologist. There is also a large clinical laboratory on the fourth floor of the hospital where urine, blood, etc., are examined. We secured necropsies in 50 per cent. of our fatal cases. The building and equipment cost approximately $900,000.

Loss of Life in War.—The human loss sustained by a military power in a war may be caused by the weapons of the enemy, by disease and pestilence, privation, and hardship, physical exhaustion, capture and imprisonment by the hostile nation, and finally, by desertion.—Bodart.

ANESTHESIA IN HUMAN BEINGS BY INTRAVENOUS INJECTION OF MAGNESIUM SULPHATE *

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In this preliminary communication we wish to report briefly the course of anesthesia in three operations performed on human beings exclusively under the influence of an intravenous injection of magnesium sulphate. The object of this report is, at least for the present, essentially a theoretical one. These few observations, although far from being sufficient to demonstrate the practicability of this method of anesthesia, are completely sufficient to establish the theoretical question regarding the nature of the anesthesia produced by magnesium sulphate. Furthermore, the theoretical information thus obtained is an indispensable step in the development of the practical application of this method. In order to understand the question under discussion, a brief historical statement of the various phases in the progress of this investigation is necessary.

In a series of experiments on the effects of intracerebral injections of solutions of various salts carried on some eighteen years ago on rabbits by one of us, it was observed that an intracerebral injection of 2 drops of a 5 per cent. solution of magnesium sulphate produced complete anesthesia and relaxation of the animal lasting several hours. On the basis of the hypothesis that magnesium is an inhibitory factor in the life phenomena, this observation led to a prolonged experimental study of the effects of magnesium salts on the animal body and to many publications on this subject. In their first publication in 1905, Meltzer and Auer made the general statement that the salts of magnesium are capable of depressing the entire nervous system, and assumed in particular that these salts are also capable of producing anesthetic and other central effects. Since this first publication, quite an extensive literature grew up on the subject. Some of the writers insisted that magnesium exerts only a curare-like action, that is, the salts paralyze the motor nerve endings to such a degree that the animal is incapable of responding to any stimulation; in other words, that the animal which appears to be anesthetized is actually conscious during the operation and feels all the pain inflicted on it, but is incapable of manifesting its sensations on account of the complete paralysis. Against this assumption it is to be mentioned that in the course of their experimentation on animals, Meltzer and Auer found, among others, that a combination of ether inhalation and intramuscular injections of magnesium salts, in small ineffective doses, produces a profound anesthesia. Peck and Meltzer found this to hold true also for human beings. Since the amount of ether used in these cases was absolutely insufficient to produce anesthesia, the additional effect of magnesium is apparently of central origin. While thus these observations made the assumption of the central action of magnesium highly probable, it could not be claimed that it has definitely proved it for reasons which cannot be discussed here in detail. Studies of Auer and Meltzer on the effect of intravenous injection of magnesium sulphate on the various stages of the action of the center of deglutition seemed to prove definitely that magnesium affects the center of the deglutition. While these observations seem indeed to prove definitely the central nature of the action of magnesium salts, it could still be assumed that the fact that magnesium salts affect some parts of the central nervous system cannot serve as evidence that these salts affect also the sensation of pain and the consciousness.

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* From the Roosevelt Hospital and the Rockefeller Institute.

Evidently a reliable proof for the assumption that magnesium is capable of abolishing consciousness can be obtained only from observations on human beings. Intravenous injections of magnesium sulphate into human beings were made about a year ago in several cases of tetanus. Whether or not the consciousness of the patients was affected could not be learned from the meager descriptions of these cases. At any rate, these cases have the merit of the demonstration that certain amounts of magnesium sulphate can be given intravenously to human beings without endangering their life. Furthermore, in two or three of the cases the amount injected was surely not too small. In a recent series of experiments on intravenous injections of magnesium sulphate into dogs, Auer and Meltzer studied the quantity of magnesium which may be introduced without danger to the animal, and which would, at the same time, be capable of producing apparently profound anesthesia.

From the recent extensive experience on the use of magnesium sulphate in cases of tetanus, we gained the general impression that human beings are more susceptible to the effects of magnesium salts than animals. In trying to study the anesthetic effect on human beings of magnesium sulphate, administered intravenously, it was therefore necessary that the observations should be made with great caution, beginning with injections of only small doses. The dose of magnesium sulphate used in our first case was much smaller than some of the doses used for many hours with apparent impunity by Straub in his tetanus cases. We may add, further, that in our studies the patient was provided with two reliable safeguards against the prominent toxic effect of an overdose of magnesium salts (that is, respiratory paralysis): we had in readiness an apparatus for administering efficient artificial respiration, and had on hand a proper solution of calcium chlorid to use as a prompt antidote for the restoration of respiration.

OPERATIONS

The patients were prepared for the operations in the usual way, except that they did not receive the usual preliminary injection of morphin. In all three cases the cubital vein was exposed and a transfusion needle inserted directly into it. This preliminary slight operative procedure was done under local anesthesia. The magnesium solution was run into the vein through the transfusion needle from a graduated buret arranged on the principle of Mariotte's flask. The number of bubbles appearing in a unit of time at the lower end of the inner tube permits a general estimation of the rapidity of the infusion. This, however, was more reliably controlled by frequent reading of the quantity of magnesium which escaped from the buret in one or two minutes at a time.

Case 1.—March 30, 1916, G. F., Italian, weighing about 160 pounds, was operated on for glandular abscess in the neck. A 6 per cent. solution of magnesium sulphate was used in this case. The infusion began at 4:29 and was finished at 5:14 p. m. Altogether 180 c.c. of the solution were infused in forty-five minutes, 80 c.c. of which, however, were infused in the course of the last eleven minutes, which means at an average of 8 c.c. per minute. Shortly after the infusion was started, the patient began to complain of feeling hot; his face became very much flushed, and his forehead was covered with beads of perspiration; there was no nausea. At 4:45 the pulse was 104, and respiration 28 per minute. At 4:56 the pulse was 120, respiration 32. At 4:59, pulse 100, respiration 36. At 5:04, pulse 100, respiration 28. At 5:07, pulse 112, respiration 20. At the end of the infusion, pulse 112, respiration 28.

The operation was began at 5 p. m. The patient was fully conscious, but sensation was considerably diminished. He made no attempt to interfere with the operation. During the last seven minutes of the operation, the patient showed no indication of feeling pain, and manifested only slight signs of consciousness. The lid reflex was prompt. He remained very drowsy for about fifteen minutes after the operation. He responded slightly to loud calling. He said that he felt weak.

Twenty minutes after the operation the patient was fully awake. He said that he felt a "little bit of pain" during the operation. He was very thirsty, and had a glass of ice water. He had no nausea. There were no after-effects of the anesthesia, and the patient made an uneventful recovery.

During the last part of the operation the patient was practically under complete anesthesia and had evidently no knowledge of what was happening to him. His later statement that he felt a "little bit of pain" referred to the first incision. Respiration and lid reflexes remained practically unaffected. While there was later some muscular weakness which may have had its origin in the action of the magnesium on the endings of the motor nerves, this peripheral action was evidently far behind the inhibitory action which the infusion of the magnesium solution exerted on pain sensation and consciousness. At any rate, even this case clearly demonstrated that the magnesium solution exerts a genuine central effect which is entirely independent of any peripheral action which may or may not be present.

Considering the weight of the patient, it must be emphatically stated that he received a very small dose of the salt, a dose which would be absolutely insufficient to produce a similar effect on an animal. A dog of 10 kg. (one eighth of the patient's weight) which would receive 23 c.c. of the same solution (about one eighth of the solution given to the patient) in the course of forty-five minutes would hardly show any depressive effects.

Case 2.—May 2, 1916, A. S., weighing 120 pounds, was operated on for varicocele. The infusion of a 6 per cent. solution of magnesium sulphate was begun at 4:20 p. m., and terminated at 5:08 p. m. In forty-eight minutes, 394 c.c. were infused. The average of velocity of infusion was 8.5 c.c. a minute. From 4:46 to 5:05, however, 235 c.c. were infused, which is at an average of 12.4 c.c. a minute. Furthermore, in the one minute from 5:04 to 5:05, the large quantity of 39 c.c. was infused. In the following last three minutes altogether only 13 c.c. were infused. This patient also complained of heat, and his face became flushed and the forehead was covered with perspiration. The patient vomited at 4:46. During the entire infusion the lowest pulse rate was 108 a minute. At 4:58 the patient began to feel sleepy. The first incision was made at 5:00 p. m. At 5:02 the patient was still moving and slightly groaning, but did not interfere with the operative procedure. Anesthesia soon became very deep. At 5:06 respiration was shallow and only 6 per minute. The rate of infusion of magnesium was greatly reduced; respiration immediately became deeper and more frequent, about 22 per minute. At 5:08 the magnesium infusion was stopped completely. The operation was completed at 5:13. In the last five minutes of the operation the patient had no infusion of magnesium solution. At 5:15, 10 c.c. of a 2.5 per cent. calcium chlorid solution were infused. There was no need for it, as the respiration was fairly good, but the injection of the calcium solution deepened the respiration visibly. At 5:19 the patient answered questions. He opened his eyes at 5:20 and was apparently fully awake. He stated that he felt no pain whatsoever during the operation. He was very thirsty, and had two glasses of ice water. No nausea or vomiting followed. There was no special after-effect from the magnesium infusion. He passed urine spontaneously and freely which was free from albumin, casts, sugar, acetone and diacetic acid. Twenty-four hours after the operation the patient began to complain of pain in the wound. The temperature rose gradually to 103 F. Pain and high temperature soon disappeared, however, and the patient made an uneventful recovery.

In this case consciousness and sensation were completely abolished for at least ten minutes. The patient had no recollection whatsoever of the operative procedure. The short but very rapid infusion of the solution at a rate of 39 c.c. in one minute affected considerably the rate and depth of the respirations, but a reduction in the rate of the infusion caused quickly a return of the respiration to practically normal conditions.

CASE 3.—May 26, 1916, H. P., weighing 125 pounds, was operated on for double inguinal hernia. The magnesium sulphate was given in this case in a 10 per cent. solution. Infusion was begun at 4:23 and finished at 5:14; 280 c.c. were infused in the course of fifty-one minutes, that is, at an average of 5.4 c.c. per minute. However, between 4:39 and 4:52, that is, in thirteen minutes, 169 c.c. were infused, which is at an average of 13 c.c. per minute. Between 4:52 and 5 o'clock the infusion was stopped. From 5, when the infusion was resumed again, to 5:14, when it was finally stopped, only 20 c.c. were infused, that is, at an average of about 1.5 c.c. per minute. After about 30 c.c. were infused, the patient began to feel hot, was perspiring and became restless. When about 63 c.c. were infused, the patient stated that he felt weak. At 4:25 (15 c.c.), the pulse was 120, and respiration 22 per minute. At 4:33 (57 c.c.), pulse 120, respiration 16. At 4:45 (143 c.c.), pulse 96, respiration 24; the operation was started. At 4:47 (182 c.c.) *the anesthesia was very deep; there was no spontaneous respiration; artificial respiration by pharyngeal insufflation was begun.* At 4:50 the pulse was small, 96; the patient pale and slightly cyanotic; the pupils slightly dilated and fixed. At 4:52 the magnesium was stopped. From 4:47 to 4:56, for nine minutes, there was no sign of a spontaneous respiration. At 4:56 occasional spontaneous respirations appeared. At 4:58 spontaneous respirations were regular, 20 a minute; the pulse was 90 a minute and bounding. At 5 o'clock the patient's color was good, respiration regular, pulse 120. Magnesium was started again. At 5:03 the lid reflex was still absent; pulse 112, respiration 22. At 5:06 the lid reflex was coming back. At 5:08 the pulse was 118, respiration 20. At 5:10, pulse 100, respiration 22. At 5:13, pulse 96, respiration 26. At 5:14 magnesium infusion was stopped. At 5:21 the operation was finished; the pulse was 108, respiration 27. At 5:31 the patient opened his eyes when spoken to.

He was conscious on return to the ward, very thirsty, and was given 6 ounces of water in ten minutes. There were no nausea and no vomiting. *The patient asked whether he had already been operated on.*

On the second day after operation the patient complained of abdominal pains; the abdomen was moderately distended and rigid. The temperature rose to 102.4 F. The patient was about normal again on the third day, and recovery was uneventful.

In the two days following the operation the urine showed a trace of albumin and many hyaline casts, but no sugar.

During the infusion of the magnesium solution the patient was completely unconscious for about forty minutes; when he came out of the anesthesia he had no recollection of the events of the operation. For at least ten minutes there was no spontaneous respiration; the respiratory function was then maintained exclusively by artificial respiration (pharyngeal insufflation). Under the magnesium anesthesia the lid reflex was absent for about twenty minutes. For a few minutes the pulse became slow, and for from ten to fifteen seconds it was even irregular and at times imperceptible. It is possible that with the concentration used in this case (10 per cent.) the magnesium solution may exert also a cardiac effect. This concentration, therefore, ought not to be used until we have learned more of the effects of magnesium sulphate on human beings when used intravenously.

SUMMARY

The observations made in these cases prove conclusively that the state of anesthesia which is produced by injection of magnesium sulphate is actually anesthesia, that is, in this state sensation as well as consciousness are temporarily more or less completely abolished. This central effect may or may not be accompanied by a pronounced paralysis of the endings of the motor nerves of a great part of all skeletal muscles. Evidently, the central effect, especially the effect on the sensation of pain and on consciousness, can be attained with a smaller dose of the magnesium salt than that which is required for a paralysis of the motor nerve endings. The central effect also appears to set in sooner than the peripheral one.

The employment of intravenous injection of magnesium salt as an anesthetic may prove to be indeed a practicable and advantageous method, because, in the first place, it may cause simultaneously a moderate degree of relaxation of the muscular mechanism, and, secondly, because the untoward effects can be rapidly reversed by a careful administration of a solution of calcium chlorid. This method, however, before it can be made practically serviceable, will require a good deal of careful study. We shall, therefore, at least for the present, abstain from a discussion of the possibility of the practical applicability of this method.

Venereal Diseases and Militarism.—Venereal disease is the cause of more hospital admissions among soldiers than any other disease or group of related diseases. It caused 31.8 per cent. of the total military inefficiency in the British army in 1910. It was the cause of one fifth of all the British military hospital admissions for that year, yet it caused but one one-hundredth of the total military deaths. It causes one third of all the illness of the British navy, both at home and abroad. In 1910 the navy force included 113,530 men, of whom nearly 15,000 were ill of venereal diseases. From 1865 to 1872 the hospital admissions of soldiers in the United Kingdom for venereal diseases averaged more than one case to every five men, in some years four men, in the army. In the fourteen years ending 1883, the average admission rate for the whole British army in India for venereal disease was 225 cases per 1,000 men. In 1895 these admissions reached the enormous proportion of 537 per 1,000 men. I hasten to add that this frightful condition has been greatly ameliorated. In 1900 there were but 295 cases per 1,000 men. But even this is nearly one for every three men! In very recent years the figures for the British army have been notably lowered. In 1908, for example, the lowest figures on record up to that time were reached. These were 76.8 hospital admissions per 1,000 men of total strength of the troops in the United Kingdom and Europe. From 1903 to 1907 the average admissions were 122.3 per 1,000 men of the whole army.—V. L. Kellogg.

THE SIGNIFICANCE OF PULSE FORM *

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The study of the pulse has occupied the attention of physicians from the very earliest times, and the pulse remains today one of the most accessible and important indications of the general condition of a patient. In studying the pulse the following data are noted: its rate, its rhythm, its tension, its size and its form. More precise knowledge concerning each of these is accumulating. The pulse rate, being an index of the heart rate, is of the greatest importance. In certain arrhythmias, the heart rate differs from the pulse rate because some ventricular contractions produce no palpable pulse beats at the wrist. This pulse deficit derives great significance from the fact that it indicates the amount of energy uselessly expended by the heart. Disturbances in the rhythm of the pulse have been carefully studied in recent years both by mechanical and by electrical methods. These studies have enabled us to classify the cardiac irregularities, to define their clinical significance, and to direct our therapy with greater precision than was formerly possible. Changes in the tension of the pulse are now recorded in terms of systolic and diastolic pressure, and the practical gain resulting from such records need not be emphasized.

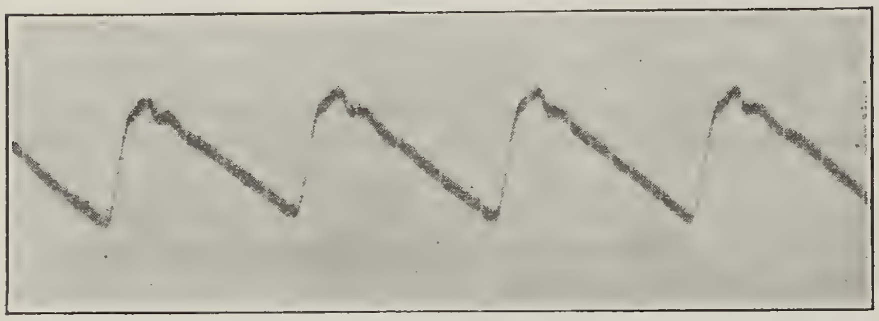

Fig. 1.—Sustained pulse of extreme type. Hypertension. Rate, 54.

Our knowledge of the size and form of the pulse has not kept pace with the advances in our knowledge of other pulse factors; and yet every physician, consciously or unconsciously, bases his opinion as to the quality of the pulse very largely on alterations in its size and form. For several years we have made records of the size and form of the pulse, and it is hoped that a presentation of some of our observations and impressions may be of service in the interpretation of observations that are made at the bedside.

The size of the pulse has been determined by measuring the volume of the waves recorded from a plethysmograph that encloses the hand, the forearm and the lower arm. The size thus determined usually varies from 0.4 to 1 c.c. An unusually large volume pulse usually occurs in aortic insufficiency (from 1.4 to 2 c.c.). In a given individual the size of the pulse is greatly affected by conditions of chilliness and warmth. When a person is chilly the pulse becomes smaller, whereas when he is warm it becomes larger. Variations in size from 0.26 to 0.96 c.c. have been observed under these conditions in a single individual. Of more clinical interest is the fact that during the febrile chill the radial pulse becomes smaller, and in some cases it almost disappears. As the chill abates and the patient begins to feel warm again, the pulse returns to its former size. It seems probable that the small pulse observed during a febrile chill is due to a local constriction of the peripheral arteries and that it does not necessarily indicate impending cardiac failure.

PULSE RECORDERS

About the middle of the past century, instrumental methods were introduced for studying the pulse form. Unfortunately two factors interfered with progress in such studies. In the first place the earlier instruments were subject to grave defects. In order to record the rapid changes of pulse form an instrument must itself be capable of performing rapid movements. Frank and Petter have estimated that an instrument should have a vibration time of not less than 32 per second in order to follow accurately the movements of the pulse in the peripheral arteries and that much more rapid rates are required of instruments which are used to record the pulse in arteries lying near the heart. Since the sphygmographs and manometers in common use vibrate at rates of from 5 to 16 per second, the records obtained by such means are necessarily defective and hence there arose the discussions as to what part of the records were due to "flings" or other instrumental defects. To Otto Frank belongs the credit for having analyzed the theoretical requirements of pulse recorders and for having developed an instrument which will follow accurately the contour of the pulse curve. Frank replaced the usual recording lever on the tambour by a small mirror. This mirror reflects a beam of light, and the movements of this beam are recorded by photographic methods on a moving sensitized surface. Instruments of this type have been constructed which show vibration frequencies of 150 to 250 per second, rates amply sufficient to record the pulse in the central arteries.

The second difficulty in studying the arterial pulse of man lies in the fact that instruments cannot, as in animal experiments, be attached directly to the artery. Variations in arterial pressure can act on the recording device only through the medium of the vessel wall, the intervening tissues and usually some elastic receiver applied to the skin. Our inability to control these factors introduces an element of uncertainty in all pressure records taken from man. For this reason we have preferred to record the volume pulse in the arm by placing the latter in a plethysmograph which is connected with a Frank recorder. The apparatus used shows a vibration frequency of from 50 to 110 per second, a rate which is sufficient to record the peripheral arterial pulse. In the interpretation of our tracings we have been aided by momentarily obstructing the veins leading from the plethysmograph by a pressure cuff. When this is done, changes in arm volume are due almost entirely to movements of blood in the arteries leading into the plethysmograph.

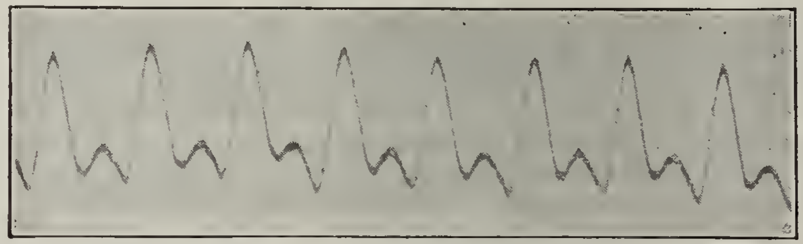

Fig. 2.—Poorly sustained or pointed pulse during fever. Rate, 110.

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* From the Department of Internal Medicine, University of Michigan.

* Read before the Section on Practice of Medicine at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

TYPES OF ARM PULSE

Records of the volume pulse obtained by this method allow one to distinguish two main types of peripheral pulse in man. In the first, or sustained pulse, the sudden entrance of blood during early systole is followed by a gradual decline that is broken to a greater or lesser extent by the dicrotic and smaller secondary waves (Fig. 1). The second type of pulse is characterized by an abrupt diminution in arm volume immediately after the entrance of the primary pulse wave (Fig. 2). On palpation this gives the impression of a poorly sustained or bounding pulse. In the records the primary wave is pointed and the pulse appears collapsing. It may therefore be described as a poorly sustained, pointed or collapsing pulse. In this pulse the smaller secondary waves are usually absent. The dicrotic wave, however, varies greatly, from marked dicrotism to an almost complete absence of this wave. We believe that the poorly sustained or pointed character of such a pulse is of more fundamental importance than is the size of the dicrotic wave. If the veins leading from the plethysmograph are momentarily obstructed so that no blood can escape from the arm by this channel, it is readily demonstrated that the sudden drop which occurs in such a volume pulse just after the entrance of the main wave is due to a backward movement of blood in the arteries, caused as we believe by a reflection of the primary pulse wave out of the arm.

This pointed type of pulse can be produced in young individuals by therapeutic doses of nitroglycerin or of amyl nitrite. Of particular interest, however, is the fact that it occurs with great frequency during infectious diseases. We have noted it particularly in tuberculosis associated with fever, in typhoid fever and in most severe infections. When circulatory failure threatens during the course of an infectious disease, the pulse is practically always of a pointed character (poorly sustained). At the same time the size of the pulse becomes progressively smaller and its rate increases. We believe that an understanding of these pulse changes would throw much light on the nature of the circulatory failure in the infectious diseases.

Relation to Blood Pressure.—The relation of pulse form to blood pressure is neither definite nor constant. As a rule, patients with arterial hypertension show a sustained pulse; but if nitroglycerin be given, the pulse may assume a pointed form even though both systolic and diastolic pressures still remain far above normal. Patients with abnormally low pressures are prone to show a pointed pulse, particularly if suffering from febrile disease. The association with low pressure is not constant, however, for we have records of sustained pulses where the systolic pressure varied from 90 to 100 and the diastolic pressure from 65 to 70.

Relation to Vascular Tone.—The form of the peripheral pulse is certainly influenced by the condition of the peripheral arteries. The pointed pulse produced by nitroglycerin, for example, is to be attributed to a relaxation of the arteries. Conversely, fairly large doses of pituitary extract, when injected into a patient with a pointed pulse, will often cause the latter to assume a sustained character. Pituitary extract acts mainly by constricting the arteries. It seems certain, therefore, that the form of the pulse is dependent in large part on the tone of the blood vessels.[1]

Just how vascular relaxation leads to a pointed type of pulse is not altogether clear. In the arm of man, at least, nitroglycerin causes no unusual escape of blood from the arteries into the capillaries, nor is the flow of blood in the arm unusually rapid in febrile conditions. The change in pulse form produced by pituitary extract is likewise not accompanied by any constant change in the rate of blood flow through the arm. Finally a very rapid rate of blood flow through the arm, such as can readily be produced by exposure to heat, is not accompanied by a pointed pulse. It is evident, therefore, that the sudden decrease in volume is not due to an escape of blood into the arm capillaries. As has been said, the escape of blood which causes the abrupt fall of volume just after the entrance of the primary pulse wave is due to a backflow in the arm arteries themselves, owing to a reflection of the primary pulse wave. Such a reflection is favored by local vascular conditions in the arm. These consist (*a*) in a relaxation of the larger arm arteries that permits a large pulse wave to enter, and (*b*) in a constriction of the arterioles in the arm which increases the reflection of the waves that reach them.

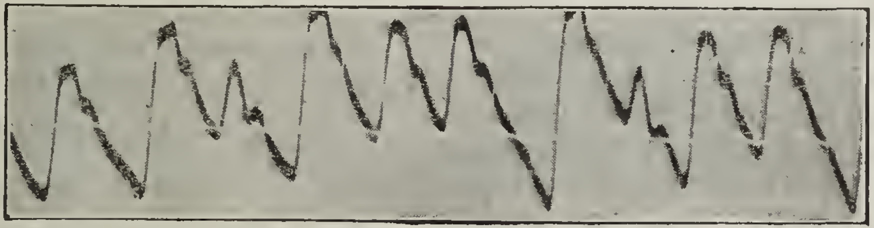

Fig. 3.—Auricular fibrillation. Note that the larger pulse waves are of the sustained type, whereas the small waves are pointed.

Relation to Cardiac Output.—There are reasons for believing, however, that the pointed pulse cannot be explained solely on the assumption of changes in the local vessels of the arm. In fever the pulse wave which enters the arm is often unusually small. Furthermore, the pulse obtained by pressure over the carotid and subclavian arteries in such patients often shows a pointed form; Wiggers[2] has published pressure tracings from the central arteries of animals which show a sudden fall of pressure during late systole. Possibly a relaxation of the arteries or arterioles in other parts of the body may play a rôle in such cases, but of this we have little direct evidence.

On the other hand, there is reason to believe that a small or brief systolic output from the heart may contribute to the production of the pointed type of pulse. In auricular fibrillation it sometimes happens that the larger waves are of a sustained character, whereas the smaller waves are collapsing (Fig. 3). These smaller waves are superimposed on a relatively high diastolic pressure, but otherwise the vascular tone may be regarded as constant. In such conditions the pointed pulse must be caused by a small or brief output from the heart. In various forms of tachycardia also the pointed pulse may be attributed to a small or brief systolic output. Finally, the pointed pulse has been observed toward the end and just after the Valsalva experiment.[3] This is independent of blood pressure variations, and is probably to be attributed to a small systolic output at these times.

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[1] Both nitroglycerin and pituitary extract may also influence the cardiac output, but so far as we know the output is if anything increased by nitroglycerin and diminished by pituitary extract. Such changes would, as we shall see, tend to produce pulse forms of an opposite type to those actually observed during the action of these drugs.

[2] Wiggers, C. J.: Studies on the Pathological Physiology of the Heart, Figure 4, III, Arch. Int. Med., July, 1915, p. 140.

[3] Lewis, T.: The Influence of the Venae Comites on the Pulse Tracing, with Special Reference to Valsalva's Experiment, and Dicrotism: a Note on Anacrotism, Jour. Physiol., 1906, xxxiv, 391. Similar changes in pulse form have also been recorded by the method described in this paper.

THEORY OF THE POINTED PULSE

In seeking an explanation for the foregoing facts, I wish to call attention to two more or less divergent assumptions as to the nature of the pulse. According to the first and more simple explanation, the larger arteries act like an elastic bag which takes up the blood expelled from the heart and converts the intermittent into a continuous flow. Any fall of arterial pressure during a pulse cycle is attributed to an escape of blood into the capillaries. With a given resistance this escape is somewhat more rapid at high than at low pressures, but no adequate explanation can be given for the very sudden fall of pressure sometimes observed in the central arteries during late systole or for the backflow of blood in the brachial arteries of man during the sudden fall of volume that characterizes the pointed pulse.

According to the second explanation for the arterial pulse, the latter is essentially a wave which spreads over all parts of the arterial tree and is subject to the well known laws which govern wave motion. Ordinarily this wave is of such a character and meets such resistances that it fills the arterial tree promptly and almost uniformly so that the latter behaves for all practical purposes like an elastic bag. This gives rise to the sustained pulse. Under other circumstances, however, the laws governing wave motion become more apparent and must be taken into consideration in attempting to explain changes in pulse form. I would suggest that the sudden fall of pressure which is at times observed in the central arteries toward the close of systole is due to the fact that as a wave passes along an elastic tube it causes an abrupt rise followed by an abrupt fall in pressure, even though there has been no actual backward displacement of the fluid. Similarly the retrograde movement of blood in the arm of man which characterizes the pointed type of pulse can be explained only as a reflection of the pulse wave. The pointed type of pulse, therefore, is one in which for some reason wave motion in the arterial system is particularly evident. Such wave motion would tend to be accentuated by a variety of circumstances, among which are a sudden expulsion of blood from the heart or a relaxation of the larger or smaller arteries. Even though the resistance encountered in the arterioles were sufficient to maintain a good blood pressure, the pointed pulse might still occur, owing to changes in these other factors.

PULSE FORM IN FEVER

In fever the pulse is usually rapid and of a pointed form. In size it may be normal or small. As circulatory failure threatens, the rate becomes more rapid, the pointed or poorly sustained character becomes more pronounced, and the size lessens. Doubtless the increasing rate is in part responsible for the other changes; yet the physician would hesitate to base his opinion solely on the recorded pulse rate or on the rate plus the blood pressures. He resorts to palpation of the pulse, and in doing so gains further information as to its size and quality.

What causes the small size and the poorly sustained quality of the pulse in serious infections? Are they due to arterial relaxation alone? In studying this question we have observed that when pituitary extract is administered to patients showing a pulse of this type, the pointed form can often be converted into a sustained form. Invariably, however, this change is accompanied by a further decrease in pulse size. It seems probable, therefore, that while the pointed character of the febrile pulse is due in part to a relaxation of the larger arteries, this is not the entire explanation for the febrile pulse. The small size seems to indicate that there is in addition a small systolic output from the heart.

The explanation just given is in accord with the view that is now most widely held concerning the nature of circulatory collapse in surgical shock and in the acute infections. According to this view, the difficulty lies in an insufficient blood supply to the heart, owing either to stasis in the abdominal veins or possibly to an oligemia. Henderson has shown that in the type of shock which he studied there is a diminished output from the heart, owing to a lessened supply of venous blood. At first, however, there is no fall of blood pressure, owing to a compensatory constriction of the finer arterioles. Not until the blood stream was reduced to about one third did a rather sudden fall of pressure occur. As yet we have no accurate data concerning the rate of circulation in man during the circulatory collapse of surgical shock and the acute infections. I suspect that such studies will show a reduced circulation. If this should prove to be the case, the attention given by physicians to the size and form of the pulse in surgical and infectious conditions will receive a rational explanation. By palpation the physician gains an impression as to the size of the cardiac output in these conditions.

SOME FACTORS IN THE PRODUCTION OF CARDIAC DYSPNEA *

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The symptoms most commonly complained of by patients with heart disease are palpitation, precordial pain and shortness of breath. The latter, often only noticeable on exertion, is perhaps the most frequent cause of subjective distress, so that for this reason, as well as on account of its seriousness, dyspnea is a symptom worthy of considerable attention from the clinician. A full realization of the significance of dyspnea, and a properly adapted therapy, can only be the outcome of a much more complete understanding of the pathologic physiology underlying it than we possess at present. In all probability it will be found to be a complex phenomenon which can be analyzed into several types, and in the cause of which numerous factors combine in varying degrees. Some of the etiologic factors concerned with the production of dyspnea in heart disease are already recognized fairly definitely, and it is to a consideration of these that the present paper is directed.

It will be well, at the outset, to state exactly what is meant by the term "dyspnea" for, curiously enough, although the word is in everyday use, there is apparently no generally accepted accurate conception of its significance. It is often considered to be synonymous with either rapid respiration or unusually deep respiration, but neither of these in themselves constitute dyspnea. As the derivation of the word implies, there is a subjective element, an element of discomfort or of

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* From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.

* Read before the Section on Practice of Medicine at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

difficulty in breathing. This discomfort may depend on either an increase of the rate or of the depth of respiration, but usually it is associated with an increase in both, and depends fundamentally on a hyperpnea, or increase of the total amount of air breathed in a given unit of time. Technically, it is customary to express the pulmonary ventilation, or the amount of air breathed, in liters per minute, and this is referred to as the minute-volume. Dyspnea is present when the minute-volume approaches the maximum of which the subject is capable.

Thus, for instance, a healthy adult at rest may breathe approximately 500 c.c. per respiration, and at a rate of twelve respirations per minute. The minute-volume will then be 6 liters. On walking slowly about the room the metabolism is increased and the minute-volume of air breathed will rise nearly threefold, to about 15 liters. On walking up a flight of stairs the minute-volume may become 20 liters. Neither on walking about the room nor going upstairs, however, does the normal subject become dyspneic. By increasing somewhat both the rate and depth of his respiration he is able to raise the minute-volume from 6 to 20 liters without any appreciable subjective sensation. When, on the other hand, he begins to run, and his metabolism becomes increased so that it requires a ventilation of 60 to 70 liters a minute, he becomes dyspneic, for he has usually approached both the maximum rate and depth of respiration of which he is capable. An athlete in good training can ordinarily breathe much deeper than the individual of sedentary habits, and he may be able to raise the volume of air breathed to 80, 90, or even 100 liters a minute without any definite feeling of distress.

In brief, then, the production of dyspnea resolves itself into the problem of the relation between the demand for an increased pulmonary ventilation and the ability of the subject to meet that demand by increasing the rate and depth of his respiration. This somewhat artificial statement of the situation purposely omits reference to one very important factor, namely, the rate of the circulation. The fundamental purpose of the respiration is, of course, to promote gaseous exchange in the body tissues and this is only effected through the medium of the blood. A slow blood flow would interfere with the process of metabolism as much as would an insufficient pulmonary ventilation. One of the results, however, of an inadequate blood flow would be a further stimulation of the respiratory center. The data available with regard to the rate of the circulation and especially concerning its relation to pulmonary ventilation are so scanty and unreliable that it seems best at present to keep the attention focused wholly on the external respiration.

The factors which may produce dyspnea are, in the first place, those which cause an increase of the minute-volume of air breathed, and, in the second place, those which abnormally limit the ability of the subject to meet this increased demand. As causes of an increase in the minute-volume of air breathed there are, apart from nervous and psychic influences, three main factors to be considered: a rise of metabolism, an acidosis, and any change in the physical condition of the lungs which results in a less efficient utilization of the air breathed. The causes which tend to prevent the increase of ventilation are chiefly those which interfere with the depth of the respiration and cause a decrease in the "vital capacity" of the lungs.

In what degree, then, are these various factors to be considered as playing a part in the production of dyspnea in cardiac disease?

What, in the first place, is the state of the body metabolism? The information now at hand is based chiefly on work done in the bed calorimeter at the Russell Sage Institute for Pathology in New York, which has been subsequently confirmed and amplified by observations with the Tissot spirometer at the Peter Bent Brigham Hospital in Boston. The results show that in well-compensated patients the metabolism is within the normal limits, while in patients who are on the edge of decompensation, or who show some slight dyspnea even at rest, the metabolism is often, but not at all regularly, some 20 to 40 per cent. above the normal. Unfortunately, it has not been possible, for obvious reasons, to study severely decompensated patients. It is quite probable that in such cases the metabolism would be found to be considerably higher, but even were it double the normal, the rise in metabolism could only be regarded as in itself a minor factor in the production of dyspnea.

Much attention has been recently devoted to the rôle of acidosis as a cause of dyspnea in heart disease, but as yet its true significance is not wholly clear. It is possible that in certain acutely decompensated patients with pure cardiac disease, during the period when they are having severe dyspnea even while at rest in bed, there may be some slight acidosis which stimulates the respiratory center, causing an increased pulmonary ventilation. The condition is, however, transient and disappears quickly as compensation is regained. Acidosis is certainly a more imporant element in those cases in which cardiac insufficiency is associated with severe renal lesions. In them an acidosis frequently develops secondary to the nephritis. In a small percentage of instances with uremia the acidosis may be of such high degree as to cause hyperpnea resembling that of diabetic coma, but even in the more common mild grades of acidosis it has been shown to be a factor which renders the patient unusually sensitive to the production of dyspnea. While acidosis may thus play a part in the causation of dyspnea in many advanced cases of cardiorenal disease, it has not been shown to be of importance in cases which are even moderately well compensated or are without severely injured kidneys.

The significance of physical changes in the lungs in the production of hyperpnea has been demonstrated by studies with the spirometer, which show that the minute-volume of air breathed by patients with heart disease may be considerably increased, even quite apart from an abnormally high metabolism or an acidosis. Patients who are wholly without dyspnea while they are quiet may be found to be breathing 9 or 10 liters of air a minute instead of the usual normal of about 5. Since the total metabolism is approximately normal, the output of carbon dioxid per minute is normal, but as the volume of air breathed per minute is increased the expired air contains a percentage of carbon dioxid which is less than normal. These patients may be perfectly comfortable while at rest, but their reserve is greatly interfered with, and they suffer as soon as they begin to move. The minute-volume of a normal person walking slowly about in the room is about three times as great as it is while he is sitting quietly. Thus, if he breathes 5 liters a minute at rest, he will breathe nearly 15 liters when performing this exercise. A cardiac patient will show a similar relative increase of ventilation, but as he may be breathing 8 liters a minute at rest, the volume on walking will rise to nearly 24 liters. The cardiac patient is thus distinctly nearer to the maximum of which he is capable, especially when, as will be shown, his maximum is much less than that of the normal person. This increase of the pulmonary ventilation seems to bear a close relation to changes in the vital capacity of the lungs, and it may depend on the fact that there is a decrease in the respiratory surface of the lungs without a corresponding change in the dead space, so that a larger amount of air must be breathed in order to obtain the normal amount of oxygen per minute. While an increase in the minute-volume of air breathed due to such a cause is found not only in patients who are acutely decompensated, but often in those who are quite comfortable while at rest, it is, nevertheless, of importance only in the rather severe cases.

Such are the factors concerned with the production of dyspnea which act by increasing the pulmonary ventilation. As opposed to these there is at least one important feature which makes it difficult for the cardiac patient to meet a demand for an increase of his pulmonary ventilation. This is his inability to breathe deeply. An accurate index to the degree to which the depth of respiration is limited may be had by the measurement of the vital capacity of the lungs, which is the volume of the greatest expiration after the deepest possible inspiration. This is regularly below normal in cardiac patients who complain of dyspnea. It has long been known that many persons with heart disease cannot breathe as deeply as normal individuals, but the significance of this fact has been rather disregarded. It is, however, readily appreciated when one considers that a rise of pulmonary ventilation is brought about by increasing the rate and depth of breathing, but best and most economically by increasing the depth. If, then, a patient with heart disease is unable to increase the depth of his respiration as well as a normal person, he will be at a distinct disadvantage when he begins to exercise and his metabolism rises. On account of his inability to breathe deeply, the maximum amount of air that he can breathe per minute will be below the normal, and a grade of hyperpnea that will cause no symptoms in a healthy individual will produce in him the subjective sensation of dyspnea. There is, indeed, a very close relation between the decrease in the vital capacity and the tendency of a patient with heart disease to become dyspneic. In a large series of cases in all stages of cardiac disease the decrease in the vital capacity has been found to run almost constantly parallel to the degree of physical disability. Practically all patients who give a history of abnormal shortness of breath on exertion are found to have a vital capacity below normal, and the more prominent the symptom, the lower the vital capacity. This decrease in the vital capacity characterizes both mild and severe cases of heart disease so far as they have a tendency to dyspnea, either at rest or on moderate exertion, and seems the most constant factor in the etiology of the dyspnea.

Briefly, then, we may summarize by saying that in patients with heart disease a decrease in the vital capacity of the lungs is an important and practically constant feature in the production of dyspnea. Associated with this, and apparently depending on it, there is usually a hyperpnea in the more severe cases. In many severe cases further causes of dyspnea may be the presence of an acidosis, and, to a less extent, an increase of body metabolism.

ROENTGENOCARDIOGRAMS

POLYGRAPHIC SLIT TRACINGS OF CARDIAC PULSATIONS BY THE ROENTGEN RAY *

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KALAMAZOO, MICH.

The purpose of this paper is to show the practicability of Roentgen-ray tracings of the heart beat and to arouse interest in this method of cardiac study.

It is sixty-nine years since Vierordt made the first tracing of the pulse. Marey, Dungeon, Jaquet and other clinicians of the first rank designed sphygmographs and interpreted tracings. But it was not until Mackenzie, barely fourteen years ago, working with a polygraph of his own manufacture, in a country practice in Scotland, recorded a body of observations single handed, that cardiac tracings became of recognized clinical value.

Einthoven in 1903 produced that miracle of delicacy and precision, the electrocardiograph. Gocht and Rosenthal in 1912 published a method, termed "roentgenkymography," of making polygraphic Roentgen-ray tracings of the movement of the heart. This is the only paper on the subject that I have found.

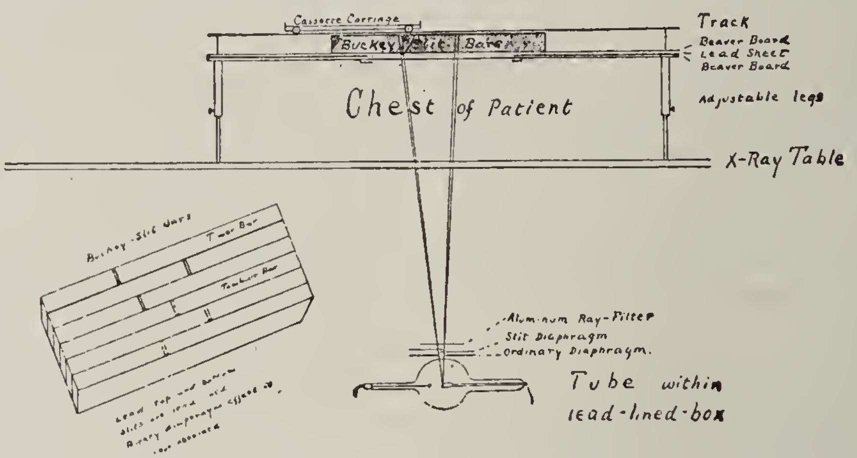

Fig. 1.—Device for making simultaneous tracings of the pulsations of the heart chambers and of the aorta, by the Roentgen rays.

It remained for the researches of Mackenzie, Lewis and many others to correlate cardiac tracings with the functions of the sinus node and the auriculoventricular bundle of His, and thus to translate polygrams and electrocardiograms into clinical terms. In consequence a new understanding of the irregular and disordered heart has been laid, on which has arisen a new nomenclature. Auricular fibrillations, heart block, auricular flutter, alternation of the pulse, extrasystole, are terms which have thus passed into current medical literature. In conjunction with these, we are becoming familiar with such technicalities as the a c p or t wave or of the a c interval.

This flood of renewed interest in the old problems of the heart beat has left the whole subject of Roentgen tracings untouched. Gocht and Rosenthal demonstrated the possibilities of Roentgen tracings of the heart-beat; yet their paper dropped into that oblivion of scientific archives from which so few ever return.

At the present day we have the advantage of many improvements in Roentgen instrumentation and technic which combine to make roentgenocardiography a

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practicable clinical method. These improvements are, briefly, the Coolidge tube, ray filtration, the "Buckey effect" which is possible by the use of cellular slits, large films and safe and convenient tables.

The Roentgen examination allows the clinician to determine the shape, size and position of the heart in the chest with a precision unapproachable by any other method. A visual study may be made of the character of the muscle movement of the different chambers from different angles. The cardiac sounds may be ausculted while the heart is beating visibly on the Roentgen-ray screen. The aortic silhouette and pulmonary artery may be scrutinized, and finally without moving the patient from the table, polygraphic tracings may be made directly from the cardiac chambers.

A Roentgen tracing of the heart means to most medical readers a tracing of the outline of the heart. The subject of this paper, the roentgenocardiogram, is a tracing of the heart beat obtained by covering the heart with strips of sheet lead so arranged that a narrow slit in the lead can be adjusted over the pulsating margin of the cardiac silhouette as viewed by the Roentgen ray. Several of these slits can be adjusted simultaneously over different areas of the pulsating heart, the aorta and the pulmonary vein. A photographic film on a screen in a cassette is then made to travel at a given speed, transversely over these slits, while the Roentgen ray is turned on. The result is a tracing which is similar to and comparable with a sphygmogram, a polygram or an electrocardiogram.

For comparison: The electrocardiogram, as you all know, is a tracing obtained on a strip of photographic film which moves across a slit. Running at right angles to this slit is a very fine metallic filament which vibrates with the electric currents excited by the heart muscle. An electric light behind the filament prints the vibrations on the moving film. A microscope is arranged so as to magnify these vibrations and thus yield a tracing having the requisite amplitude.

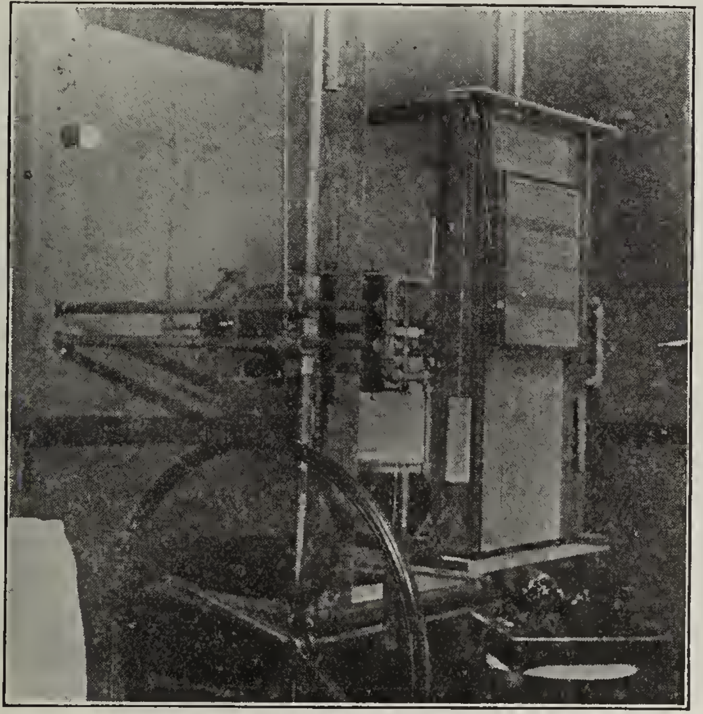
Fig. 2.—Apparatus in the upright position.

In the case of the roentgenocardiogram the wire filament is replaced by the edge of the heart muscle itself and the light is replaced by the Roentgen ray There is no other essential change. No microscope is required.

In the electrocardiogram we deal with the electrical changes in the heart; in the sphygmogram or polygram we deal with pressure variations within the blood vessels (excepting in the case of the apex beat); but in the roentgenocardiogram we deal directly with movements of the heart muscle. The electrocardiogram is stated to give a record of both auricles contracting as a unit and of both ventricles contracting as a unit. The sphygmogram or polygram gives records of the venous pulse and the left ventricle. But the roentgenocardiogram is capable of giving a separate record of the muscle movements of each chamber of the heart. In this respect it stands unrivaled.

Tracings have been obtained experimentally by connecting the nose with a tambour and having the subject hold the glottis open during suspended respiration. Also tracings have been obtained from a rubber tube in the esophagus. The claim has been made that these tracings represent the pulsations of the right ventricle and the left auricle. But it may be stated that the roentgenologic method is the only one which can furnish unquestionable tracings of these separate chambers of the heart, and produce them so as to be clinically practicable.

It is evident that the polygraph, the electrocardiograph and the roentgenocardiograph, while recording different data, yet arrive at the same conclusions regarding cardiac irregularities. Auricular fibrillations, heart block or auricular flutter would be recognized in substantially the same way by any one of these instruments.

The electrocardiogram is a photomicrograph. The real amplitude of the oscillations of the wire filament between the field magnets is so exceedingly small that the microscope is required. The amplitude of the writing hand of the polygraph or sphygmograph depends on mechanical multiplication by levers and tambours. But the amplitude of the heart muscle movement is sufficient without the use of any means for magnification. Some increased amplitude is unavoidable, however, and it is easy to increase it still further.

In the case of both the polygram and the electrocardiogram there is a complexity of machinery between the heart of the patient and the tracing. But in the case of the roentgenocardiogram the heart writes its record directly on the film without essential intervention of anything whatever. In the case of the polygraph or sphygmograph the impulse which moves the levers and writing fingers is transmitted through a varying length of artery or vein and also through rubber tubing or levers. The jugular tracings are rendered impure by the impulse of the carotid. But the Roentgen tracings are necessarily free from any and all of these complications.

In the case of the electrocardiograph we are working with one of the most complex and delicate of modern clinical instruments. It is of foreign manufacture. Repairs and replacements are likely to be difficult, expensive and subject to long delays. In the case of the roentgenocardiograph we are working with a Roentgen-ray equipment which is largely standardized and made in this country. The addition required for the average Roentgen laboratory is so essentially simple that it can be made extemporaneously by the average mechanic, excepting for the motor or clockwork which runs the cassette carriage and marks the time.

The polygraph has the disadvantage that, in a large proportion of cases, it is impossible to secure a venous tracing from either neck or liver. The electrocardiograph when in order and free of vibrations has very few disadvantages. However, it is, of course, necessary that the patient remain free from muscle movements during the taking of a tracing. The contraction of any muscle excites an electric current. To bend a finger is to mark a tracing. Patients with exophthalmic goiter, paralysis agitans or any other disease associated with involuntary muscle movements are not suitable for the electrocardiograph.

The position of the heart in the chest is also of the greatest importance. A preponderance of heart muscle to the right would reverse an electrocardiogram. Three leads are used and three tracings made as a rule with each patient.

The disadvantages of the roentgenocardiograph are:

1. Very large, heavy patients offer resistance to the passage of Roentgen rays. This is overcome by using wider slits, a slower movement of the carriage and a ray of higher penetration.

2. Some patients with cardiac disease cannot lie in the horizontal position. This difficulty can be overcome by the sitting position, in which case the patient is placed with the back against the lead screen of the cardiograph and with the tube in front. Each slit must then be adjusted over an interspace between ribs, and especial pains must be taken to immobilize the patient.

3. Patients with advanced tuberculosis, pneumonia or pleuritic or pericardial effusions are not suitable for Roentgen tracings, because the outline of the heart is obscured or actually concealed. Dense deposits at the hilum of the lung running downward along the heart border usually are an advantage rather than otherwise, because there is a narrow clear space between the heart and these deposits which improves the tracing.

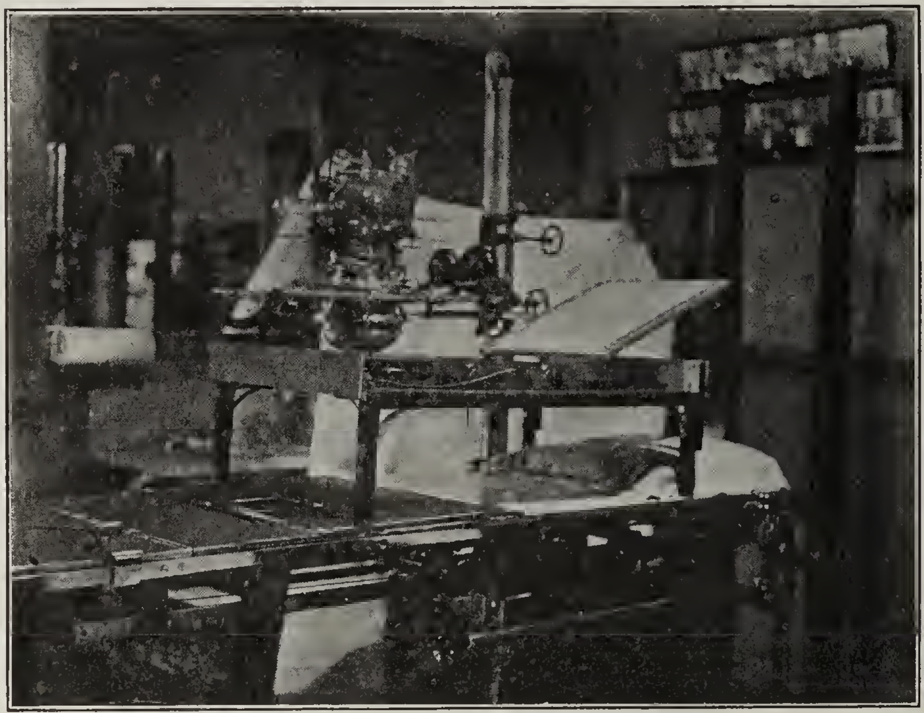

Fig. 3.—Apparatus in the horizontal position.

Some electrocardiographs are equipped with tambours so that ordinary polygraphic tracings may be run simultaneously with the electrocardiogram. Valve sound tracings may also be included. The roentgenocardiograph may likewise be equipped with tambours and a sound recorder. The Roentgen ray is an ideal agent for the registration of movements of metallic pointers.

The addition to a Roentgen-ray equipment which will enable the operator to make roentgenocardiograms is best illustrated by lantern slides. I use a simple, crude device made by my own hands. It remains for some instrument maker to supply us with a properly made roentgenocardiograph. It should consist of a lead-covered table, having an open square of 8 inches in the middle. It is convenient to use 10 by 12 films in cassettes. The cardiographic table, therefore, should have a lead covered length of 12 inches beyond the opening in each end. This makes the table 32 inches long. The legs of this table should be adjustable so as to allow the table to be placed over the recumbent patient without touching the face or abdomen. A track and carriage allows the film to travel from one end of the table to the other over the opening. The carriage should be provided with a clockwork or motor which will give several speeds to the film. The average speed required is 5 cm. to the second. An accurate timing device is desirable, but accurate timers in use on the Roentgen-ray machine may be utilized so that a centimeter rule may be laid along a film to give time divisions if, for example, exactly 50 cm. of film have taken ten seconds of Roentgen-ray exposure.

Instead of a table and carriage, we may use a lead covered cylinder on which is rolled the intensifying screen and film properly protected from light. The rotation of the cylinder over a single long slit will provide the mechanical requirements, in a very compact form, for simultaneous tracings of the pulsations of the right auricle and left ventricle.

It is obvious that the narrower the slit or the faster the speed of the carriage, the sharper will be the line of the heart tracing, provided the Roentgen-ray exposure is properly measured. The average width of slit which is practicable is found to be 2 cm. The slower the transit of the film, the narrower may be the slit while preserving the same Roentgen-ray exposure of the film.

If the film travels 5 cm. to the second and the slit is 5 cm. wide, then the exposure of the film will be one second. But ⅕ second is sufficient for a film on a screen in a cassette. Therefore our slit may be 1 cm. wide. But 2 cm. is an average which gives good definition and allows more latitude for differences in patients. In my experience a Coolidge tube, medium focus, set for a 5-inch spark gap and 33 milliamperes will stand the run ten seconds without trouble. The distance of anode from film should average 24 inches.

In order to adjust the slit bars it is necessary to use the fluoroscopic screen. Two to three milliamperes with a tube set for 7 or 8-inch spark gap is ample. Three mm. aluminum filter should be used to increase the time limit for observations. The erythema dose should never be reached. The fact that the patient may be turned in other positions for additional tracings gives the opportunity for repeated observations within the limits of safety.

The use of a narrow slit of Roentgen ray provided by the slit diaphragm greatly extends the time limit of safety. Different sections of the heart silhouette may be used with each tracing, so as to give added information. This exposes new skin areas each time. The use of the film between two screens greatly lessens the exposure time. By these precautions the number of tracings permissible with safety would be beyond any number required for practical purposes.

The Roentgen-ray operator should know in each case exactly what quantity of Roentgen ray his patient is receiving, as a matter of system and record.

It will be noticed from these tracings that there is a striking dissimilarity between the movements of the auricles. The right auricle frequently gives a nearly straight or faintly undulating line, while the left auricle at the same time gives a very definite curve. Again, the right auricle gives a curve of collapse while the left gives a curve suggestive of contraction.

The roentgenocardiogram shows particularly well the ventricular form of the right auricular curve when present, thus demonstrating small regurgitations through the tricuspid valve which are not discoverable otherwise. This ventricular form of the right auricular pulsation must be shown to be concomitant with a corresponding subsidence of the left auricular beat. A question arises concerning transmitted movements of a ventricular beat to other parts of the heart.

In the belief that the roentgenocardiogram with the associated Roentgen-ray study of the working heart will aid in the understanding of cardiac physiology and pathology, I urge the practice of this method.

Note.—The article by Dr. G. Canby Robinson which was read as a part of this symposium will appear in the *Archives of Internal Medicine.*

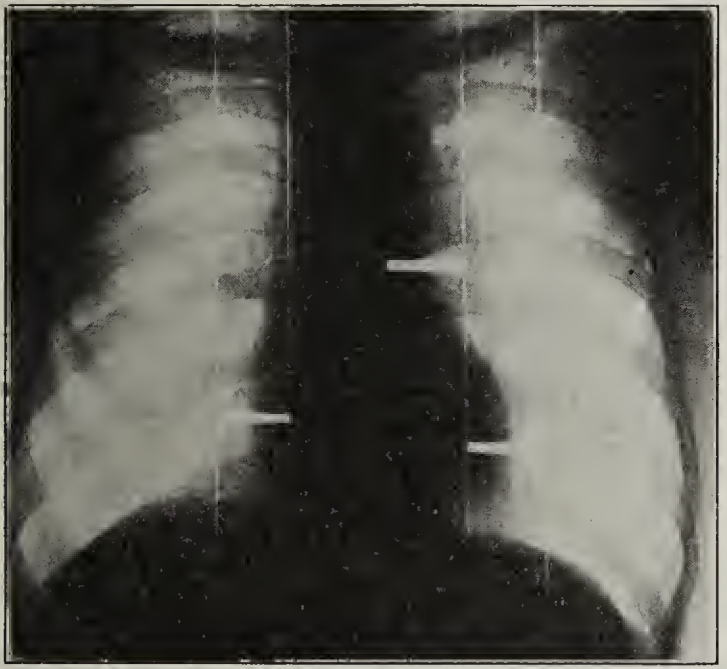

Fig. 4.—Roentgen image of heart, showing position of slits when adjusted over right auricle, left auricle and left ventricle.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HEWLETT, ROBINSON, PEABODY AND CRANE

Dr. Frank N. Wilson, Ann Arbor, Mich.: Abnormal ventricular complexes in the human electrocardiogram may signify the presence of one or more of the following conditions: (1) Impulse formation within the ventricular conduction system below the bifurcation of the His bundle or within the muscle of the ventricular walls as in premature ventricular beats; (2) abnormal intraventricular conduction as in bundle-branch-block; (3) an abnormal distribution of the ventricular muscle as in right or left ventricular preponderance; or (4) a change in the electrical state or condition of the ventricular muscle as in the abnormal ventricular complexes showing inverted T waves obtained by the administration of digitalis to normal individuals. Dr. Robinson's paper deals with marked changes in the QRS group and this group of waves is affected, so far as I know, by the first three conditions only. The ventricular complexes of right and left ventricular preponderance are characteristic and entirely different from the abnormal complexes under discussion. Furthermore, the impulses in all but one of Dr. Robinson's cases were supraventricular in origin. We must assume, therefore, that abnormal intraventricular conduction was responsible for the abnormal complexes in these instances. I have seen abnormal ventricular complexes similar to those described by Dr. Robinson in several instances, but have not been able to correlate them with functional insufficiency of the heart. They have also been a permanent feature in the cases I have observed. One must believe that when this is the case there is an organic lesion of the ventricular conduction system rather than a functional depression of this system as seems to have been the case in the patients studied by Dr. Robinson. I have also seen instances in which only a single part of the QRS group was abnormal. For instance, I have several times seen in lead 1 a perfectly normal R wave associated with a very broad distinctly abnormal S wave. In such instances it would seem that a circumscribed lesion of the ventricular conduction system is present or that the functional depression of intraventricular conductivity is local rather than general. I agree with Dr. Robinson's interpretation of the curves he has shown and feel that his conclusions are justified at least so far as the cases he has studied are concerned.

Dr. S. Marx White, Minneapolis: I have been interested in trying to learn how far we can go in making a correct diagnosis of premature ventricular systole by polygraphic tracings independent of the electrocardiogram, since the latter is accessible to relatively few. The occurrence of extrasystoles can usually be detected by using the stethoscope, the first and second tones, or the first tone alone, being audible. What Lewis says about exercise is of value. In a study of about 150 cases we find that the use of exercise is of value in differentiating extrasystolic from other types of irregularity. Have the patient exercise. During the exercise the premature beats will lessen in number in the great majority of cases. Following rest there will be an increase in the number per minute and they will become very clearly defined. The point brought out about extrasystoles being functional should not be allowed to pass without more discussion. I am convinced that premature ventricular beats mean more than a functional disturbance. It may be that an increased tension in the heart wall is capable of exciting them, but a focus of increased irritability in the heart wall is also a likely source for premature beats. I am particularly interested in the cases in which infection is found about the teeth or tonsils. In these cases with focal infection I wish to call attention to the fact that such infection seems to have a predilection for the heart wall. I think we must look on these as cases in which there is an actual microbial infection of foci in the heart wall. It has been shown that in rabbits there is very frequently an infection of the myocardium when injected intravenously with fresh cultures of micro-organisms taken from the tonsils or the walls about the tonsils. Such small foci of myocardial infection may readily become foci for increased irritability and thus sources of extrasystole. I am skeptical and must be shown and have proved to me that this condition is functional. It must be shown definitely that there is no such change as I have suggested. We see acute infections and often an apparently complete recovery of the heart muscle. May we not have in the heart muscle small foci of inflammation producing extrasystoles and yet have recovery so that later normal function is restored?

Dr. Philip S. Roy, Washington: Has the reading of heart charts any relationship to the therapeutic treatment? Yes. I think every physician should have an apparatus for drawing the radial pulse; it is not necessary to have a time marker. With such an apparatus one will be aided greatly in his therapeutic treatment. Fibrillation of the auricle can be learned from a radial tracing. As regards therapeutic application, we all know that digitalis is a specific in fibrillation of the auricle although not curing the conditions causing it. There is another condition, sinus arrhythmia, that causes much anxiety to both the family and the physician, but so soon as the radial drawing is studied we learn that the condition is not a serious one. When we make charts we should learn how to recognize sinus arrhythmia, a condition which can be cured by belladonna. Another condition is extrasystoles, which in a large percentage of the cases can be recognized by means of the radium charts. Then the therapeutic application must be made. Another condition, a hopeless one, is pulsus alternans. I cannot make a diagnosis of this condition without a radial chart. Does the condition of the pulse always indicate the condition of the whole vascular system? I do not think so. In anaphylactic shock the patient may be pulseless, yet the heart is doing good work. All should have an apparatus for radial tracings, if we wish to be fair to our patients.

Dr. Hugo A. Freund, Detroit: The polygraph and electrocardiograph have cleared up many things that we have not previously understood. The roentgenocardiogram will probably enlighten us further. There are a number of points, however, that should be established before conclusions are drawn. First, the stability of construction of the apparatus eliminating sources of mechanical error. Second, the projection of the ray. Third, the relative distance between the patient and the screen. All these will require standardization. If we could have an orthogonal projection and a tracing of such rays with the moving heart, then doubtless an accurate tracing would be assured. I wish to emphasize something of interest that I have noticed in reference to the changes seen in the Q, R and S waves. In those cases of slow ventricular rhythm where the deformity of the wave is as indicated by Dr. Robinson, the tendency to sudden cardiac failure exists. In cases of marked decompensation where a tendency of this complex to return to a more normal outline is seen under treatment, the prognosis for the time being is more favorable.

Dr. Francis W. Peabody, Boston: The administration of an alkali will relieve the symptoms, as far as they are due to an acidosis in chronic nephritis, but it is only in exceptional cases that a definite clinical effect is obtained.

Dr. Albion Walter Hewlett, Ann Arbor, Mich.: In my opinion extrasystoles arise from some part of the heart muscle which is unusually irritable and for this reason initiates a premature beat. The region initiating the extrasystole may be very small and the heart muscle as a whole may be in good condition. Furthermore, the excessive irritability may be due, not only to organic disease, but to toxic influences or possibly to nervous changes. The presence of extrasystoles is an indication for a careful heart examination but the prognosis depends on this examination rather than on the irregularity itself. Dr. Peabody's careful and extensive study of cardiac dyspnea has led to the conclusion that in the main this is due to changes in the lungs. It may be recalled in this connection that mitral lesions which cause pulmonary congestion are apt to be associated with early dyspnea, whereas aortic lesions cause dyspnea only in their later stages. Great possibilities for further studies of the cardiac mechanism are opened up by Dr. Crane's work. The information thus obtained differs, however, from that furnished by the electrocardiograph for the reason that the records depend on mechanical and not on electrical changes associated with the heart's movements.

Dr. John Ernest Greiwe, Cincinnati: Premature ventricular systoles are a functional disturbance. It should be our duty to look for and find the cause of such disturbance and by removing the cause, get rid of the trouble. To bring this subject home in a most practical way, let me recite briefly the experience of a man who had been operated on for appendicitis. On the second night after the operation, the patient had an irregular pulse. This alarmed both nurse and physician, who immediately resorted to subcutaneous salt solution, with the result of producing a large slough over the breast. The irregularity, as I later discovered, had often been present and as the patient afterward remarked, "I could have told them immediately not to become alarmed if I had only known why they were so disturbed." In this case, the "Much Ado About Nothing" came near resulting in a damage suit.

NAIL EXTENSION IN FRACTURES OF THE LOWER EXTREMITY *

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NEW YORK

In most fractures of the lower extremity, the well established methods of immobilization by plaster cast or of continuous traction by Buck's extension or Hodgen's suspension will prevent shortening. Open operation is rarely indicated—in less than 5 per cent.—according to Darrach, with whom I fully agree.

There is a definite group of exceptional cases in which none of the aforementioned procedures are applicable; here, nail extension has proved of value. According to this method, continuous traction is applied to the ends of a steel nail transfixing the lower fragment at a point well away from the site of fracture (Figs. 1, 2, 3 and 4). The nail is removed at the end of from twenty-eight to thirty-five days. As a rule, by this time there is enough callus to prevent shortening. Needless to say, introduction and extraction of the nail are performed under anesthesia and with the strictest aseptic precautions. I have already fully described[1] the details of technic.

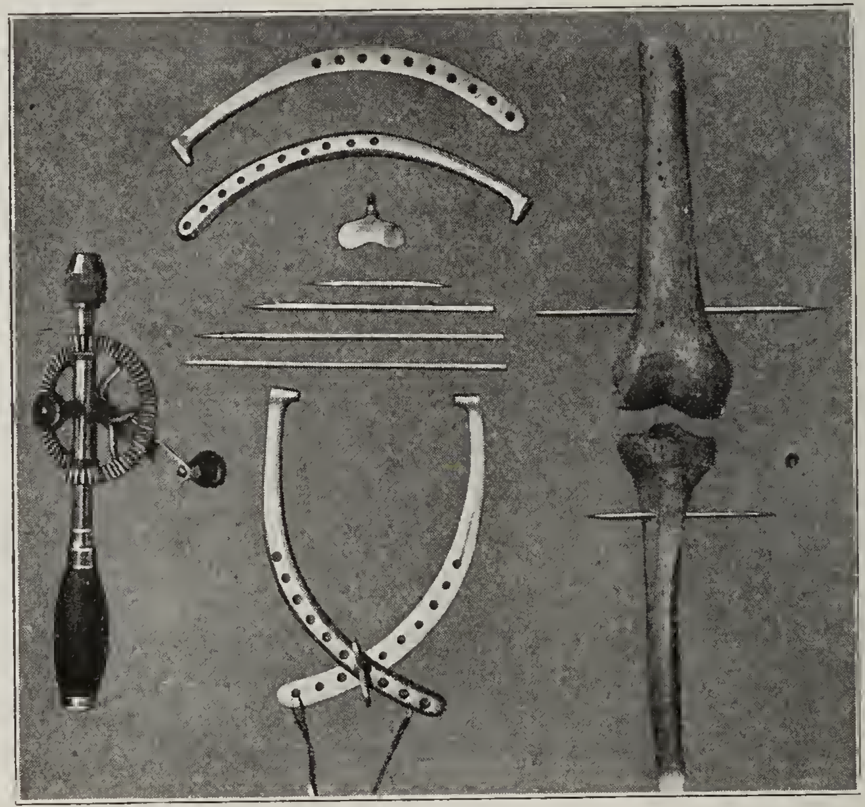

Fig. 1.—Instrumentarium; nails, hand drill and tongs assembled and taken apart; femur and tibia transfixed by nails in typical positions.

Nail extension has been preeminently valuable in the following conditions:

1. *In recent simple fractures with extensive abrasions so that a cast or Buck's extension, etc., is contraindicated.* The following case will serve as an example:

Case 30.—O. T., a boy of 6, had been run over by an automobile, April 26, 1915. He was admitted to Mount Sinai Hospital to the service of Dr. Edwin Beer. There were fractures of both femurs at their middle, and extensive abrasions of thighs, legs and feet. Small areas of intact skin remained just below the knees. Infection of the abrasions over the right thigh led to infection of the underlying fracture hematoma (as shown by high fever on the seventh and eighth days); the abscess was drained at midthigh and buttock on the ninth day (Fig. 5).

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Gerster, J. C. A.: Am. Jour. Med. Sc., August, 1913, p. 157.

Knowing my interest in such cases, Drs. Beer and Elsberg kindly permitted the patient to be transferred to the latter's service (the Third Surgical Division) at this time.

On the eleventh day (May 7), nail extension was temporarily applied to both tibiae below the knees (for position see Figure 1). By making traction directly upward, the thighs were kept vertical, thus preventing purulent discharges from seeping into the nail holes. The knees were flexed at right angles and the legs were suspended by suitable loops in a horizontal position. Figures 6 and 10 show the condition of affairs three weeks later (May 28); there is no shortening on the right side, but considerable overlapping on the left.

After twenty-three days of extension (May 30), the abrasions of the lower parts of the thighs had healed. Accordingly, a second pair of nails was made to transfix the femurs just above the condyles, and those through the tibiae were withdrawn. Figures 7 and 11 show nails in the typical supracondylar position; there is no shortening (June 7). A little over three weeks later (on the forty-sixth day of extension and twenty-fourth day of supracondylar extension, June 23) there was firm union of the left femur; extension on this side was discontinued.

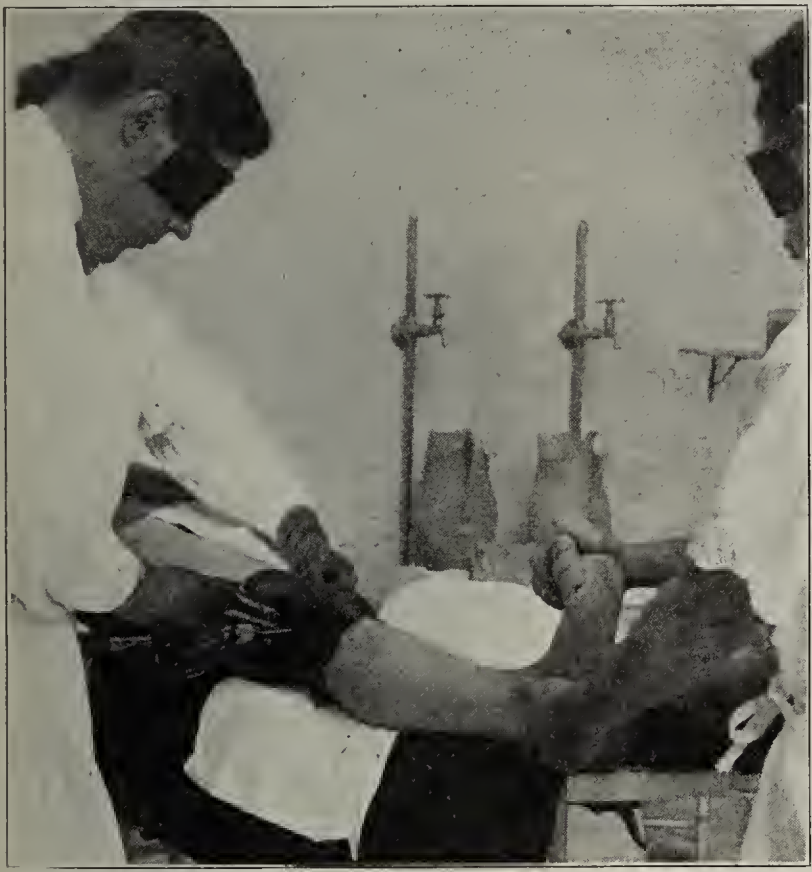

Fig. 2.—Insertion of nail. The patient's hip, knee and ankle lie close to the margin of the table. One assistant grasps the foot (holding its outer margin vertically) and exerts traction. Another assistant, whose left arm and hand are clearly seen in the picture, pulls upward on the skin of the thigh. The nail penetrates the soft parts one finger's breadth above the upper margin of the external condyle. Nitrous oxid anesthesia is maintained during the brief period required for drilling through bone and soft parts.

The compound fracture on the right side consolidated much more slowly, so that the nail was not removed until the thirty-seventh day after its application (July 6, seventy-one days after fracture). There was no sequestration. Two weeks later (July 20) all wounds had healed, but, as the child was backward in learning to walk, he was kept in the hospital twenty-two days longer (being discharged, August 11. 107 days after fracture). Figures 8 and 12 taken August 5, show the fractures firmly healed. Six months later (Feb. 3, 1916) there was firm bony union (Figs. 9 and 13).

It is well not to employ nail extension in any one locality for longer than about thirty days; in this case additional time for traction was gained by utilizing two sites of attachment in succession.

During the early part of the treatment (from the eighth to the twenty-second days of extension) when traction was still applied to the tibiae, I was absent, and it so happened that undue traction on the right side produced a moderate subluxation of the knee and overdistraction of the femoral fragments (Fig. 6). Some shortening followed relaxation of traction (on the twenty-third day), but it was not sufficient to make the legs equal and this side remained half an inch longer. There was no permanent relaxation of the knee joint; a slight but very persistent limitation to full extension, however, lasted for many months, which finally yielded after prolonged immobilization in plaster. The child is now (June 1, 1916) without a limp (Fig. 14).

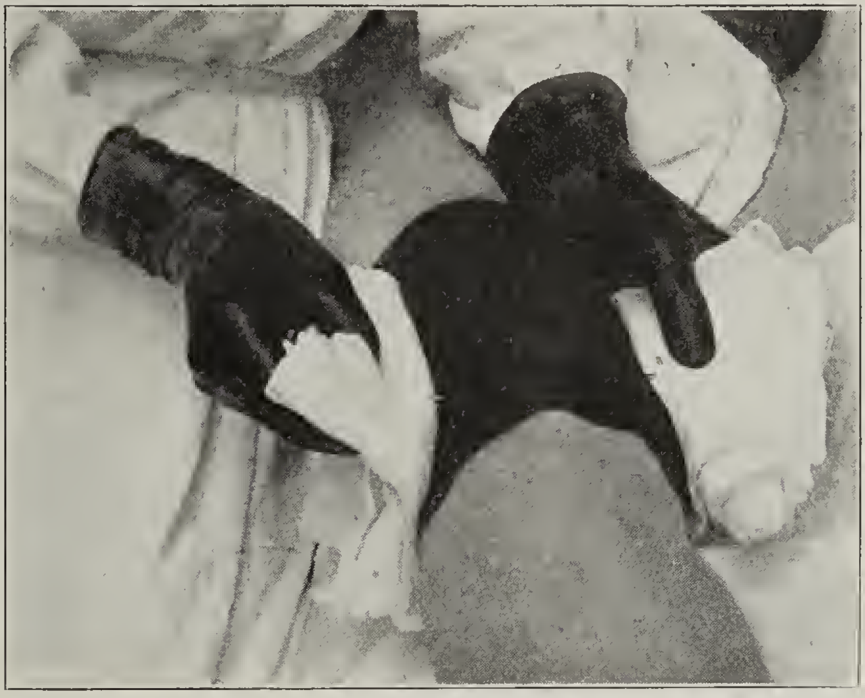

Fig. 3.—Application of occluding dressing (begun). The projecting nail ends transfix heavy pads of sterile gauze, which can be seen turned aside to expose the nail just where it emerges from the skin. After aristol (thymol iodid) and collodion are applied, the gauze is replaced and covered by a bandage.

In this connection it is well known that undue traction on the leg will produce a subluxation of the knee joint. Such a complication can be avoided only by most careful management. Figures 15 and 16 show reduction of an oblique supracondylar fracture of the femur in a woman of 35 (Case 23) by nail extension applied to the head of the tibia. Similar applications of traction in three other cases (3, 4 and 10) have

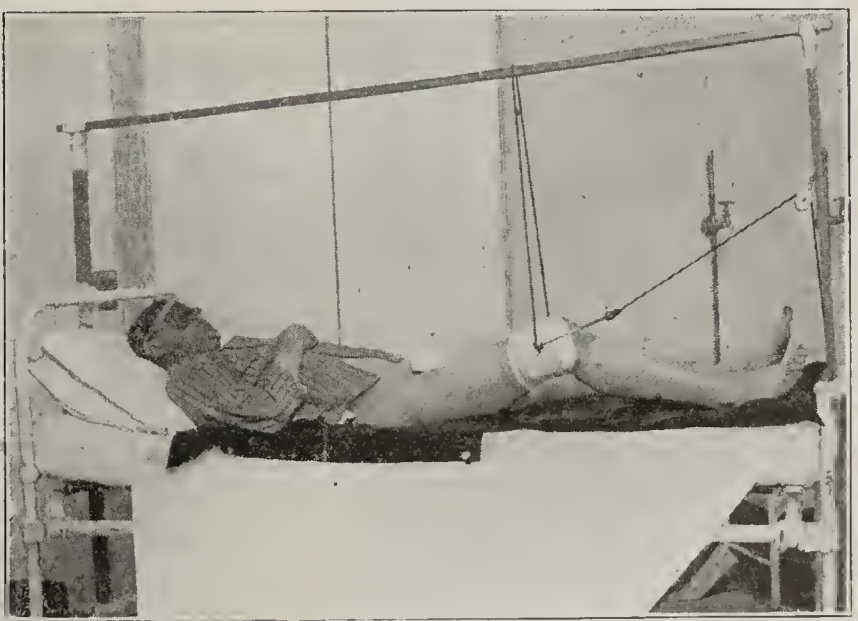

Fig. 4.—The traction exerted through tongs and rope suffices to keep the thigh suspended in semiflexion; suspension of nail ends to the overhead bar is mainly to prevent rotary displacement. For the sake of simplicity, the subsequent suspension of the foot (to barely clear the bed) has not been shown. From this illustration it can be seen that wounds of the leg or foot can be dressed without disturbing traction on the thigh.

likewise shown no ill effect on the knee. It is my opinion that traction on the semiflexed knee joint is less harmful than on the fully extended joint, the ligaments of which are already stretched to their full extent.

Figure 17 shows a fracture of both bones of the leg in a woman of 45. (Case 25, Knickerbocker Hospital, service of Dr. H. D. Collins.) By the end of four days, so many blebs had developed that a cast was out of the question. Nail extension for twenty-two days resulted in a satisfactory reduction (Fig. 18). There was no delay in union.

2. *In recent compound fractures with much destruction of the soft parts,* nail extension has proved of value, especially during the first few weeks, when suppuration is at its height. The patients derive great comfort because the wound can be dressed and the bedclothing changed without disturbing the fracture. The method has found favor with some of the American surgeons now working in France.[2] According to Dr. Hermann Fischer of the German Hospital, New York, the German surgeons are making extensive use of the method.

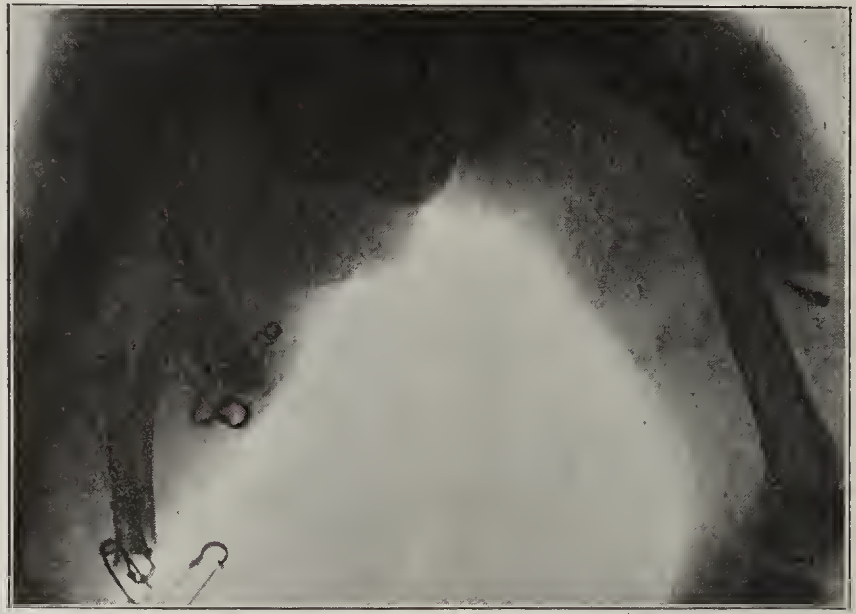

Fig. 5 (Case 30).—May 6, 1915, ten days after fracture of both thighs. Extensive abrasions precluded application of a cast or any form of adhesive plaster extension. The fracture hematoma on the right became infected and was drained at midthigh and buttock.

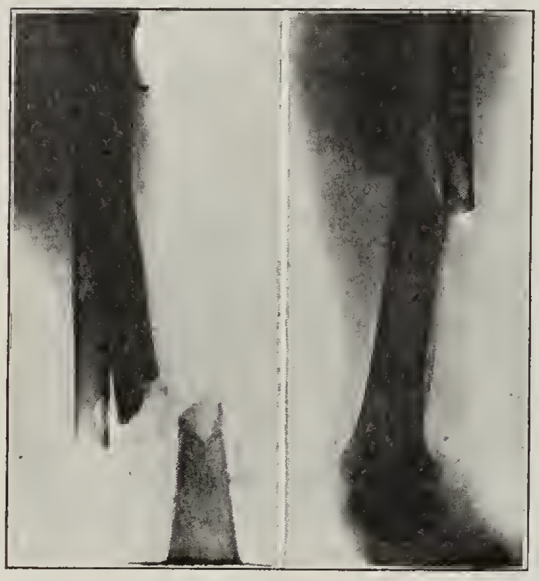

Fig. 6 (Case 30).—May 28, twenty-one days after nail extension. Right femur, anterior (*a*) and lateral (*b*) views. Compound fracture drained by tubing.

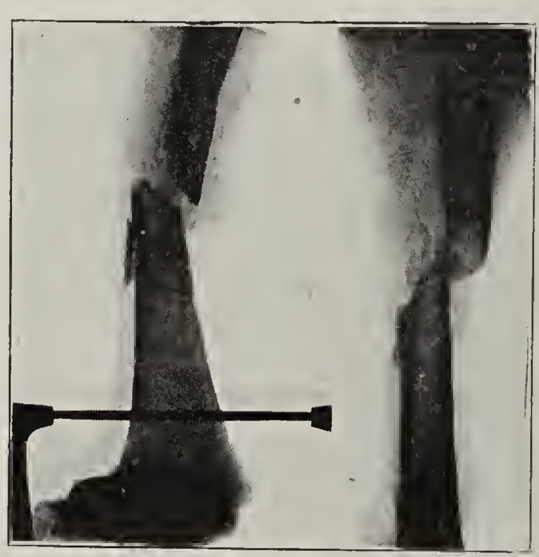

Fig. 7 (Case 30).—June 7, thirty-one days after extension. Right femur, anterior (*a*) and lateral (*b*) views. Note nail in typical position.

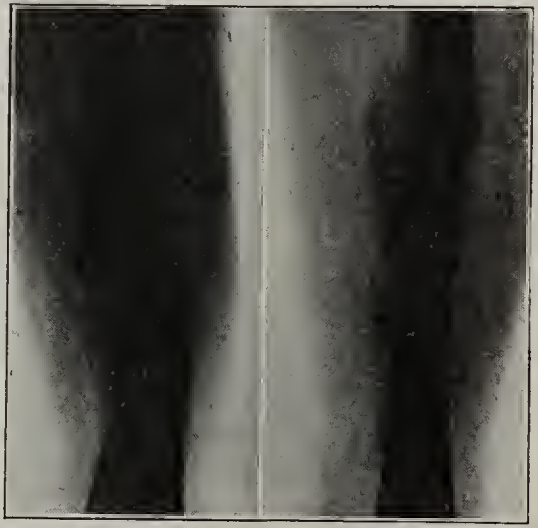

Fig. 8 (Case 30).—August 5, ninety days after extension. Right femur, anterior (*a*) and lateral (*b*) views. Wound healed; there was no sequestration.

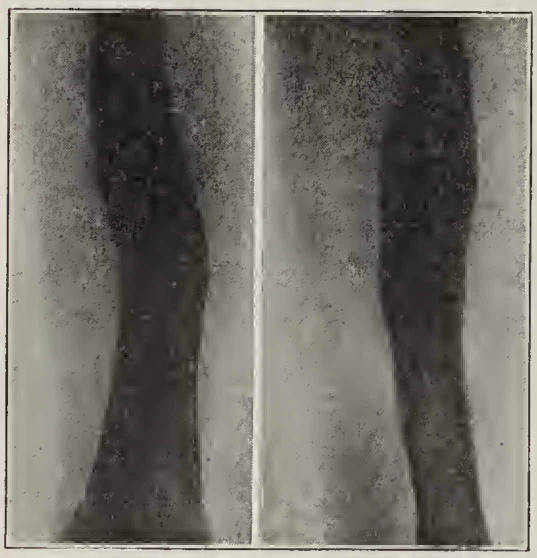

Fig. 9 (Case 30).—Feb. 3, 1916. Right femur, anterior (*a*) and lateral (*b*) views.

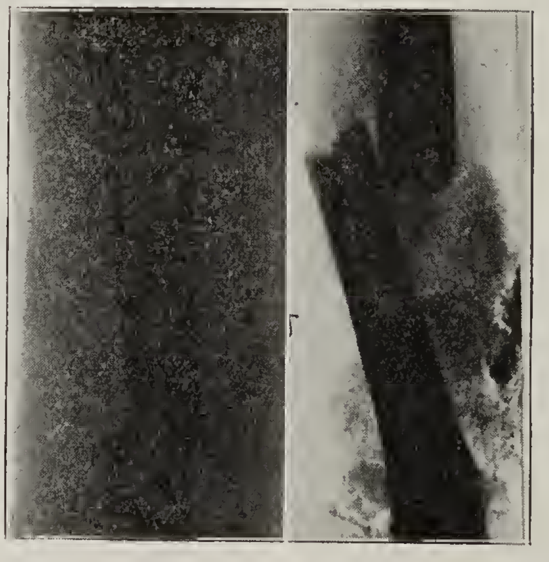

Fig. 10 (Case 30).—May 28, 1915. Left femur, anterior (*a*) and lateral (*b*) views.

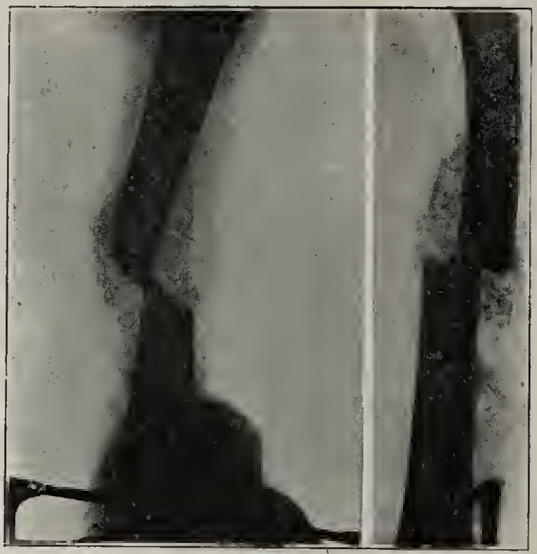

Fig. 11 (Case 30).—June 7. Left femur, anterior (*a*) and lateral (*b*) views.

3. *In multiple injuries to the same limb,* the method affords innumerable opportunities for improvisation. A railroad employee (C. H., Case 9) had sustained a comminuted fracture of the femur and a crushed foot. A glance at Figure 4 will show how dressings of the injured foot were made without disturbing the traction on the femur (Polyclinic Hospital, service of Dr. J. A. Wyeth, Nov. 22, 1912).

In another case there was a fracture of the upper third of the thigh and a comminuted fracture of both bones of the leg just above the ankle. There were many abrasions of the thigh. Supracondylar nail extension prevented shortening of the femoral fracture, and a plaster cast immobilized the comminuted fracture of the leg. The knee joint was passively exercised several times a day (G. O., Case 28, City Hospital, B. I., service of Dr. H. D. Collins, Sept. 19, 1914).

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[2] Fauntleroy, A. M.: Medico-Military Experiences of the European War, 1915.

4. *In fractures of several weeks' standing with much shortening,* nail extension or open operation constitute the only means by which reduction of fragments may be accomplished. Eight of my own cases belong in this class. Nails were inserted as late as twenty-one days after fracture and often after fourteen days. Previously, for some reason or another, the proper routine treatment had not been carried out, and the patients were seen for the first time (on their admission to the hospital) with shortenings of from 1½ to 3 inches.

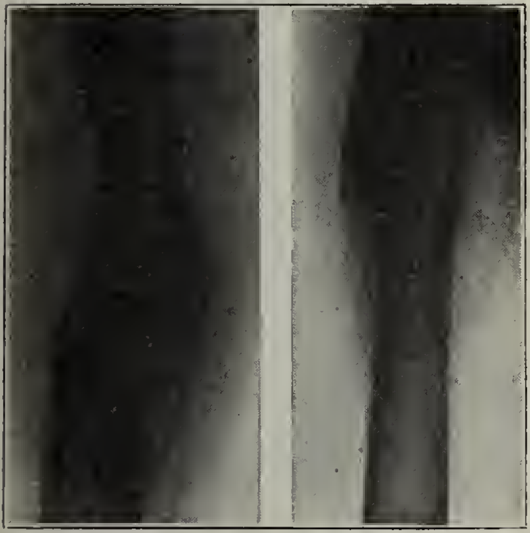

Fig. 12 (Case 30).—August 5. Left femur, anterior (*a*) and lateral (*b*) views.

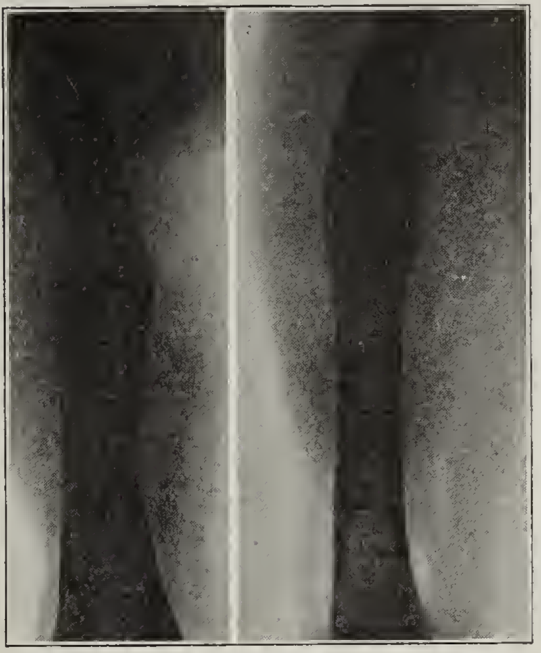

Fig. 13 (Case 30).—Feb. 3, 1916. Left femur, anterior (*a*) and lateral (*b*) views.

In addition to the extremely effective and relatively comfortable traction, the daily passive motion of the knee joint (in supracondylar insertions) has been a great advantage. Steinmann also recommends daily massage of the fractured thigh after the first week, but I have not been in a position to give this a trial.

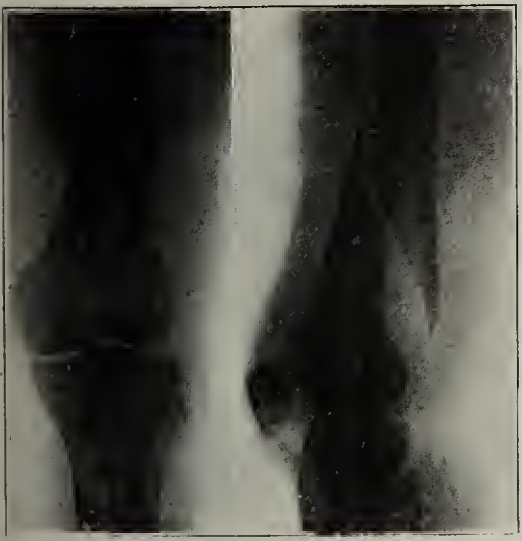

Fig. 15 (Case 23).—Feb. 21, 1914. Fracture of the lower third of the right femur, anterior (*a*) and lateral (*b*) views (nail through tibia).

The favorable results in this group are so well known that illustrative case histories are superfluous.

5. *Old Malunions.* Heretofore anything like complete correction of shortening has been impossible. When such malunions were exposed at operation, the upper end of the lower fragment was found so friable that no screw or other fixation contrivance could find any hold—the bone could be pared like cheese; moreover, the longstanding contraction of the soft parts made complete reduction impossible. The surgeon was therefore obliged to content himself with partial resection of both ends and alinement of the fragments; shortening was inevitable. Now, with nail extension at his disposal, the surgeon can reestablish the fracture by chiseling the fragments apart, saving every bit of the friable lower fragment. He then can close the wound and apply nail extension. In a few days the shortening of months is overcome. Some delay in union is to be expected; even if this goes on to nonunion, it can be remedied by bone grafting with reasonable probability of ultimate success.

Case 29.—G. H., a boy of 13, sustained a fracture of the middle third of the right femur, Nov. 5, 1914, for which he was treated at another hospital.

February 27, 1915 (three and one-half months later), he was admitted to Mount Sinai Hospital (Service of Dr. Elsberg) with a firm union and a shortening of 2¼ inches (Fig. 19).

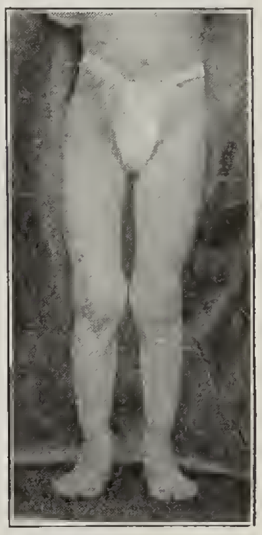

Fig. 14 (Case 30). —June 1, 1916. Good function; no limp; right femur shows one-half inch lengthening.

March 5, (four months after fracture), he was subjected to operation. This consisted in (*a*) insertion of a nail in the supracondylar position by myself and (*b*) osteotomy for malunion by Dr. W. M. Brickner. The contracted soft tissues resisted reduction of the overlapped fragments even after the division of the cicatricial tissue in the soft parts adjacent to the site of fracture. The wound was closed in layers. Traction was begun with 14 pounds; within five days this was gradually increased to 23 pounds.

March 22 (seventeen days later), there was no shortening (Fig. 20).

April 3 (twenty-nine days after operation), a cast was applied with Hackenbruch distraction clamps incorporated in the plaster; ample fenestrae were left around the projecting nail ends.

April 7 (thirty-three days after operation), the cast was divided opposite to the point of fracture and the halves were distracted by the Hackenbruch turnbuckles until the nail remained immovable when traction was relaxed (for there was still no union in spite of a good callus).

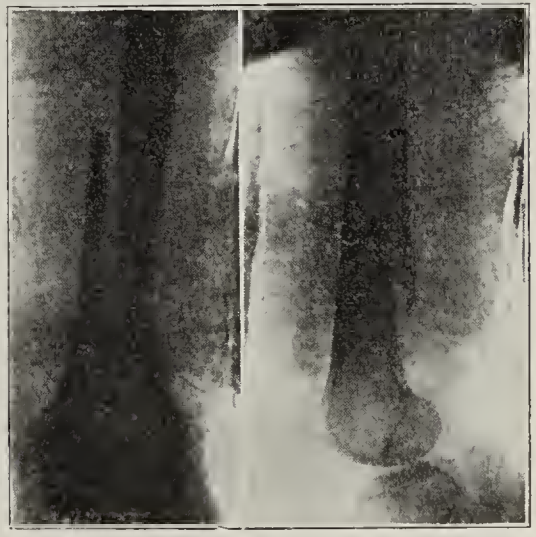

Fig. 16 (Case 23).—March 28, 1914. Anterior (*a*) and lateral (*b*) views.

April 9: Figure 21 shows the distracted halves of the plaster cast maintaining reduction of the fragments.

April 28 (fifty-four days after operation), the cast was removed; there was a large callus, and union was good in a satisfactory position (Fig. 22).

May 11, the patient was sent home in an ambulant splint. There was no shortening or angulation.

For over eight weeks after this the patient failed to report at the hospital in spite of repeated requests and notices. Finally under threat of coercion by the Gerry society, the boy's parents brought him for inspection, July 8. There was considerable angulation with consequent shortening (Fig. 23). Operative correction of the deformity was flatly refused. The child was accordingly sent to an orthopedic hospital in the country to insure his being under constant competent supervision. Here he remained under the care of Dr. C. L. Wallace for six months.

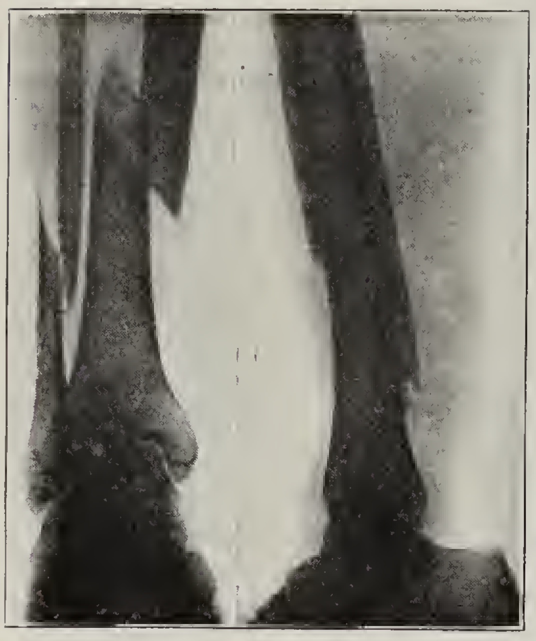
Fig. 17 (Case 25).—Feb. 21, 1914. Fracture of both bones of the leg, anterior (*a*) and lateral (*b*) views.

A roentgenogram taken ten months after operation (Jan. 21, 1916) shows sound bony union with no increase in deformity (Fig. 24).

June 5, 1916, one and one quarter years after operation, there was good function (no limp), some deformity and one-half inch shortening (Fig. 25). Needless to say, had he remained under constant supervision (as instructed), angulation could in all probability have been avoided.

Objections which have been raised against the method are:

1. *Pain.*—If the skin of the thigh is pulled upward while the nail is being inserted, there should be no pain after the nail is once in place, firmly embedded in the bone. On the other hand, if the skin is not pulled upward during the insertion, later when traction is applied, the nail presses against the skin just below it, there is constant pain, and a decubitus results.

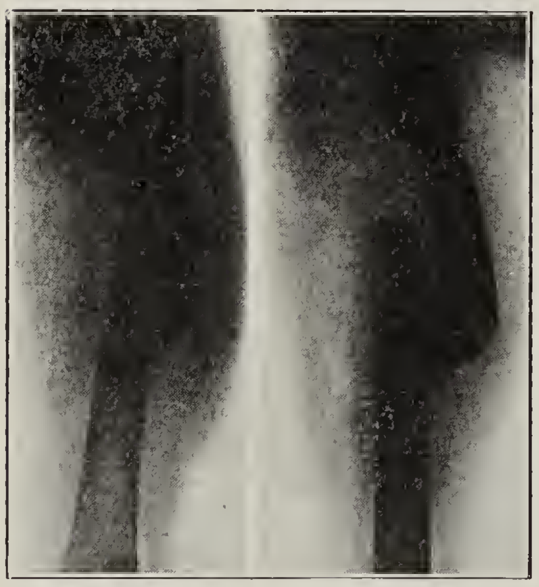
Fig. 19 (Case 29).—Malunion of right femur four months after fracture; anterior (*a*) and lateral (*b*) views; 2¼ inches' shortening.

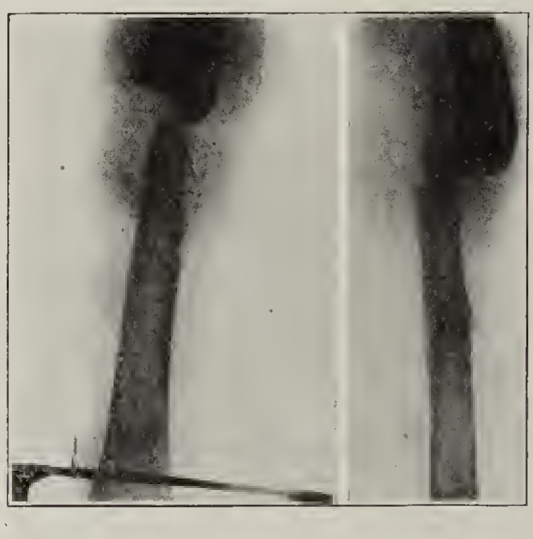
Fig. 20 (Case 29).—March 22, 1915, after seventeen days of nail extension following osteotomy reestablishing the fracture.

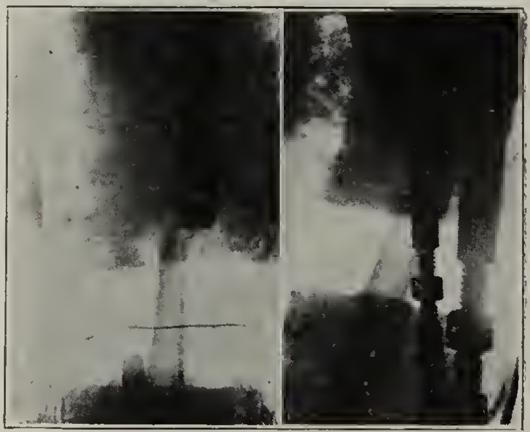
Fig. 21 (Case 29).—April 9, thirty-five days after operation. Delayed union; reduction of fragments maintained by distracting halves of plaster cast with Hackenbruch's turnbuckles (the cast was cut across at the level of the fracture). Anterior (*a*) and lateral (*b*) views.

2. *Infection.*—The danger of infection is nil, provided: (*a*) the strictest asepsis is observed, and (*b*) Steinmann's precepts regarding sites of insertion are followed. These are: (*a*) avoidance of the hematoma around the fracture[3]; (*b*) avoidance of the marrow cavity; (*c*) avoidance of the joint cavity, and (*d*) avoidance of the epiphyseal line. According to these tenets, therefore, in fractures above the lower third of the femur, the nail is inserted at a point 1 finger's breadth above the upper margins of the condyles just behind the middle line of the bone (Figs. 4, 7, 11 and 20). In fractures of the lower third, the site of insertion is a point on the tibia 2½ fingers' breadths below the upper margin of the tibia on a level with the lower margin of the head of the fibula (Fig. 1). In fractures of both bones of the leg in its upper half, the nail transfixes the tibia 2 fingers' breadths above the ankle joint, or 3 fingers' breadths above the malleoli. Lastly, in fractures of both bones just above the ankle, the nail point perforates the calcaneus 1½ fingers' breadths below and behind the malleoli (Fig. 18).

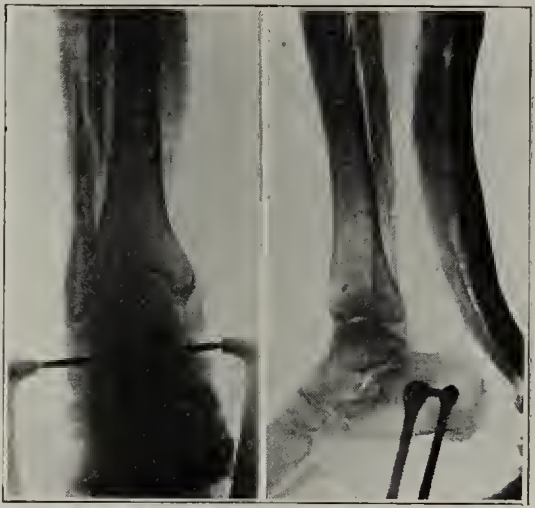
Fig. 18 (Case 25).—March 5, 1914. Anterior (*a*) and lateral (*b*) views. Note location of nail in calcaneus.

The few infections which I have observed have followed either lack of asepsis, or attempts to improve on the original method. Steinmann uses a sharp-pointed nail which is driven through skin, subcutaneous soft parts and bone, and is then left in situ. In the forepart of his book, written in 1912, Steinmann[4] expressly condemns incision of the soft parts so as to expose the bone; he also deprecates drilling a hole first and later inserting the nail into it. In spite of his warnings that such unnecessary procedures increase the chances of infection, and, indeed, have been followed by local infections, certain surgeons in this country have repeated the errors of their European colleagues and, I understand, their patients have suffered from bone sinuses in consequence. I therefore advise any prospective inventor to peruse the beginning of Steinmann's monograph, not only for the purpose of discovering the various modifications which have already been devised, but also to learn the defects of these questionable improvements.

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[3] The only deaths attributable to the nail extension have followed infection of the fracture hematoma from the improperly placed nail tract passing through it (Steinmann).

[4] Steinmann: Nagelextension der Knochenbrüche, Neue deutsch. Chir., 1912, i (Steinmann is an assistant of Kocher's in Berne).

In my own series (thirty cases) the nail holes through tibia or calcaneus were as dry on the day of removal as when they were made. The same was true of most of the femur cases; in quite a number of the remainder a drop or two of pus was present around the nail at the time of withdrawal, there had been no fever previously, there was no inflammation of adjacent soft parts at the time and the holes healed completely under the customary wet dressings in a week or ten days.

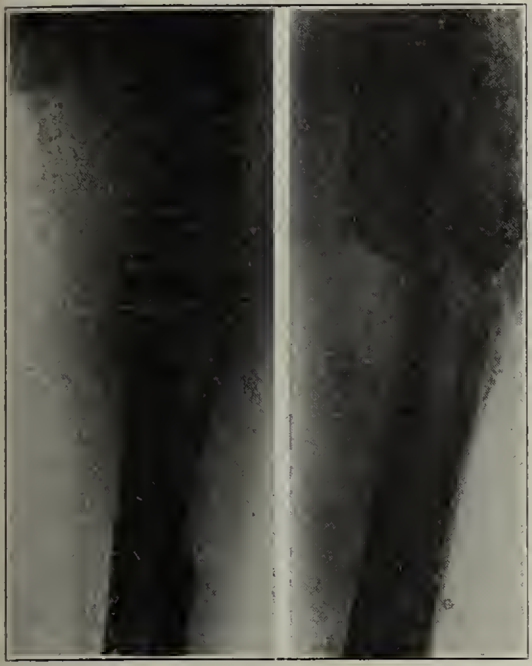

Fig. 22 (Case 29).—April 28, fifty-four days after operation. No shortening; no angulation; a massive callus. Anterior (*a*) and lateral (*b*) views. Patient was sent home shortly after (May 11) in an ambulant hip splint.

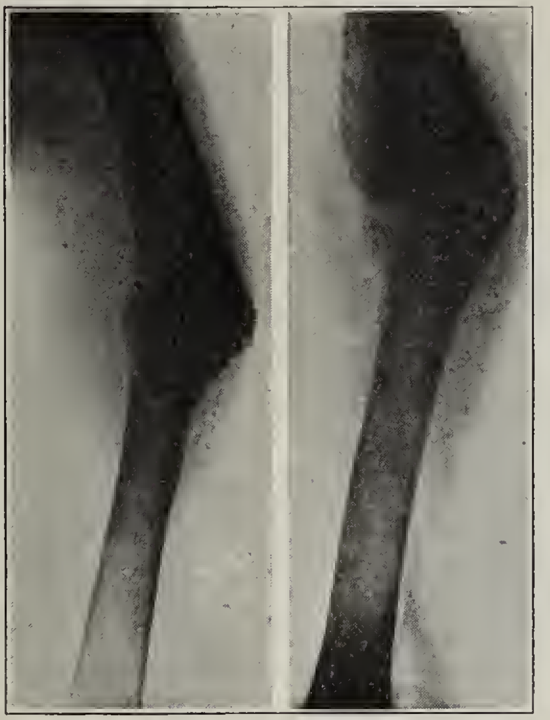

Fig. 23 (Case 29).—July 8, 1916, one hundred and twenty-fifth day after operation. Patient had absented himself from the clinic for more than eight weeks in spite of repeated instructions to report for observation and control. Both anterior (*a*) and lateral (*b*) bowing had taken place. The parents refused permission for any operative attempts at correction, but consented to a prolonged stay in a convalescent orthopedic hospital in the country.

The only case of my personal series with infection resulting in prolonged suppuration and a persistent bone sinus followed displacement of occluding dressings. There was perfect function of knee and no shortening.

I have never seen an infection follow the withdrawal of the iodin-painted nail point through the nail tract, and lay no stress on the theoretical objections raised about this procedure. The metal of the nail and the adjacent skin must be thoroughly cleansed of crusts or dried collodion, and well impregnated with iodin before extraction. Afterward tincture of iodin is injected into the nail tract from both sides, and an aseptic wet dressing is applied. This is changed daily under the strictest asepsis until the holes are filled with granulation tissue; then they are covered with a mercurial ointment dressing until healing is completed.

Lastly, I do *not* advocate nail extension as a routine method of treating fractures. However, there can be no question about its being a most valuable addition to the older, well recognized procedures.

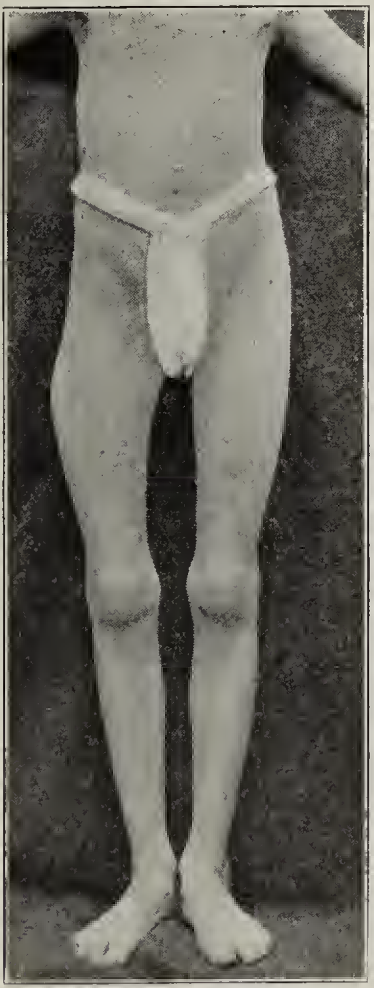

Fig. 25 (Case 29).—June 1, 1916. Good function; moderate angular deformity; one-half inch shortening.

CONCLUSIONS

1. Nail extension is a safe measure, provided the proper technic is employed.

2. Because of its small site of attachment, it is of great value in recent simple fractures with extensive abrasions, in recent compound fractures with much destruction of soft parts, and in multiple fractures of the same limb.

3. Because of its efficient traction, in conjunction with osteotomy, it is the only method whereby the shortening present in certain old malunions can be safely overcome even months after the original fracture.

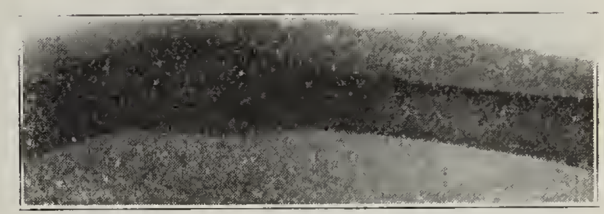

Fig. 24 (Case 29).—Jan. 21, 1916. Anterior view, six months later; firm bony union; one-half inch shortening.

4. In relation to open operative reduction, it may be stated that in certain cases nail extension will obviate the necessity for operative intervention, and in other cases it can be employed to prevent shortening until the suitable time for plating has arrived.

34 East Seventy-Fifth Street.

Industrial Poisons.—The mode of entrance into the system of an industrial poison differs with the character of the poison as well as the form in which it appears, i. e., whether as a dust or gas or fume. Some poisons are absorbed through the unbroken skin; most of them are absorbed through the digestive organs either by swallowing the poisonous dust or by getting the poisonous dust and particles through food contaminated with poisonous materials and dust. Others affect the organism by inhalation of the gases and fumes. According to Teleky, Kurschmann and other German scientists, lead is never absorbed through the unbroken skin. On the other hand, it has been shown that certain drugs applied to the skin produced the effect of these poisons. This is especially the case with mercury and other drugs. The mode of entrance may differ not only according to each poisonous element, but also according to the individual susceptibility of the worker. The season of the year is also said to have an influence on the effect of lead; and lead poisoning is said to be more serious in winter than in summer. Professor Thompson quotes Laureck, who claims that 71 per cent. of cases arise in winter and 29 per cent. in summer in Austria. On the other hand, he cites several French authors, who claim that in France lead poisoning is twice as common in summer as in the other seasons. The claim is also made that chewing tobacco leads to lead poisoning because of its liability to be contaminated with lead.—George M. Price, M.D., The Modern Factory, 1914.

NAILS AND SCREWS THROUGH JOINT SURFACES, IN AUTOGRAFTS AND IN FRACTURES INTO JOINTS *

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Last year, before the Western Surgical Association, I reported a series of experiments to determine the response of the tissues of the joints to nails and screws inserted through the joint surfaces. The present series was undertaken to find out what this response would be in the presence of autografts in the joints and of fractures into the joints.

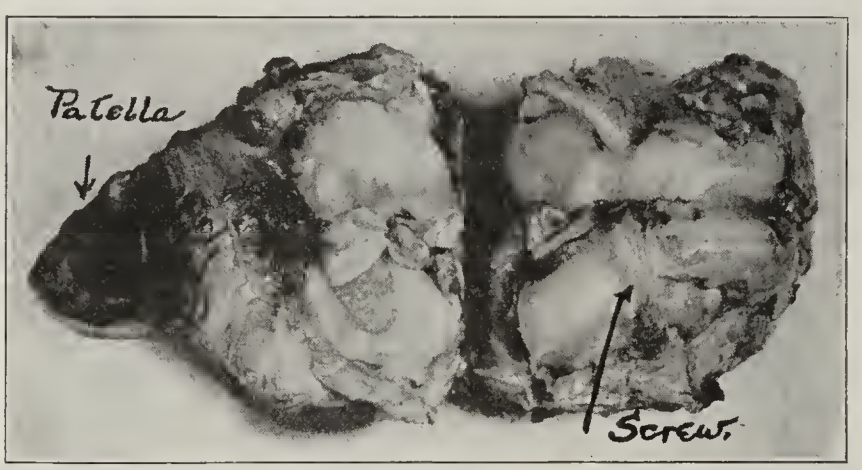

Fig. 1.—Fracture; screw projected slightly; three months five days after operation, condyle built up, screw covered. Patellar groove lined with cartilage.

Various degrees of detachment of the fragments, from partial separation and separation from all but one crucial ligament, to the free autograft were used. The results were uniformly successful in all cases in which the pieces of bone were fastened firmly, and in all cases in which they were fixed in a faulty position and not quite securely. Only one case failed to show an apparently perfect result, with free, smooth motion of the knees, with the dogs running and jumping about so well that they had to be caught and the legs examined before one could tell which leg had been operated on. This dog was one of the autograft cases in which the graft had been fastened with a small, round brad, so loosely that the condyle could be moved rather easily in a swivel arc about the brad. It was not able to catch up its new blood supply and the entire graft of the condyle of the femur was absorbed, as was also some of the opposing surface of the tibia which had not been touched by the operation. These irregular surfaces were already covered over with connective tissue which looked like cartilage, at the end of two months, the time of the experiment.

In all, twelve dogs were used. No joint in this series or in the series reported last year showed infection, though the simple iodin sterilization, and no dressings was used in all. The time varied from one month and thirteen days to three months and five days from operation to the recovery of the specimens. The fixation of the fragments varied from firm to loose, and they were set in positions varying from accurate to one of moderate displacement. The nails and screws were set at different levels, some projecting, some flush with the cartilage, and some buried.

The results were surprisingly good. All fragments, except the loose one spoken of above, were firmly united to the femurs. The autografts were united with a callus as firm and thin as were the ordinary fractures, and the grafts themselves apparently remained as living pieces, of full size, and covered with their normal cartilage. The microscopic sections, however, show that their trabeculae are being replaced cell by cell by new bone growing inward from their vascular margins, and that the cartilage continues to live. The nails and screws in the autografts were covered, or nearly covered, with new connective tissue looking like cartilage. This was true, also, in the partially detached fracture cases. In the latter specimens some of the nails and screws had been left projecting above the surface somewhat, and, in these, the groove which they had cut in the patella was covered with new cartilage.

A remarkable tendency was shown in the condyle, in these cases, to grow until the surface tended to equal or to exceed the level of the projecting nail or screw and thus to prevent any further injury to the joints. At the same time the opposing groove shows a tendency to build up somewhat, though not to the normal level.

REPORT OF EXPERIMENTS

Experiment 1 (906).—Right knee, three months, five days after operation (Figs. 1 and 2). Knee opened inside, after a fracture had been made with a chisel, through a separate linear incision at or near epiphyseal line. Considerable amount of hemorrhage was found in the joint from the fracture. A 1¼ inch screw was used through inner condyle into shaft of femur, the external half of which projected just above the cartilage surface, and its posterior edge was a short half millimeter above cartilage surface. The internal half of screw was sunk very slightly below surface level; joint was freely swung before suturing to cut the groove in the patella, and three layers of interrupted linen were used.

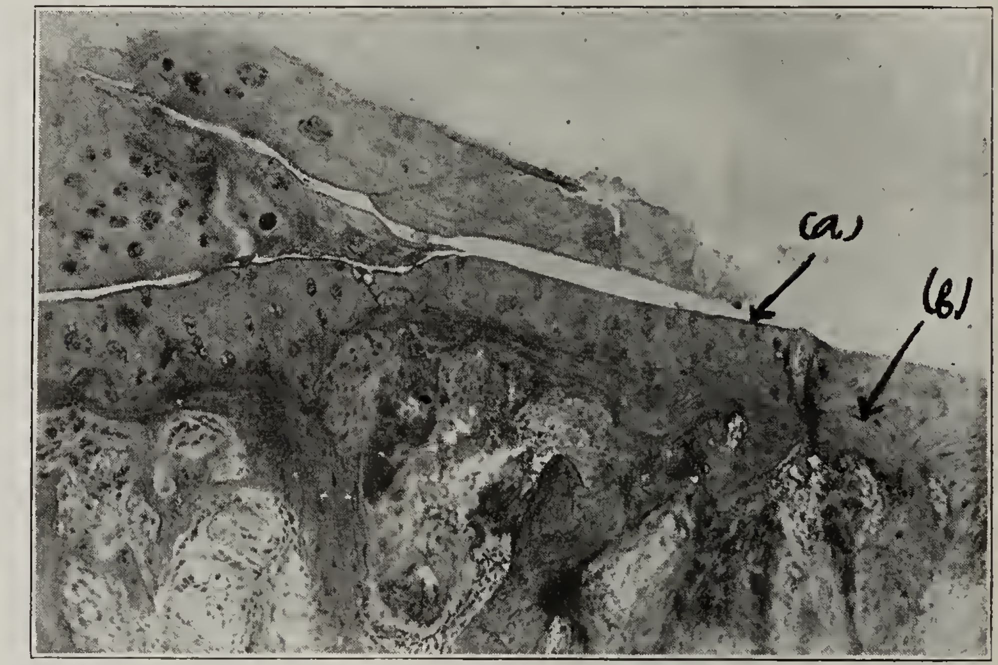

Fig. 2.—Patellar groove lined with cartilage (*a*) and filling up with bone (*b*).

The specimen (Fig. 1) shows firm union with a little excess of callus; condyle built up over the level of the screw head; screw covered; fibrous band of adhesions from tissue over screw head to synovial sheath just below patella; no signs of the blood left in the joint.

Broad groove on patellar surface, scratched by screw head, is fairly smooth, with a lining of cartilage. Cartilage surface on femur is remodeled somewhat to fit the new contour of the patellar surface, apparently largely by upbuilding.

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Transverse section, Figure 2, through the groove on the patellar surface, shows cartilage even in the thinnest portions with new bone building up into it, continuous with the bone below, and, in spots, almost to the outer surface of the cartilage, that is, the groove is building up as the screw head is withdrawn from contact by the building up of the condyle.

Experiment 2 (908).—Left knee, three months, four days after operation (Figs. 3, 4 and 5). Left hind leg broken at or near epiphyseal line by a chisel; same as in Experiment 1, except the fracture was more free, and apparently left attached only to small amount of periosteum. It was freely movable in all directions.

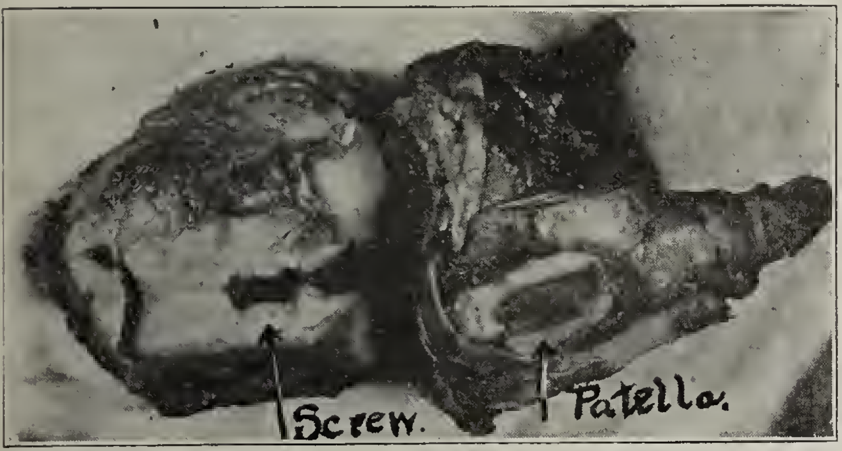

Fig. 3.—Fracture; screw projected 0.8 mm.; three months, four days after operation, condyle built up, screw covered except slight streak at one edge, patellar groove lined with cartilage.

A 1½ inch screw was used through the surface under the patella, buried at its lower edge 2 mm. into the bone. On its anterior edge it projected about 0.8 mm., but before it was quite sunk to this level, the joint was freely moved so that the screw head cut a groove in the patella. These fragments of bone and cartilage were largely left in the joint. The screw held the fracture fairly well in place; it allowed a fair amount of rotary motion, judged not sufficient to spoil the experiment; a second screw was not inserted, because of the relative size of screw now in joint.

Joint filled with hemorrhage from fracture. Wounds sutured as before in three layers over joint, two over site of fracture. Linen used.

The specimen (Fig. 3) shows firm union in slight displacement; no signs of the bone chips remain; no signs of the blood left in the joint.

Growth of the condyle has raised the surface to the level of the screw margin; screw head almost entirely covered with connective tissue looking like cartilage, all except a slight streak at the edge.

Patellar surface, broad smooth groove cut by screw head fairly evenly lined with cartilage.

Transverse section through patellar groove (Fig. 4) shows bone growing upward into the cartilage, and in many places farther along, it has come to the surface in its endeavor to fill up the groove as the screw head was withdrawn by the building up of the condyle.

Transverse section through the tissue covering the screw (Fig. 5) shows connective tissue, a reversion of the cartilage to connective tissue over connective tissue derived from the bone spaces.

Experiment 3 (911).—Left knee, two months, fifteen days after operation (Fig. 6). Knee fractured with chisels, through longitudinal incision. The line of fracture went through upper surface of articular cartilage, over which the patella moves; fragment was made free from all periosteum, though still attached to some of the ligamentous tissues throughout part of its circumference. Joint opened along inside of patella, which was dislocated outward; fragment fastened into place with two furniture nails, the inner one buried 2 mm. at shallowest point, 3 mm. at lower edge, on account of oblique surface of joint. The other nail was buried 1.5 mm. at lower edge and about flush with cartilage surface at upper edge. Joint closed with three layers of linen. There was a considerable amount of blood left in the joint. Specimen (Fig. 6) shows firm union with slight displacement, noticeable only at the cartilage line; slight growth of connective tissue fastened to the cartilage at this line.

Anterior nail, covered with connective tissue and nearly smooth; posterior nail, nearly covered with connective tissue; condyle has built up somewhat so that the edge of the outer nail is now below its surface.

Patellar groove is lined with cartilage, but shows that the nail opposite used to project somewhat.

Section transversely through the groove on the patella (Fig. 6) shows cartilage growing, with bone formation beneath, to lessen the groove.

Experiment 4 (913).—Left knee, two months, six days after operation (Fig. 7). Left knee opened as before. Fracture made ⅝ inch lower than upper edge of the articular surface with a flap of cartilage and bone, averaging 1 to 3 mm. in thickness and on the surface of a full ¼ inch, loosened from surface of fragment; the lower fragment entirely separated from periosteum, but attached to soft parts, throughout part of its circumference. This was fastened by two furniture nails driven through the surface under the patella, but not quite in perfect line; the outer nail very slightly below the joint surface. The inner nail projects 1 mm. above the joint surface.

Three layers of sutures; moderate amount of blood in joint. Joint moved up and down to make necessary groove on the patella to correspond with the projection of the inside nail.

Specimen (Fig. 7) shows firm union; partial absorption of the small flapping fragment; condyle apparently slightly built up to decrease the elevation of the nail and its surface changed to accommodate itself to the changed groove scratched in the patella. Patellar groove not yet covered with cartilage. Otherwise, joint surface smooth.

Transverse section through patellar groove shows bone growing so rapidly to fill up the groove that there is almost no cartilage over it.

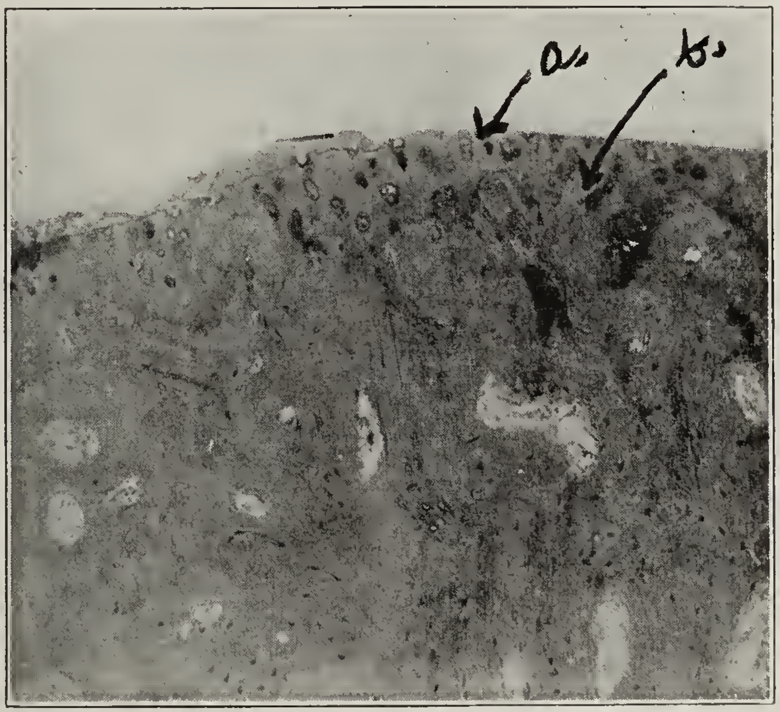

Fig. 4.—Patellar groove lined with cartilage (*a*) and filling in with bone (*b*).

Experiment 5 (916).—Left knee, two months, one day after operation (Fig. 8). Left knee opened as before; fracture a little over ½ inch below edge of cartilage; periosteum completely severed. Two nails were inserted; the inner nail head buried well into the bone under cartilage surface 3 mm. deep; the outer nail head buried 2 mm. Fragment rotated inward before fastening.

Suture; three tiers, sutured as before. Considerable blood was left in the joint.

Specimen (Fig. 8) shows firm union in its new position. Nails completely covered with connective tissue, nearly smooth; opposing surface smooth; no signs of the blood left in the joint.

Experiment 6 (924).—Left knee, two months, twenty days after operation (Figs. 9 and 10). Incision over internal aspect of left knee anteriorly; internal condyle fractured with a chisel and entirely loosened from surrounding tissue, so that it was held only by one crucial ligament alone for its blood supply. This was rotated outside of the joint to make sure; on returning to place, there was a persistent tendency toward internal rotation of the posterior portion, so that it was difficult to place it in correct position, though this could be done.

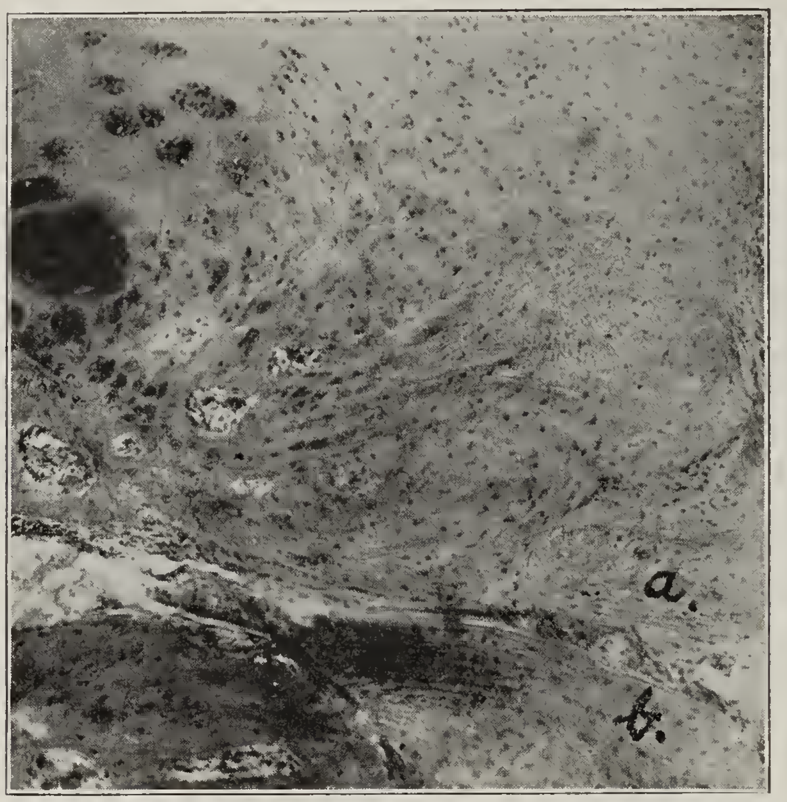

Fig. 5.—Tissue covering screw; a reversion of cartilage to hyaline cartilage and then to connective tissue (*a*) overlaying connective tissue derived from the spaces between trabeculae (*b*).

The fragment was fastened by one furniture nail through articular surface slightly above the cartilage, with moderate tipping of the whole fragment, so that the lower surface was bent farther from the middle line of joint than normal; this apparently held fragment fairly firm in position. The cartilage surface which had been cut across was matched at the inner anterior margin, but the twist left the outer anterior margin (mesially) projecting about 2 mm. above corresponding cartilage of upper fragment and at a distance of 1 mm. from it. The nail head was left just above cartilage level posteriorly, but only very slightly.

The joint was sutured in three layers, interrupted linen sutures; moderate amount of blood left in joint.

Specimen (Fig. 9) shows firm union in its new position of slight rotation with a fine line showing in the cartilage. The projecting edge of the fragment under the patella is smoothed down to fit the patellar surface, but is covered with cartilage.

The nail is completely covered with a thin layer of connective tissue, nearly smooth.

Transverse section through condyle and line of union shows the line of union complete, but cartilage edge of the union shows fibrocartilage.

The fragment (Fig. 10) has behaved like an autograft, and shows microscopic replacement of the bone trabeculae taking place at all margins. Bone cells in the centers of the trabeculae are gone, the cell spaces empty. This is a little more noticeable as the distance increases from the line of union. This corresponds with the microscopic regeneration of the autografts. The circulation through the crucial ligament has been insufficient to keep the fragment living.

The articular cartilage has kept its vitality and has undergone no apparent change, except that in some places, and to a moderate degree, it seems to contribute to the microscopic replacement of new bone in some of the trabeculae nearby.

There is the tendency toward the formation of fibrocartilage in a vertical arrangement at the line of union. The bone of the line of union is nearly indistinguishable from that of the bone of the shaft near it.

Experiment 7 (926).—Left knee, autograft of condyle, two months, one day after operation (Figs. 11 and 12 *d*). Left knee was opened as usual; external condyle chiseled free from bone and separated from crucial ligament and all the soft tissue, and finally removed from the joint to be sure that it was a free autograft, then fastened into place by two furniture nails, so that the upper edge of each nail is buried 1 mm., the lower edge 2.5 to 3 mm., below the cartilage surface. Apposition at line of fracture good, but condyle slightly rotated; fair amount of blood in joint. Joint sutured in three layers as before; linen sutures.

Autograft (Fig. 11) shows perfect union in its new position of slight rotation; apparent living of entire autograft; cartilage surface smooth and normal; no atrophy of condyle; nails covered; crucial ligament not united.

The roentgenogram (Fig. 12 *d*) shows autograft, nails and line of union.

Transverse section (Fig. 13) shows microscopic growth of new bone replacing the bone trabeculae in the autograft, taking place at practically all margins from the vascular spaces inward. Bone cells in the centers of the trabeculae are gone and the cell spaces are empty. The general contour of the trabeculae are preserved by the new growth. There is no open space between the new and the old.

The articular cartilage remains practically unchanged, except that in places it seems to contribute to a small degree to the replacement of new bone in some of the adjoining trabeculae. At the line of union there is a tendency toward fibrocartilage with a vertical arrangement.

Experiment 8 (928).—Left knee; autograft, two months, four days from operation (Figs. 14 and 12 *a*). Left joint opened as before; two holes drilled before internal condyle was broken off with a chisel, and removed from joint after separating the crucial ligament (that is, a free graft). The fragment was replaced; two furniture nails driven so that the edges toward median line of knee were very slightly below cartilage level, though almost of the level, the outer edge deeper.

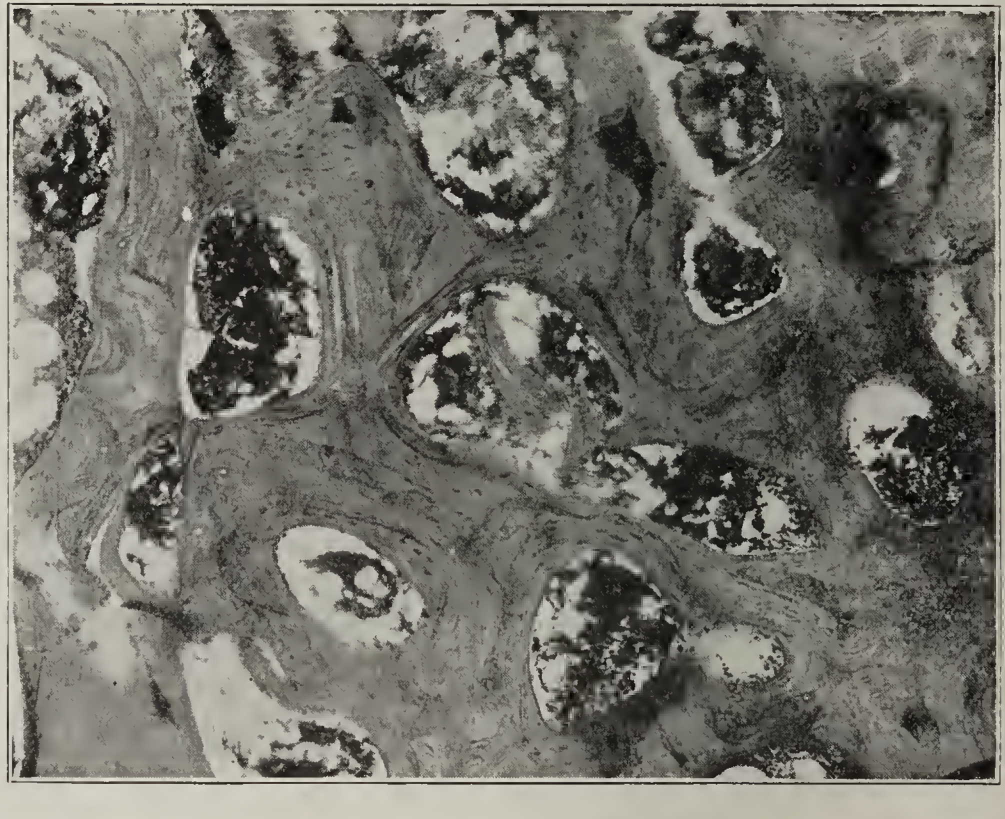

Fig. 10.—Transverse section through fragment; high power; condyle has united like an autograft, with microscopic replacement of bone.

Joint full of blood when sutured in the usual way. Position of fragment almost exactly normal.

Autograft (Fig. 14) shows perfect union, so smooth that a faint line can just be made out on the cartilage; entire graft apparently has lived.

Anterior nail covered; posterior nail nearly covered, all but one edge; no evidence of the old blood in the joint; cartilage on the opposing tibial surface nearly smooth, not quite; semilunars normal; crucial ligament not united.

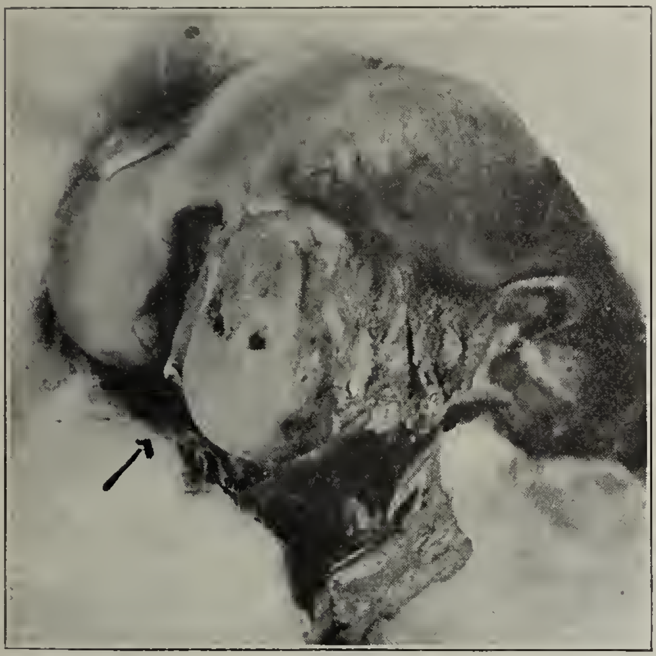

Fig. 11.—Free autograft of condyle; two nails; two months, one day after operation, perfect union, no atrophy of condyle, crucial ligament not united.

The roentgenogram (Fig. 12 *a*) shows autograft, nails, and line of union.

Transverse section through autograft and line of union (Fig. 15) shows the microscopic replacement of the bone trabeculae in the autograft from the vascular spaces at practically all margins, with the bone cells in the centers gone and the spaces empty; the general contours of the trabeculae preserved; almost no distinction between the trabeculae in the line of union and the living bone attached to the shaft; the articular cartilage practically unchanged except that it contributes somewhat to the new bone formation. At the line of union there is a change toward fibrocartilage with a tendency toward vertical arrangement.

Experiment 9 (933).—Left knee; autograft, empty drill hole, two months, seven days from operation (Figs. 16, 12 *c* and 17). Incision into left knee as before; drill hole with countersinking for screw; a second drill hole was made anteriorly with the countersinking and left open; fracture of internal condyle, which was removed from joint to be sure that it was a free graft; screw inserted after replacing the fragment. Line of union excellent, a small partially detached fragment was left on posterior portion of bone graft; joint sutured as before.

The screw head was just above level with the cartilage surface toward middle of joint; it cleared about 2 mm. at opposite edge.

Autograft (Fig. 16) shows perfect union, no atrophy; cartilage smooth; entire graft apparently has lived; the loose tag of the fragment has also smoothly healed in place; screw, outer portion more than half covered with new tissue.

Opposing joint surfaces are smooth and normal except a slight loss of the semilunar surface now healed over. The empty hole is entirely filled with new tissue.

The roentgenogram (Fig. 12 *c*) shows autograft, screw and line of union.

Section (Fig. 17) is through autograft and line of union, and includes the filled hole. This shows the microscopic replacement of the trabeculae in the autograft as in the preceding specimens and the same unchanged condition of the cartilage with its moderate contribution to the new bone formation and its tendency toward fibrocartilage in vertical arrangement at the line of fracture.

The hole has been filled apparently by growth from the living bone below, very little from the bone and cartilage in the autograft. It is covered with connective tissue, the upper layer from hyaline cartilage changed through fibrocartilage to connective tissue, the lower layers from the connective tissue growing out from the vascular bone spaces.

Experiment 10 (935).—Left knee; autograft, filled hole; two months after operation (Figs. 18 and 19). Left knee joint was opened as usual; two holes drilled and the internal condyle chiseled off and separated from all soft tissue, including the crucial ligament, removed from the joint and replaced. The joint was small; there was considerable difficulty in getting the fragment perfectly true; a screw hole with countersunk margin was left open; a second opening for a nail made and a small brad inserted; fragment in excellent position and apparently stayed in place moderately on manipulation, but easily moves in a swivel arc about the brad. Head of nail sunk well below surface of cartilage. Joint full of blood when closed.

The specimen (Fig. 18) shows that the loose autograft has entirely disappeared. The surface left is pitted and irregular. Evidently there has been a definite osteoclasis sinking it below its original level. Two small spicules project from its surface. These and the remaining surface are covered with connective tissue which looks like cartilage. The opposing tibial surface is likewise partly absorbed and pitted, but covered with modified cartilage. Part of the semilunar cartilage on the opposing surface of the tibia is absorbed, leaving only fragmentary portions still in place. A small area on the other condyle also shows irregular absorption, but here the semilunar cartilage is intact.

The patellar surface shows some absorption with fairly smooth upbuilding of modified cartilage of a slightly changed color.

Section through the irregular surface of the femoral condyle shows some microscopic destruction with osteoclasts and Howship's lacunae, with here and there some new bone growth. This area is covered with connective tissue, derived in part from the cartilage by reversion through fibrocartilage to connective tissue and in part from the connective tissue of the bone spaces.

Figure 19 shows the cartilage changing toward new bone in one direction and toward connective tissue in the other.

The section through the tibial surface shows similar changes, though the osteoclasts here seem to be mostly single cells, while in the femur there are more which suggest the multinuclear type, and the connective tissue covering is thinner in places and in spots the surface is bare.

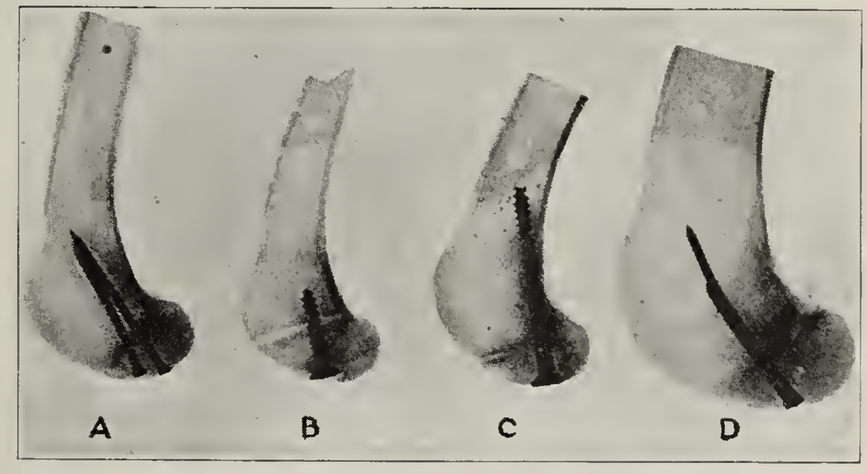

Fig. 12.—*a*, autograft, nails and line of union; *b*, fracture, screw and line of union; *c*, autograft, screw and line of union; *d*, autograft, nails and line of union.

Experiment 11 (937).—Left knee; one crucial ligament attachment, empty drill hole; one month, thirteen days after operation (Fig. 20). Left knee joint entered as before; two screw holes with countersinking for the screw heads; lower hole left open, anterior one used for screw, after separation of internal condyle from all tissue, except the crucial ligament, which was left attached. One screw holds the condyle firmly, but in a position of moderate rotation, inward, of the posterior portion (that is, away from joint center), leaving a wedge-shaped fissure on the joint surface beneath the patella. Joint sutured as before, three layers.

The screw head lies nearly flush with cartilage of joint, in its upper and inner half, buried 3 mm. in its outer edge (that is, away from joint center) just below the transverse line of screw head. Joint fairly full of blood when closed.

Specimen (Fig. 20) shows the fragment united like a free autograft. There is firm union in the position it was fastened, that is, in slight rotation; fracture line still moderately irregular; cartilage smooth; no absorption of condyle; screw head over half covered with new tissue; no overbuilding of the condyle, as the anterior edge of the screw is still about flush with the cartilage surface.

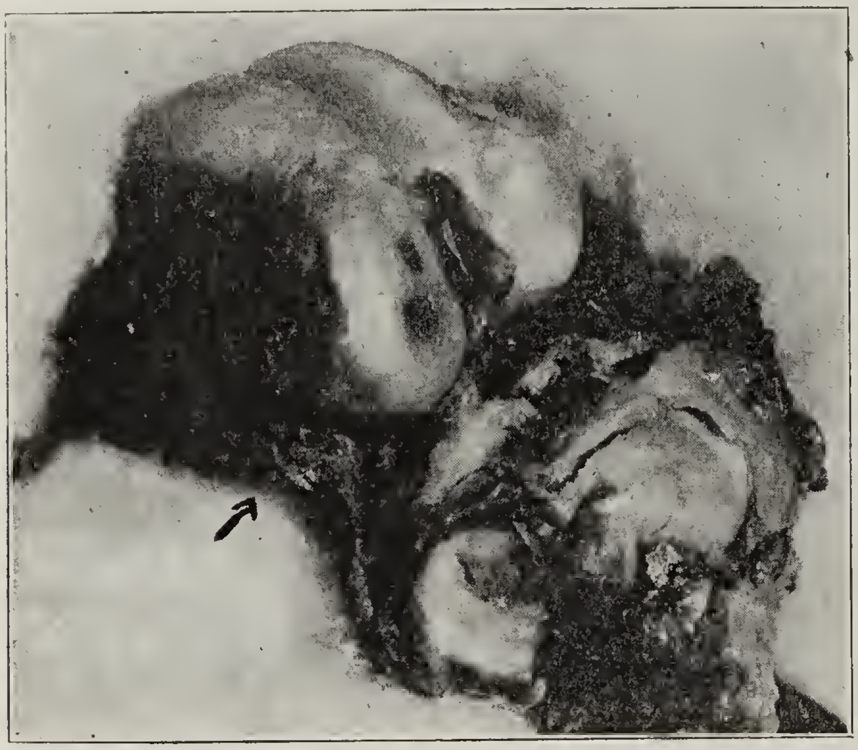

Fig. 14.—Free autograft of condyle; two nails; two months, four days after operation, perfect union, anterior nail covered, posterior nail nearly so, crucial ligament not united.

Semilunar cartilage opposite the screw on the anterior edge shows some fibrillation and a moderate loss of surface where the screw evidently rubbed it.

The empty screw hole is filled though not quite smooth, and is apparently covered with the same sort of tissue as the screw head. There is no evidence of the blood left in the joint.

Section of the condyle, the line of union and the filled hole show the same microscopic replacement of the trabeculae. The circulation through the crucial ligament is so minute that, with this attachment alone, the condyle unites like a free autograft. The hole has been filled largely by bone from the shaft fragment from below, with very little from the detached condyle, and the covering is connective tissue, a reversion of the hyaline cartilage to the connective tissue type over connective tissue growing from the vascular spaces.

Experiment 12 (942).—Left knee, one month, twenty-five days from operation (Figs. 21 and 12 *b*). Left knee opened as before; chisel fracture, both condyles in one piece, about 1 inch back of anterior edge of cartilage; one ordinary drill hole ¼ inch deep anteriorly, not entirely through the fragment on internal condyle, was left empty, as a blind pocket; one ¾ inch screw used to fasten fragment in place.

Fragment came into good position, except a separation of nearly 2 mm. along the inner line of fracture, where chisel had been inserted, a distance of about ¾ inch in length; approximation along cartilage under patella quite good. Joint full of blood when sewed with three layers of sutures in the usual way.

Specimen (Fig. 21) shows firm union with a fine line; empty hole filled; screw three quarters covered over with connective tissue.

The roentgenogram (Fig. 12 *b*) shows fragment, screw and line of union.

Section (Fig. 21) through filled hole, condyle and line of union shows that the trabeculae in the condyle have lived; new trabeculae in the line of union formed from both fragments. The small empty hole has filled with bone, largely from the loose fragment, which is almost indistinguishable from the surrounding bone, and because small, is covered with cartilage, nearly all of it fibrocartilage running vertically.

REPORT OF CASES

To this series of animal experiments I wish to add two cases in the human being, one in an elbow and one in a knee. The elbow was reported with my previous series.

Case 1.—A fractured and misplaced fragment of the external condyle of the humerus in a boy of 7, persistently resisted all the usual methods of replacement, and six weeks after the fracture the fragment stood out from the joint with a rotation of nearly a half circle. The slight attachment to a small strip of the external lateral ligament suggests the experiments in which a condyle of the knee was loosened from all attachment but the crucial ligament, and which united to the shaft like a free autograft. The slight attachment apparently was sufficient to prevent its gross absorption, but no callus was found, six weeks after the injury, at the time I saw the case, opened the elbow and nailed the fragment with two small furniture nails through the joint cartilage. The joint was held in acute angle flexion at first, and, later, a few connective tissue adhesions were broken up under ether. This loosened the fragment somewhat, but the final result was a good serviceable joint with moderate limitation of motion at the extremes of motion.

Case 2.—This was a free autograft of the external condyle of the knee in a Syrian girl, aged 13, who had been knocked down by a motorcycle and run over from her feet upward. This resulted in crushing of the left foot, a fracture of both bones of the right leg, a compound fracture of the pelvis through the vagina, and a badly displaced T fracture into the left knee joint (Fig. 22). The crushing of the foot resulted in a necrosis of the little toe and most of its metatarsal; the fracture of both bones of the leg and the compound fracture of the pelvis healed nicely.

The girl was in marked shock. When this wore away she was given ether, and an attempt was made to set the T fracture into the knee. The roentgenogram, later, showed the fragments as badly out of place as before. Then in an open operation, the inner condyle was replaced and fastened with a Lane plate. Through a second incision the external condyle was felt to be loose and finally rolled out into my hand, a free autograft.

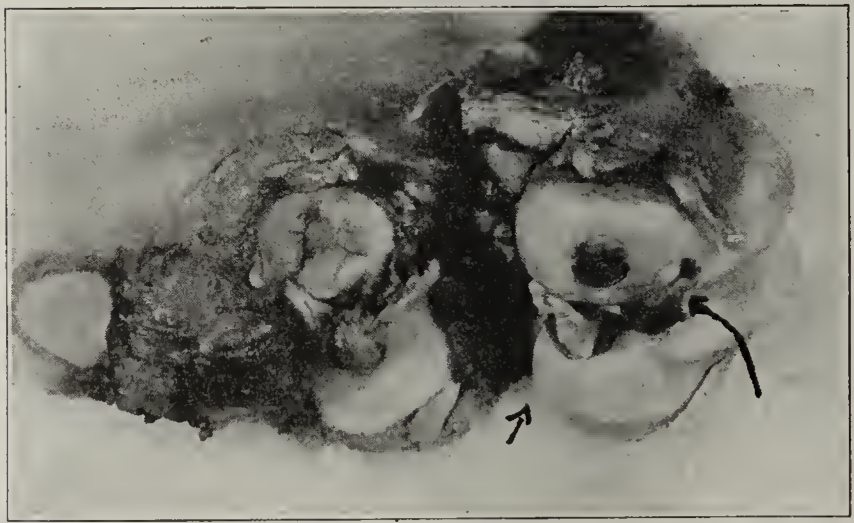

Fig. 16.—Free autograft of condyle; screw projected; drill hole left empty; two months, seven days after operation, perfect union, no atrophy, screw more than half covered, empty hole almost entirely filled.

This made a tight fit in its natural position after a few jagged edges toward the shaft side had been trimmed with bone forceps. The soft parts sewed over it fastened it so securely into place that no nails or screws were used. Owing to the original crushing of the soft parts and possibly to some dried scabs, there was a streptococcus infection in the wound over this fragment which extended well up the thigh and gave temperatures over 103, which after a number of days slowly subsided. The discharge lessened but did not stop.

One month after the operation I determined to find out what conditions existed, and gave the patient ether, removed the cast, and explored. My fingers finally came down on a bare corner of the autograft in the lower branch of the sinus. I thought it wise to leave the graft in place, even if it came out later, as I expected it to do, so that if possible there might be some mold of new bone formed about it which might fill in later after the autograft came out. On looking the leg over I noticed a pouting sinus over the calf with a grayish slough in its opening. I pulled on this, and gradually the whole gastrocnemius muscle came out in one piece.

A few days after operation the discharge lessened, and after some time the wounds finally healed, with the graft still in place (Fig. 23).

At the end of three months from the first operation the last cast was removed (Fig. 24), and the girl is now walking with a movable knee which can be flexed almost up to her thigh. The Lane's plate is still in place. Although no nails or screws were used to fasten the free condyle into place, I have thought it proper to report the case in connection with this series of experiments which it inspired.

The remarkable thing about this case is not only that the free graft of the external condyle lived and gave a useful knee, but that it lived in the presence of an infection of a distinctly violent type and that the Lane's plate is still in place. The fissure leading to the plate must have granulated in sufficiently to have closed the plate from the field of the infection.

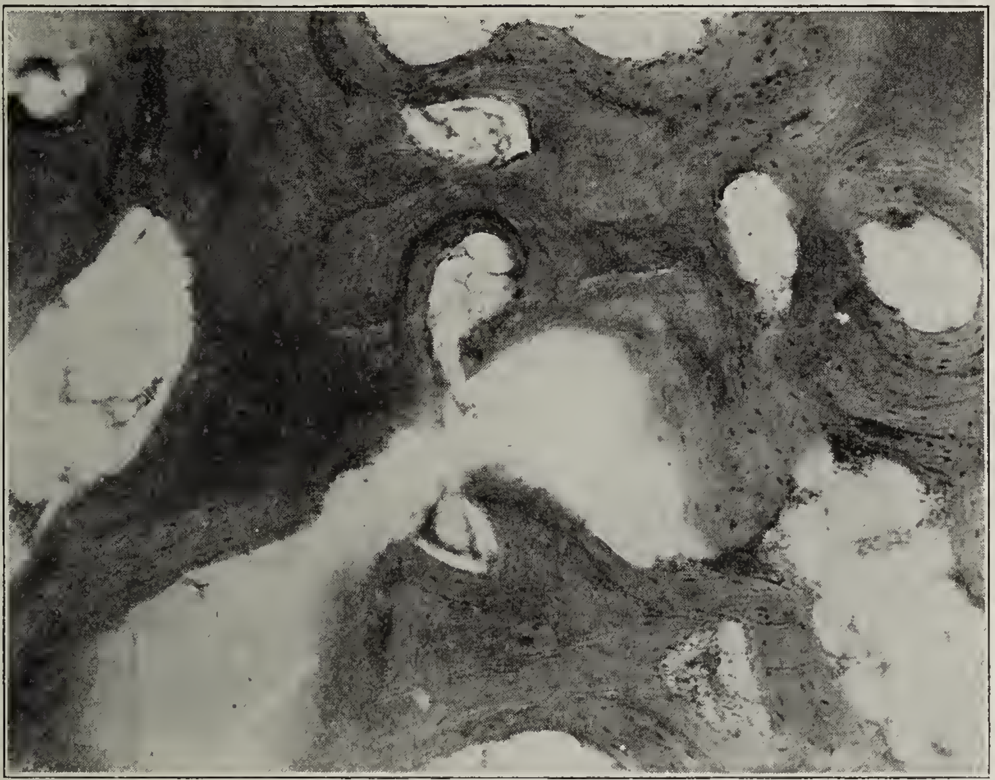

Fig. 17.—Transverse section through autograft, high power; microscopic replacement of trabeculae (without the preliminary formation of cartilage and without the intervention of special osteoclasts).

CONCLUSIONS

1. The autografts unite with a line of callus as fine as those of simple fractures, with a free joint, and without adhesions.

2. The autografts seem to live, but in reality the bone trabeculae are gradually replaced by microscopic bone growing inward from the vascular spaces between them, while the cartilage continues to live and to a limited extent aids in the formation of the new bone adjacent to it.

3. The main replacement of the bone in the trabeculae seems to take place directly from bone cells without the preliminary formation of cartilage, and the dead portions of the trabeculae seem to be absorbed in a line immediately adjacent to the new growing bone without the intervention of special osteoclasts.

4. Condyles detached from all tissue save the crucial ligament unite like free autografts.

5. Condyles, attached more or less to other tissues as well, continue to live throughout, or nearly so.

6. Nails and screws are tolerated in the human being as well as in the experimental cases, and with surprisingly little reaction. They remained firmly embedded in every specimen recovered, but the Roentgen ray shows a slight thinning of the bone about them.

7. The surface covers with connective tissue, a reversion of the cartilage from hyaline to fibrocartilage and then to connective tissue, which overlays connective tissue derived from the vascular spaces between the trabeculae.

8. The response of the condyles to the presence of a rigid body projecting above the joint surface is to build up the condyle in its attempt to withdraw it, and prevent further injury to the opposing joint surface. This also takes place when the condyle is an autograft.

9. This growth is a true growth of bone, and the cartilage tends to retain its normal thickness.

10. The groove cut by a projecting nail or screw, in the opposing surface, covers over with hyaline cartilage, and the groove tends to fill up with bone as the projecting body is withdrawn by the growth of the condyle.

11. The line of fracture in the cartilage tends to cover over with cartilage, largely of the fibrocartilage type if it is narrow, with connective tissue if it is wide.

12. In autografts, empty drill holes fill with new bone, growing up from below, only to a very limited degree from the bone and cartilage in the graft; in living fragments, from the trabeculae of the fragment, very little from the cartilage. The surface covers with the same kinds of connective tissue as do the nails and screws.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GERSTER AND MANN

Dr. Charles E. Thomson, Scranton, Pa.: Fracture of the neck of the femur is very badly treated, if, indeed, it is treated at all. We complain that the profession has introduced theories that as these patients are mostly old it would be better not to treat them. I think that many of our bad results have been brought about by two traditional fallacies, first, that the neck of the femur would not unite as other bones do, and second, that the proper thing to do with a fracture any place in the femur was to place the body on an inclined plane and hang a weight some place on the broken limb and call it Buck's extension. Buck's extension at best is a misnomer; in practice and principle it is wrong, and as generally used it is a farce. Since reading my last article before this section I have had upward of a hundred cases treated by Whitman's method and with one single exception I have obtained good functional results.

Dr. R. H. Sayre, New York: Why are these fractures in general treated so badly? It is because the medical profession does not take any interest in them. The profession is much more interested in surgery of the abdomen, surgery of the thorax, sutures of the heart, and odds and ends of that kind instead of common things like fractures. It seems to me that with the coming of the Workman's Compensation

Act a great deal more attention will have to be paid to fractures if we expect to escape malpractice suits. When the insurance companies have to pay the bills of these people with damaged legs instead of their being treated in hospitals for nothing they will expect a much better result than a great many of them at the present time receive, and as they wander around through eight different medical examiners and hear incidentally the opinions expressed by these eight different medical examiners as to the benefit they have derived from their treatment, they will sometimes become peevish and seek the courts.

If it is a fact that we can drive tacks and brads into joints without disturbing their function, it is a wonderful thing to know. I am extremely glad to hear that we can treat joints with so much more impunity than I had supposed was possible, and I shall look for these cases with very great interest in the future. It would seem to me that that last case of the child with the supracondylar fracture might perhaps have been a good case for the use of a Steinmann needle in the shin as a means of holding the fragments in position.

In these cases which are reported by Dr. Gerster, some of which I have seen, I think that the Steinman pin has given most excellent results. There is no question but that it has a very distinct function in the treatment of fractures where you wish to make traction and hold fragments in position and yet have no suitable skin on which to make traction. I believe there are certain cases where it is a distinct aid to our present mode of treatment.

Dr. H. H. Albee, New York: I, too, was a little astonished that joints would survive metal being driven into them. In my own practice I cannot bring any experience to bear on these procedures. I have used bone graft pegs. It seems to me that it is preferable to put this metal in a position where it can be removed with little difficulty if it ever gave trouble. We must consider not only the immediate but the remote danger of infection. In reference to fractures of the neck of the femur, I would remove the bone graft from the crest of the tibia with the motor saw. We must get as perfect a fit of the graft as possible. These pegs can be made of any size and it is that type of peg that I have been using in place of the nails and screws that Dr. Mann has mentioned. The reasons we do not get union are: first, mechanics; second, faulty blood supply; third, meager osteogenesis, and fourth, the danger of an early callus formation. I would not remove the head of the femur until the last ditch has been reached. The bone graft fixes equally as well as the nail and it stimulates osteogenesis.

Dr. James T. Watkins, San Francisco: The abduction treatment of hip fractures is the application of a surgical principle to a single joint. That is, fractures about joints should be put up always in that posture which is the most difficult for that joint in health to assume. Extreme abduction is the posture which the hip in health finds most difficult to assume. That is the broad underlying principle recognized by orthopedic surgeons, and perhaps we can persuade our surgical friends to adopt this treatment.

Epiphyseal separation occurs practically invariably in children from 13 to 15 years of age, and especially in exceedingly fat children. When they come to us for examination there is a slight shortening, some outward rotation, and they cannot raise the leg to any extent.

Dr. W. R. MacAusland, Boston: In treating fractures of the long bones or about the neighborhood of joints we should remember that the human body is like a machine that works in certain fixed and irrevocable lines. As we see a fracture for the first time our first object should be to return function as soon as possible and to avoid confinement in bed; first, to prevent the atrophy from disuse; second, to enable the patient to regain function early. Dr. Whitman has outlined the principles and those who follow his advice carefully and faithfully need rarely resort to any operative interference whatsoever. In fractures of long bones alignment is most important, more from the orthopedic than the surgical standpoint. Limitations of joint motion and deformities all have after-effects which disable and make the patient inefficient. Dr. Gerster has outlined his method in the use of nail traction. My objection to it is the length of time it demands confinement in bed. Then comes the question of which way the pendulum is now swinging on the operative treatment of fractures. In the last ten years we have seen a distinct wave of operative enthusiasm in these acute fractures. We have seen the promiscuous use of bone plating and have seen disastrous results in the hands of many surgeons. Conservative treatment of fractures still is a very fertile field. Given, for example, 100 cases of fracture in our clinics there is no question that 65 to 80 per cent. can be treated and get perfect functional results by conservative treatment when followed out properly. But only in a certain percentage of cases, about 20 per cent., is operative interference indicated. I strongly oppose the use of metal in contact with bone. Some time or other it will suppurate. What are we going to use in these cases where operative interference is indicated, which is, as I said, a small percentage? The technic demands careful asepsis, avoidance of handling the skin and approaches to fracture. The cavity of the fracture can be sponged out with gauze and dried and the serrations of the fragments fitted together accurately. Then put it up in plaster. The advantage of this procedure is that there is no metal in contact with bone which will delay union, and the fracture is firmly held in an ambulant splint. These cases unite early with very little callus, the fractures healing mainly by internal and not by external callus.

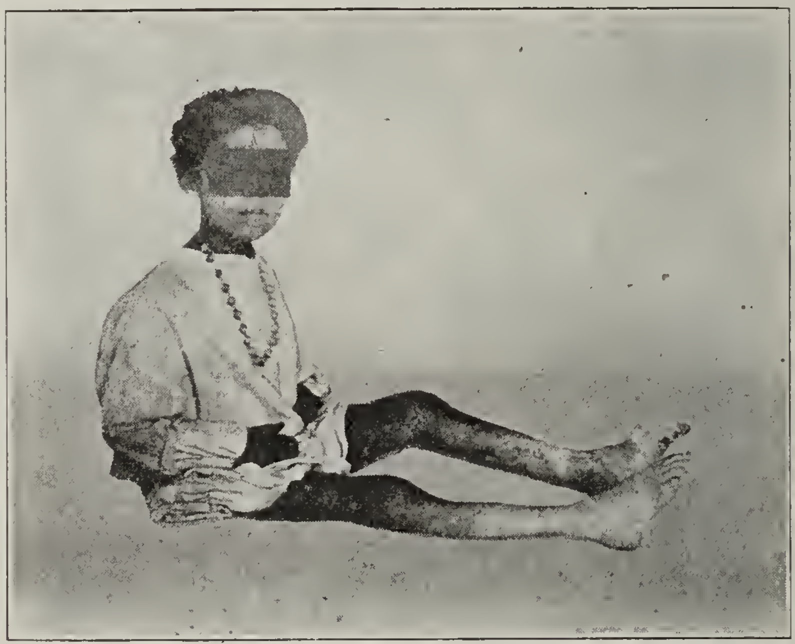

Fig. 24.—Cast just removed; three months; knee movable.

Dr. Charles A. Parker, Chicago: I wish to commend the Whitman dressing for fracture of the neck of the femur. Two or three points are to be considered that have not been mentioned today. One is that there is an interference with abduction by the adductor muscles, so that the trochanter may not hit the upper part of the acetabulum. If you take the skeleton and abduct the thigh with the foot rotated outward, you rotate around the axis of the neck of the femur instead of getting true abduction. The important part of the whole treatment is to fix the bone in a good plaster cast. Rotate the foot inward as far as possible and put a plaster cast over the foot. Why does not the doctor follow the Whitman method? Because of the trouble with the plaster cast. In regard to the slipping fractures of the fat children: I may be entirely mistaken in the cases spoken of but in age and method of development, slowly developing with or without an injury, it is apparently a typical case of coxa vara adolescentium.

Dr. A. B. Fitch, Factoryville, Pa.: A patient of ours tripped on a carpet. The fracture was the same as Dr. Thomson's and he put it up after his method. I see that woman walking on the street almost every day and I think the result is perfect.

Dr. Leonard F. Schmauss, Alexandria, Ind.: We had many fractures of the neck of the femur at Cook County Hospital, Chicago; we treated them entirely with Liston's splint, which gives excellent results in fracture of the middle and upper part of the femur. But I was frequently disgusted when the splint was removed and I saw the subluxation or stiffness of the knee joint. In thinking over the matter I came to the conclusion that the cause of the trouble was due to the *method of extension*. Take raw adhesive strips, apply them to the limb and secure them with a snug bandage and then apply the weight. Where is the traction exerted? Practically seven tenths of it on the limb below the knee. The pull is from the limb below and around the knee joint — thus causing subluxation and stiffness — instead of from above, directly and mostly on the femur, as it should be. After recognizing this principle I left on the facing of the adhesive rubber below the knee and made the straps adhere to the thigh above only, thus preventing undue traction on the knee joint and in that way had no further trouble with subluxation and stiffness. If you follow this precaution you will have less occasion to use wire nail extension.

Dr. A. T. Mann, Minneapolis: This was an experimental study and I think it has brought out some exceedingly interesting things: in the ability of the joint to stand more damage than we usually think it can stand, the way the condyle fills up in response to a badly placed nail or screw, and in the way in which the replacements of autografts are made. I feel that it would seldom be necessary to place these nails and screws in the joints. Sometimes it may be a desirable thing to do. I think the experimental study shows some exceedingly interesting points.

A BACILLUS ISOLATED FROM EPILEPTICS

PRELIMINARY REPORT

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Feeling a deep interest in epilepsy, I undertook a study of individuals classified as epileptics in the East Louisiana Hospital for the Insane. It was decided that this investigation should be conducted from every possible angle. Accordingly, case histories were reviewed and relatives questioned with a view of discovering the part played by heredity, personal injuries and illnesses, and psychic factors. Accurate records were kept giving the number and description of the paroxysms in each patient, nurses were interrogated regarding the habits and disposition of the epileptics in their care, and careful physical as well as mental examinations were made. In the beginning of the work it was found that a few patients not diagnosed as epileptics on admission to the institution had developed the typical epileptic convulsions and mental characteristics, while a still fewer number classified as epileptics had later turned out to be something different. I mention this only to emphasize that such mistakes in diagnosis are liable to occur, and that it is necessary to rectify them before proceeding to the investigation of the etiology of epilepsy.

While I was in the midst of this work, Reed of Cincinnati published a paper definitely asserting that epilepsy was caused by a bacillus which might be isolated from the blood stream, which organism was found in large numbers in the colon of epileptics, and was demonstrable in the retroperitoneal glands.

That epilepsy was of toxic origin was not a new idea, in consequence of the labors of Haig, Weber, Ferrani and many others. Voison and Bra had both attempted to connect epilepsy with the presence of micro-organisms (streptococci) in the blood, the occurrence of which Besta was unable to confirm.

In view of the mass of statistical evidence pointing to the importance of the hereditary influences, and the traumatic factor, as well as the information gleaned from psychanalysis, I could not do otherwise than view with great skepticism the assertion that epilepsy was an infective process. Accordingly, the work embodied in this report was performed with the view of substantiating or disproving this assertion, and was begun with the preconceived idea that there was not any such organism as the *Bacillus epilepticus*.

MATERIAL AND TECHNIC

There are 130 epileptics in this institution. Their histories were carefully reviewed with the idea of selecting those most desirable for investigation from a bacterial standpoint. This selection was not found feasible, and in the majority of instances the patient was selected at random. When it was reported that an epileptic was having a seizure, a culture was made from his blood regardless of the etiologic factor apparently responsible for his condition.

Blood cultures were made by inoculating 100 c.c. of slightly alkaline bouillon with 2 c.c. of blood withdrawn from the median basilic vein. Two cultures were made each time from the same patient and were lettered A and B. A was examined every twenty-four hours. B was examined only after A had been declared positive or negative. This was done as a check on contamination during frequent examination. Cultures were incubated at 37.5 C. (99.5 F.). They were examined every twenty-four hours for ten days, at the end of which time, if no organism was found, the culture was declared negative.

When making smears from the blood cultures to search for the organism, it is well to agitate the flask, thus shaking up the growth, which occurs most abundantly in the bottom of the flask. I have found it even better to aspirate a small amount of the sediment from the bottom of the culture with a sterile capillary glass tube. In this way I am able to discover the organism much sooner than by any other method.

The organisms stain most satisfactorily if carbolfuchsin is applied for one-half minute and then Loeffler's methylene blue for one minute. It stains very well, however, by any of the common laboratory methods. If it is desired to stain so as to form a marked contrast between the spores and the bacilli, any of the spore stains may be employed.

In some instances an inhibiting substance appeared in the blood cultures, and for this reason, after the cultures had been incubated for seventy-two hours, transplants were made on agar slants.

Both plain bouillon and dextrose bouillon were used; the mediums were prepared in large quantities and all were sterilizied at the same time and in the same manner. Some bouillon from each lot of medium was incubated as a control. The glass syringes were sterilized in large lots by dry heat, and one syringe from each lot was rinsed with bouillon and the rinsing incubated as a control. In no case was the sterilization found at fault.

RESULTS

Cultures were made from twenty-four epileptics during or immediately following seizures. A bacillus was isolated from 75 per cent. of these. The cultures were not found uniformly positive. At one time we would get a positive culture following a seizure, while a culture made several days later following an attack might be negative. I wish to emphasize this fact. In one case the fourth culture was found positive, while three others made from the same patient under similar conditions were negative. As it is well known, epileptics frequently have a series of paroxysms, after which they are free of convulsions for varying lengths of time. It seems probable that the time the cultures are made in reference to whether the patients are just beginning or are recovering from their convulsive periods is a factor in isolating the organism.

Cultures were made from eighteen epileptics in whom no convulsions had occurred for several days. All of these were the same patients in whose blood I had found the organism immediately following a seizure. In only one case was the bacillus isolated during the intraconvulsive period, and this patient was seriously ill with influenza at the time the culture was made. This would lead me to conclude that when one is attempting to isolate the bacilli, cultures must be made during or immediately following the convulsion.

Cultures were repeatedly made from forty-two nonepileptics. Seven of these were sane; thirty-five were insane, all forms of insanity being represented. These were made during the same time that the cultures were made from the epileptics, the same medium and technic was employed, and the insane patients were living under the identical conditions and receiving the same food as were the epileptics. None of the controls showed the bacillus found in the epileptics, with one exception. In the beginning of the work the organism was found in a patient classified as constitutionally inferior. Seven other cultures were made from this patient, and they were all negative. At first it was thought that this patient might be a potential epileptic in whom the convulsions had not appeared. Later it was decided that a break in technic was responsible for finding the organism in the culture.

THE ORGANISM

The organism is a large, gram-negative, spore-bearing bacillus which shows a tendency to form chains. The endospore is central in location, elongated in form, and practically fills the entire bacillus when present. The spore develops in from forty-eight to seventy-two hours.

The organism grows slowly. It is not found in a blood culture under seventy-two hours after the culture is made. In all cases from three to eight days were required to secure a good growth. I believe the time required for the growth to develop is partially responsible for some observers having failed to find the organism. I would advise that no culture be considered negative until it had been incubated and observed for two weeks.

In bouillon there is a slight pellicle formed, the medium becomes somewhat cloudy, and an abundant, viscid sediment occurs.

Transplants made directly from blood cultures on agar slants did not show a growth visible with the naked eye at the end of twenty-four hours. In forty-eight hours very small colonies were visible which were round, raised and translucent. The growth at this time often resembled water of condensation on the agar. As the colonies became older, they assumed a grayish tint. The individual colony never became larger than a pinhead. The growth was very moist and viscid. To obtain a heavy growth it was necessary to incubate from five to seven days. As successive transplants were made, it was found that the organism grew more rapidly on artificial mediums than when first isolated. The growth was not as satisfactory on Loeffler's blood serum as on agar. Litmus milk was slightly acidified. Stab cultures were made in agar, and it was found that the organism grew best at the top, but quite an abundant filiform growth occurred along the line of puncture.

ANIMAL INOCULATION

Two rabbits were inoculated, saline suspensions from agar slants being given intravenously. The first animal received three inoculations at intervals of seven days without showing any symptoms other than an initial rise of temperature following the inoculations, and a gradual loss of weight up to the time it was killed, twenty days after the last inoculation. Previous to killing the animal, a culture was made from its heart's blood, from which the bacillus, with which it was inoculated, was isolated. At no time was this animal seen to have convulsions. The second rabbit was inoculated four times with an interval of three days between the injections. Fourteen days after the last inoculation, a blood culture was made, and the bacillus, with which the animal had been inoculated, was isolated. At no time did this animal have convulsions.

In the belief at this time that rabbits might have a high immunity to this organism, it was decided to resort to cats. A large male cat was inoculated with a saline suspension of the organism three times at intervals of twenty-four hours. Three hours after the first inoculation the cat was observed to have a convulsion apparently similar to those occurring in epileptics. This convulsion was followed by several others within the next few hours. Following the second injection of the organism, the cat had repeated convulsions which did not stop entirely until noon the next day. Following the third inoculation, the animal went into a state resembling status epilepticus and was expected to die. The number of attacks decreased, however, and after thirty-six hours only one or two convulsions a day were observed. Although this animal was remarkably strong and healthy at the beginning of the experiment, eight days after the last inoculation it was too emaciated and weak even to stand alone. At this time a culture was made from the heart's blood, and the bacillus, with which it had been inoculated, was isolated. Three days later convulsions again developed in this animal, during which it died. Since then three other cats have been inoculated intravenously with the bacillus, and they have all died during or following convulsive seizures. From one of these the organism was isolated after death. It was not attempted in the case of the other two animals, owing to the fact that after death they were removed from their cage and buried by a laboratory assistant who was ignorant of the fact that they had been inoculated. The number of organisms each animal received was not estimated. The growth on an agar slant was emulsified in saline solution and injected into one of the veins of the leg or into the external jugular vein, the latter being large and easily reached.

Besides the intravenous inoculations of the organism, three kittens and five adult cats were each fed once a mixture of fresh cream and a bouillon culture of the bacilli. All of the kittens and four of the grown animals began having convulsions in from three to five weeks after they were fed the organism, and died during convulsions. The other adult cat has passed through a convulsive period twice and now appears quite toxic, but is yet alive. All of these animals began to deteriorate physically after being fed the germs, the emaciation being quite marked the tenth day after the organisms were ingested. After death, cultures were made from the heart's blood of four of these animals, and the bacillus with which they were fed was removed from two of them.

One cat which was neither inoculated nor fed the organism died in convulsions. This animal was kept in the same cage with those cats which were fed the bacillus. I believe this to be an important occurrence, for it shows that the infection may be transmitted by association, very probably in this instance through fecal contamination.

SUMMARY

Although I began this work profoundly biased in my opinion, as I believed that epilepsy was not bacterial in origin, I am forced to the conclusion that the bacillus which I have isolated, which is identical with the *Bacillus epilepticus* described by Reed, must be an etiologic factor in epilepsy, in view of the following facts:

A bacillus was isolated from 75 per cent. of epileptics examined.

It was present during and following a seizure but not during the intraconvulsive period, except in the case of one patient who was debilitated by ill health.

It was not found in nonepileptics.

It causes typical epileptoid convulsions in cats during which death occurred, both when they are injected intravenously and when they are fed cultures of the organism.

The organism may be recovered from the animal during the convulsions and after death.

CONSTIPATION AND INTESTINAL INFECTION IN EPILEPTICS

CHARLES A. L. REED, M.D.
CINCINNATI

The reports of Caro and Thom[1] and of Wherry and Oliver[2] make it important that I call attention to the fact that the relationship of constipation to epilepsy was the first clinical constant of fundamental importance which was forced on my attention in certain cases in which the patients came to me for surgical relief from the recognizably underlying intestinal stasis. That epilepsy is better or worse as the associated constipation is better or worse is a matter of every day observation by every practitioner of experience. That this constipation is associated with and dependent on mechanical distortions of the intestines is shown by over 800 Roentgen-ray studies of as many of my cases, something more than 2,000 plates being on file in my laboratory. That certain of these patients have apparently recovered from their epilepsy, some from one to five years since operation, and that others have so improved and are so improving as apparently to be on the road to recovery following surgical corrections of the intestinal condition, would seem further to corroborate this relationship between constipation and epilepsy. The fact that Caro and Thom[1] found constipation present in each of the seventy cases that they report as having investigated is an additional confirmation of the coincidence of the two conditions.

The connecting link or links between constipation and epilepsy, two apparently dissociated but persistently coincident conditions, remained to be demonstrated. After careful consideration of all the phenomena presented in nearly 200 of these cases, I was forced logically to recognize that the intermediate condition was one of intoxication of obviously intestinal origin. I was later convinced that this intoxication was due either to bacterial activity or to chemical changes in the intestinal content, or to both. To investigate the bacteriologic phase of the question, I placed Dr. E. P. Hyatt, assisted later by Dr. L. G. Forrer, in charge of my laboratory. After a search in a long series of cases, Dr. Hyatt reported the frequent presence of an organism in the blood of epileptics that could not be found in the blood of nonepileptics. This organism, injected into the blood of rabbits, caused convulsions like those of epilepsy in the human subject, and was recovered from the blood of the animals affected, thus conforming to the third law of Koch.

After what seemed adequate investigation, and for the purpose of stimulating investigation along the same line by others, I made a preliminary report on the organism which, from its obvious relation to the disease, I called the *Bacillus epilepticus.* Dr. Hyatt and Dr. Forrer have since reported the isolation of the organism in 168 out of 211 cases, many of which have been demonstrated to medical visitors to my clinic. I have gladly sent slides and cultures to every investigator who has asked for them, including Dr. Thom and Dr. Wherry.

I mention these facts because they have an antecedent relationship to the contributions of Caro and Thom, and of Wherry and Oliver. These contributions are, respectively, reports of failure to find the *Bacillus epilepticus* in the blood of epileptics examined by them. As purely negative reports, reports of the finding of nothing, they of course can have no relationship, except by inference, to the positive finding of an organism, which, at least, was the finding of something. The obvious and unmistakable inference is that they, professional investigators in large institutions in which things in the blood are found if there are things in the blood to be found, having failed to find the *B. epilepticus,* it follows either that that organism does not exist; or if it does exist, it is a contamination, or, in any event, it has nothing whatever to do with "idiopathic" epilepsy. This is the issue and the only issue which has been raised by the two publications in question, and it is an issue which must be squarely met, both in the interest of science and in that of humanity.

First: The fact of the existence of the organism seems to be fairly well attested. It has been isolated, described, photographed and reported by Bra,[3] by Hinkelmann[4] and by Hyatt and myself.[5] In personal communications I am advised that Terhune[6] has isolated it in 75 per cent. of the epileptics in the East Louisiana Hospital.[6] W. L. Tiffany has found it at the East New York Hospital at Binghamton; R. L. McMeans, J. R. Wrather and R. D. Gist have isolated it at Amarillo, Texas; R. W. Noble has done the same at Temple, Texas; B. W. Rhemy has found it at the Fort Wayne (Ind.) laboratory. K. W. Smith of Madison, Wis., writes that his assistant has isolated it in two cases, and so has Robert McTavish of Fort William Henry, Ontario. Both Caro and Thom, and Wherry and Oliver have seen the organism, as have numerous others. It would seem, therefore, that the assumption or inference that the organism does not exist is hardly tenable.

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[1] Caro, H., and Thom, D. A.: A Bacteriologic Study of the Blood of Seventy Epileptics, with Special Reference to the Bacillus Epilepticus of Reed, The Journal A. M. A., Oct. 7, 1916, p. 1088.

[2] Wherry, W. B., and Oliver, W. W.: Blood Cultures in Epilepsy, The Journal A. M. A., Oct. 7, 1916, p. 1087.

[3] Bra, M.: Compt. rend. Acad. d. sc., Jan. 6, 1902; Rev. neurol., 1902, p. 447; Bull. Soc. méd. d. prat., 1902, xii, 289; Rev. neurol., 1903, p. 408.

[4] Hinkelmann, A. J.: Med. Rev. of Rev., xxii, 664; New York Med. Jour., civ, 531.

[5] Reed, Charles A. L.: The Bacillus Epilepticus, The Journal A. M. A., May 20, 1916, p. 1607.

[6] Terhune, W. B.: A Bacillus Isolated from Epileptics, The Journal A. M. A., this issue, p. 1155.

Second: The inference that the organism as seen in epileptics is a contamination would seem to be equally unfortunate. Of course the possibility of contamination is always to be recognized. It was recognized and provided against by Hyatt early in these investigations, as indicated in my report. But contaminations are generally variable, even in the same class of cases, and the same contamination is liable to occur in all sorts of cases. It would seem, however, that this particular "contamination" is constant under definite conditions. As a "contamination" it is strange that this particular one should have been observed only in connection with epileptics. It is likewise strange that the same "contamination" should occur and recur so constantly and under precisely the same circumstances at the hands of so many observers. It is strange, too, that the same "contamination," found only when examining epileptics, should be disseminated in localities so widely separated as France, Canada, New York, Louisiana, Texas, Illinois, Indiana, Wisconsin and even Ohio. In short, it would seem that, as a "contamination," the ways of *Bacillus epilepticus* are strikingly peculiar.

Third: The inference sought to be conveyed by these investigators that *Bacillus epilepticus,* whether actually occurring in the blood or as a contamination, has nothing to do with epilepsy, is based not only on their failure to find the organism in the blood, but also by their failure to induce convulsions by injecting it into rabbits. As they failed to get the organism from the blood, they had to rely on the subcultures which I furnished them. I sent Dr. Thom a single agar slant which, of course, was a subculture. Dr. Wherry made a subculture from a subculture furnished him by Dr. Hyatt. If the injections were made from the subcultures thus furnished, the aggregate amount injected, as demonstrated by both Bra and Hyatt, and later confirmed by Terhune, was not sufficient to overcome the natural immunity of the animals. If larger amounts were used, it had to come from further subcultures with resulting diminution of virulence to a point to make them relatively innocuous. In any event, the experiments made in contravention of the published technic of Bra and Hyatt and Terhune cannot be said to be a test of either their methods or their results, and are, therefore, intrinsically worthless. The effort, furthermore, to fortify this inference by quoting the work of somebody who has failed to find the organism at necropsy must go with the other negative findings. Terhune has found the organism at necropsy. Noble reports having found it in the cecum and the appendix. Hinkelmann and Rhemy report having found it in the feces. In my own work, the organism has been cultivated by Hyatt and Forrer from retroperitoneal glands, from the appendix and from the intestines removed at time of operation and from the contents of the cecum in living subjects. These demonstrations, made frequently as to the glands and almost daily as to the cecum, and made in the presence of frequent and competent visitors to my service, are positive and not negative, and must stand until disproved by equally scientific methods actually applied to this particular organism and under similar circumstances.

Fourth: The classification of this organism, a point raised by Wherry and Oliver, is an entirely subsidiary question. I have called it *Bacillus epilepticus* because of its demonstrated relation to epilepsy, and because Bra, Hyatt, Forrer, Terhune, Hinkelmann and others have isolated it from the blood of epileptics. If it shall be shown that it indeed belongs to the *B. subtilis* group, or to any other group, the fact would only signify that a member of that group, or of some other group, as the case might be, is the active agent in epilepsy, and is therefore in reality the *Bacillus epilepticus.* I shall, however, leave this phase of the question alone for the present, and thus not anticipate the report of Dr. Hyatt, shortly to appear, based on an exhaustive study of the characteristics of the organism. It is of the highest importance, however, that its subsidiary importance, from the clinical standpoint, should be held in mind. As pointed out by Hinkelmann, Rehmy and Noble, it may be found in the alimentary canal of persons who do not have epilepsy, although, so far as I know, there is no reliable report that it has ever been found in the blood of nonepileptics. This would seem to imply, as my really large experience would indicate, that mechanical conditions of forced absorption are necessary to make it effective, and that any study of the organism or of any other organism or of toxin or toxins of intestinal origin as etiologic factors in epilepsy should be made only in connection with the physical condition of the gastro-intestinal tract.

In view of the facts which I have set forth, it is evident that the onus of failure to find the organism must be with those making the failure. Any explanation of such failure must, in both justice and generosity, be left to them. I might, therefore, dismiss the discussion at this point if it were not that certain features of the report of Wherry and Oliver require special consideration. This is all the more important in view of the fact that their report is based on the examination of the blood in five of my cases.

It is, therefore, essential for a proper understanding of the facts by the profession that I give the completed bacteriologic records of my cases which Wherry and Oliver report from the standpoint of their individual observation. These completed records are as follows:

Case 1.—Mr. B., epilepsy with folie circulaire; coloenteroptosis; ileac stasis seventy-eight hours; colonic stasis over eighty hours; acidosis marked, persistent and irreversible. Decompression operation had been done several years before, without influencing the course of the disease. Blood examinations by Dr. Hyatt with reference to *B. epilepticus:* January 6, bouillon —; January 14, bouillon +; January 21, agar slant +; February 2, April 5, April 15, all bouillon, all —; May 1, bouillon +; May 10, agar plate +, bouillon —; May 17, both bouillon and agar plate —; May 23, —.

The observations made by Drs. Wherry and Oliver were made during a recrudescence of the folie circulaire, with convulsive seizures, February 24, March 6 and March 6, — really only two different dates. These observations proved negative just as Dr. Hyatt's proved negative, February 2, April 5 and April 15, which, it will be noted, both preceded and followed the observations by Drs. Wherry and Oliver. It is to be noted, furthermore, that this period of negative blood findings from February 2 to March 6 followed bactericidal and alkalinizing treatment, the discontinuance of which during the patient's period of confinement in the General Hospital doubtless had something to do with the reappearance of the organism in the blood, May **1**.

Case 2.—This is not one of my cases.

Case 3.—Miss G. R., typical grand mal; marked coloptosis; colonic stasis of more than fifty hours; ileac stasis, marked. Blood examinations by Dr. Hyatt as to *B. epilepticus*: January 19, no growth; February 2, positive; February 18, no growth; March 29, positive; April 12, no growth, bouillon having been used in all instances. The blood for the last observation was taken by Drs. Wherry and Hyatt about thirty-five days after the patient had been subjected to operation, during which time she had been under bactericidal, alkalinizing and eliminative treatment, which may have had something to do with the finding.

Case 4.—Mr. L., epilepsy with constipation; marked gastrocoloptosis with both ileac and colonic stasis; marked acidosis. Blood examinations with reference to *B. epilepticus*: January 16, +; February 2, —; March 4, —; March 22, —; April 12, —. It will be noted in this case also that the last two observations, both negative, were made several weeks after operation, when in the ordinary course of our experience, negative findings are about due. (It was with the expectation of a negative finding, rather than any other, that both this case and the preceding one were submitted to Dr. Wherry, April 12.)

Case 5.—Miss E., epilepsy and obstinate constipation, extreme gastro-enteroptosis, ileac and colonic stasis marked, the latter in excess of seventy hours. This patient was referred to Dr. Wherry jointly with Dr. Hyatt for diagnostic study. Each prepared broth, into which the inoculation was made. Three of the tubes retained by Dr. Hyatt showed no growth, while one of them, prepared by Dr. Wherry, proved positive as to *B. epilepticus*. This case did not come under treatment and, consequently, no further blood studies were made.

Case 6.—Mr. A., epilepsy, with extreme constipation, extreme enterocoloptosis, with resulting stasis, has had two decompression operations without improvement. Blood studies with reference to *B. epilepticus*: April 21, +; April 25, —; May 16, —; May 23, —; from and including April 21, the patient had been under intracolonic bactericidal treatment (by high enemas twice daily) and forced alkalinization and elimination by the intravenous method. This was to prepare him for operation, April 25. The specimen was taken for Dr. Wherry on that date, immediately before the operation was done. That it and the two subsequent observations by Dr. Hyatt should have proved negative is not in the least surprising, especially in view of prompt and as yet complete discontinuance of the previously frequent and severe attacks.

It will be seen from an analysis of these records that positive findings were not made in every specimen taken. In the files of Dr. Hyatt's reports now before me, I find several cases in which positive findings were not reached until in one instance after the sixth. In easily one half of our cases, the finding was negative at the first examination. As nearly as I can estimate in this record, the ratio of positives to negatives is as 7:13. In leafing through this file and taking the cases as they come alphabetically, I find one series of five and another of eight, in which the first examinations proved negative. It will be seen from this that the negative findings of Wherry and Oliver in single examination of four cases and three examinations of one case are not the least surprising, especially in view of the fact that one of these cases did prove positive in their own medium. The same observation applies with even greater emphasis to the report of Caro and Thom.

And now, a word as to the classic work of Bra. It so happened in Europe, at the beginning of this century, that there were several persons who occupied positions which made it their business to find things in the blood, if there were things in the blood to be found. Some were bacteriologists to great hospitals, some were pathologists to institutions for epileptics. They were charged with research, to solve the great mystery of the ages with respect to epilepsy. It also happened about this time that M. Bra — Marie Bra — untrammeled by the medieval scholasticism that then and yet beclouds the subject, went to Ville-Evrard to study the blood of epileptics. She found an organism — found it again and again — found it seventy odd times in a hundred cases — the same organism which we have found and are yet finding under similar circumstances here in America. She injected it into rabbits, gave them epilepsy, and recovered it from their blood. She wrote reports, model reports, of her work, and with them, photographs of the organism in the blood — just as we are now doing in America. Then it so happened that the men whose prestige depended on finding things, and who had not found this particular thing, suddenly found it impossible to find this particular thing. One after another could find nothing. From Moscow to Lille, from the Rhine to the Tiber, each echoed to the others, "Nothing here." But the undisputed and indisputable fact, the positive fact, the photographed, printed and proved fact, the fact that an organism had been isolated from the blood of epileptics, remained. These facts, taken with other facts, seemed to imply a causal relationship between the organism and epilepsy. No new facts were or have been brought out to give it a new interpretation. It was simply beclouded by a policy of concerted and cumulative negation. This was the process of "discrediting" an achievement which did not add to the prestige of the other fellows. Then, Marie Bra, disgusted with the treatment she had received, snapped her fingers at the "scientific" world — and married. It thus happened that humanity was cheated out of a great truth for fifteen years. Is the policy of concerted cumulative negation again contemplated? In this connection it is important for me to say that my attitude with respect to this question is purely that of a clinician interested in the practical phase of the problem. As such I, like other clinicians, must accept and be guided by the technical findings of pathologists and bacteriologists, but they must be the findings of something, not of nothing.

Simple Procedure for Nasal Bleeding.—Spontaneously recurring epistaxis is usually due to a superficial ulceration of the mucous membrane over a vessel or capillaries on the septum of the anterior nares. These hemorrhages as a rule are easily stopped by home remedies, but sometimes the patient seeks relief and goes to the physician between attacks. At these times it is rather difficult to locate the exact spot from which the bleeding originated. If epinephrin chlorid is applied by a cotton-tipped applicator to the side of the septum from which the hemorrhage occurs, the whole mucous membrane, except in those spots in which the bleeding takes place, becomes blanched. If it is a vessel that has caused the bleeding, it will stand out strongly in contrast to the rest of the mucous membrane. If it has been due to capillaries, a red circular spot about the size of half a ten cent piece stands out prominently. This procedure makes it a simple matter to find the bleeding spot and cauterize it with 90 per cent. trichloracetic acid. The acid obliterates the vessel or capillaries, and in a few days it heals over, removing with very little trouble the source of bleeding.—William Lapat, M.D., Savannah, Ga.

New Instruments and Suggestions

THE ADMINISTRATION OF CERTAIN DELIQUESCENT AND LIQUID DRUGS IN CAPSULES

N. S. Davis, M.D., Chicago

It is so much pleasanter to take medicine in capsules than in other ways that it has been my habit when I can do so to administer it in them. Pharmacists find it impossible to dispense extemporaneously in capsules many deliquescent substances and most liquids. A dozen or more years ago my attention was called to the possibility of dispensing many such substances in a capsule by using a wax mass. In this way potassium iodid and similar drugs can be given, also guaiacol, oil of sandalwood and many other liquids which one wishes to prescribe in doses of from 5 to 10 minims. The iodids can be given in doses of 10 or 12 grains (from 0.5 to 0.8 gm.), and the pill will be readily absorbed, as is shown by finding iodin in the saliva in three minutes or less after such a capsule is swallowed.

The capsules are permanent, keeping for weeks ordinarily and in the hottest, dampest weather, if placed in a corked bottle.

For the making of a pill to be placed in a capsule containing sodium or potassium iodid in doses of 10 or 12 grains (from 0.5 to 0.8 gm.), about 1½ grains (0.1 or 0.15 gm.) of the wax mass is needed. Red mercuric iodid and other drugs can be incorporated in the same mass if they are required.

To make a pill containing guaiacol, oil of sandalwood or similar liquids in doses of 5 minims or thereabouts, the same quantity of mass is needed.

I have often given iodin incorporated with this mass, and have obtained from it as prompt and as good results as when it was given in solution. But I have found it possible to give it, without discomfort to patients, in larger doses. For instance, from 2 to 4 grains (from 0.15 to 0.25 gm.) can be given in this way, though I rarely have given more than 2½ grains at a time. I have made it a practice to dilute the iodin well with the mass in order that the pill may not cause gastric discomfort, and possibly I use more of the mass than is necessary for this purpose. I usually prescribe at first 1 or 2 grains (0.05 or 0.10 gm.) with 5 grains (0.3 gm.) of wax mass. Undoubtedly, the oil in the mass is responsible for carrying the iodin and for diluting it and releasing it so as not to cause gastric discomfort. When administered in this way, iodin appears with its usual promptness in the saliva. Cascara, aloes, codein and many other drugs can be incorporated with it when they are needed.

The wax mass is made of one part beeswax and three parts of castor oil. These ingredients are melted and mixed by heating them gently. When liquefied and thoroughly mixed, the mass is allowed to cool. It makes a somewhat granular pill. I do not know who invented the mass, and I have rarely found a pharmacist who knew of it.

I have never seen the castor oil produce looseness of the bowels, and we would not expect it to, so little of it is administered at a time.

Guaiacol and oil of sandalwood and similar substances can be readily mixed with from one-half to equal parts of beeswax and made by gently heating into a mass. Such a one, however, is needed only when a prescriber is using these substances with frequency.

7 West Madison Street.

Steps in Thought.—Observation, comparison, deduction and trial the success or failure of which inspires and directs further observations which form the starting point of a new and wider cast of his net into the sea of the unknown, these are the successive steps in the discipline of thought which has slowly and inevitably led man from helpless dependency on the caprice of nature to the present day when his words travel with the speed of light and his instruments pierce the depths of interstellar space.—T. Brailsford Robertson.

Therapeutics

THE TREATMENT OF DIABETES

(*Continued from page 1091*)

Exercise.—This forms a valuable adjunct in the treatment of diabetes. It serves to raise the carbohydrate tolerance and to build up active protoplasmic tissue at the expense of fat. In addition, the patients who exercise feel better and take more interest in life. The appetite is increased, but the increase is not greater than the increased assimilative power. Allen advises active exercise for practically all diabetics. Strong patients may begin exercise during the preliminary fasting period; weaker ones, during the period of dieting. Exercise is especially advantageous immediately following a meal containing carbohydrate. Short periods of vigorous exercise are preferable to long continued monotonous walks. The patient should stop just short of uncomfortable fatigue. In children, exercise is of especial benefit, as it aids in the building up of muscular tissue and favorably influences growth.

Acidosis.— In the course of diabetes, large amounts of the "acetone bodies," namely, acetone, aceto-acetic acid and beta-oxybutyric acid, may be produced. These substances, for the most part, are products of the incomplete combustion of fats,[11] and appear when there is a disproportionately great metabolism of fat as compared with carbohydrate. For the complete combustion of fat, it seems essential that a certain amount of carbohydrate be simultaneously burned. Under the older methods of treatment the production of large amounts of the acetone bodies at some stage of the disease was usual, and as a result, a large proportion of all diabetics, and especially younger patients, ultimately developed coma — presumably as a direct result of overproduction of the acetone bodies. By strict adherence to the rules of treatment already formulated, it is usually possible to reduce the production of acetone bodies to a minimum.

Of the acetone[12] substances, acetone itself is an adventitious decomposition product of aceto-acetic acid, and is probably never formed in sufficient quantity to do harm. Aceto-acetic acid and beta-oxybutyric acid, however, are fairly strong acids, and for that reason are capable of doing much harm to the organism by the neutralization and removal of the available bases. Acids of one kind or another are always being produced in the course of metabolism, and the body possesses an efficient mechanism whereby these acids may be neutralized or excreted. A slight excess in acid production, such as a few grams of beta-oxybutyric acid, can be completely compensated for. With a larger production of acids, especially if continued over a considerable time, the compensatory mechanism of the body may become overtaxed, with the result that an actual depletion of the alkali reserve of the body fluids and tissues occurs. Such a condition is known as acidosis. In diabetes, the appearance of acetone bodies in the urine signifies that the ideal result of treatment has not been attained, but it does not necessarily mean that acidosis is present. Qualitative tests alone on the urine are not sufficient either to confirm or to exclude acidosis, as a strong test may be obtained when no acidosis is present, and only a faint reaction at the height of the coma of acidosis.

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[11] Proteins are also, to a lesser extent, a source of acetone bodies.

[12] For the detection of acetone bodies in the urine, two tests are in general use, the nitroprussid reaction (Legal, Arnold, Rothera) and the ferric chlorid reaction (Gerhardt). The nitroprussid test is a very delicate one for either acetone or aceto-acetic acid. The ferric chlorid test is a less delicate one and serves to detect aceto-acetic acid. Since amounts of aceto-acetic acid smaller than are required to give the ferric chlorid reaction are of no especial significance, there is, in general, no reason for using the more delicate nitroprussid test. If one of the acetone substances is present in the urine, all are present, and there is no indication for testing for more than one of them. The ferric chlorid test is carried out by adding to the urine a strong solution of ferric chlorid until no further precipitation of phosphates occurs; a purple color indicates the presence of aceto-acetic acid. Salicylates give a similar reaction, but the color may be obtained after the urine has been boiled for a few minutes, whereas aceto-acetic acid is destroyed by boiling.

A high excretion of ammonia in a twenty-four hour specimen of urine is an indication of abnormal activity on the part of the defensive mechanism of the body, and is a warning signal. Certain symptoms, as increasing drowsiness and deep breathing of the "air hunger" type (acyanotic hyperpnea), may indicate to the skilled observer the onset of acidosis; but for an accurate quantitative idea of the degree of acidosis, determinations on the alveolar air or blood must be made.

Alveolar Air.— In acidosis, there is a diminished carbon dioxid tension in the alveolar air. The determination of this tension is a simple bedside procedure. Marriott has recently described a rapid clinical method for the purpose, for the details of which the reader is referred to the original paper.[13]

A little more difficult, but at the same time more accurate, are determinations of the bicarbonate content of the plasma by Van Slyke's vacuum pipet,[14] or the total alkali reserve of the plasma by Marriott's[15] colorimetric method. These methods all show the degree of acidosis, and it is important that this be known, especially during the fasting period, since failure to recognize a progressive acidosis may result in serious or even fatal consequences.

According to Stillman,[16] diabetics may react in a number of ways to the preliminary fast, as regards the development of acidosis. Some show no significant acidosis either before, during or after the fasting period. Others, with a severe grade of acidosis, existing before the fast, improve during the first fast or during the subsequent fasts. A third group shows a fairly constant, low grade acidosis not especially influenced one way or the other by the fast, but often relieved by subsequent, frequently repeated fasts, alternating with periods of low diet. A fourth group develops increasing acidosis during the fast which may even become of a sufficient degree to prove fatal.

With proper dietetic regulation, the development of acidosis of a serious grade is unusual. The treatment of acidosis is mainly dietetic and preventive. Patients who show a tendency to acidosis while on a diet otherwise suitable should be frequently fasted. As has been mentioned, however, a few patients develop acidosis of an alarming grade during the fasting period, as shown by the characteristic symptoms and by a progressive fall of the carbon dioxid tension of the alveolar air. The normal tension is in the neighborhood of 40 mm.; a tension as low as 35 mm. may be considered as insignificant; tensions below 35 mm. indicate acidosis, and 20 mm. is to be considered the danger point. When such a degree of acidosis is approached during a fasting period, the indication is to break the fast by allowing a restricted diet, chiefly of green vegetables. In such cases, subsequent fasting frequently causes the acidosis to disappear.

Alkali Therapy.— Dietetic treatment prevents the formation of acetone bodies and is the rational treatment for acidosis. Occasionally, however, the acidosis may become of such a grade that the administration of alkali is required. Alkalies neutralize acids already produced and replenish the depleted alkali reserve of the body, but have no effect in inhibiting the production of acids. Alkali administration is merely a temporary means of checking acidosis, but a valuable procedure when acidosis is of a severe enough grade to threaten life. Alkali therapy should not in any measure replace dietetic regulation and should be used only to tide the patient over a critical period. Alkali is indicated when, as a result of the patient's failure to observe dietetic regulation, the alveolar carbon dioxid tension has fallen to 20 mm. or lower, or if coma is present, or obviously impending, and also when, as a result of fasting, progressive acidosis occurs which is not promptly checked by feeding green vegetables.

Alkali in the form of sodium bicarbonate may be administered by mouth, intravenously or subcutaneously. The amount necessary is determined by the degree of acidosis, the size of the patient, and the therapeutic result obtained as gaged by rise in carbon dioxid tension and symptomatic improvement.

Sodium bicarbonate in solution may be given by mouth. In adults, it is usually futile to give less than 4 gm. at a dose, which may be repeated every four or five hours. Doses larger than 15 gm. are generally not well tolerated. Alkali should be continued until the alveolar carbon dioxid tension has risen above 30 mm.

Many diabetics, especially those approaching coma, are unable to retain alkali when given by mouth, on account of nausea and vomiting. In such cases, and, in fact, in the majority of cases in which alkali is required at all, intravenous injection is the method of choice. A 4 per cent. solution of sodium bicarbonate may be used and as much as 500 c.c. injected slowly at a time. The injection may be repeated as often as indicated by the alveolar air findings or the symptoms.

When, for any reason, intravenous injections are not feasible, alkali may be administered subcutaneously. Sodium bicarbonate, on boiling, is converted into the carbonate, which is so caustic that it cannot be injected subcutaneously with safety. If, however, the carbonate is reconverted into bicarbonate, it is available for subcutaneous injection. The conversion may be accomplished by passing a stream of carbon dioxid from a cylinder through the cold sterile solution until saturated, as shown by a change in color of a small amount of added phenolphthalein from pink to colorless. Solutions stronger than 3 per cent. bicarbonate should not be used for subcutaneous administration. As in other methods of giving alkali, the quantity will depend on the degree of acidosis and the response obtained.

From what has been written it is quite apparent that the treatment of diabetes requires special knowledge and more constant and intelligent care than does any other chronic disease. Drugs, with the exception of the alkalies, are worthless, "organotherapy" is a failure, many of the so-called "diabetic foods" are fraudulent, a *laissez faire* policy is fatal. The disease is combated only by management of the diet, which requires as nice discrimination in its use both as to quantity and quality as does any drug. Cooperation on the part of the patient is another requisite. When proper care and satisfactory cooperation can be obtained, the results are usually satisfactory.

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[13] Marriott, W. McKim: The Determination of Alveolar Carbon Dioxid Tension by a Simple Method, The Journal A. M. A., May 20, 1916, p. 1594.

[14] Van Slyke: Paper to appear soon in Jour. Biol. Chem.

[15] Mariott, W. McKim: A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch. Int. Med., June, 1916, p. 840.

[16] Stillman: Am. Jour. Med. Sc., 1916, cli, 505.

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SATURDAY, OCTOBER 14, 1916

THE MORBIDITY AND MORTALITY STATISTICS OF SCARLET FEVER

Since the day when Sydenham first differentiated scarlet fever from measles and gave to the disease a distinctive name, the malady has been the subject of much speculation and not a little careful study. Many of the peculiarities of scarlet fever as a highly infectious disease still challenge the physician and the epidemiologist. Among the reportable diseases of childhood, scarlet fever probably offers the best opportunity to investigate the incidence of epidemics and the influence of geographic, hereditary and seasonal factors, as well as the possible changes in therapeutic measures on the character of the underlying disease. Donnally[1] has selected scarlet fever for the study of morbidity and fatality; for starting out with all the reportable diseases, as he remarks, it was found that scarlet fever was the one which admitted of such investigation with the greatest satisfaction, because it is and has been for some time generally well reported and has undergone little change in treatment, and also because it can usually be readily diagnosticated. Diphtheria has had its specific treatment, which has tremendously influenced the figures. Measles, whooping cough and chickenpox are often so mild and so much a matter of course that a good proportion of cases are passed through without a call for a medical attendant, and remain unknown to the authorities. Difficulties of nice diagnosis rule out cerebrospinal meningitis from such a study, and infantile paralysis is too recent a disease in health office figures to make its study worth while.

An intelligently guided selection of data from several million cases of scarlet fever throughout the world where reasonably dependable notification exists ought to afford a basis for fairly valid deductions. Donnally found among approximately 2,000,000 presumably well reported cases that there were 104,500 deaths, which gives a case fatality of 5.25 per cent., while the morbidity rate was 3.9, that is, about four persons in each thousand inhabitants had scarlet fever, of whom one person in twenty died.

A marked difference in the incidence of scarlet fever in different localities unquestionably prevails. In large cities the disease may be abundant in some parts and slight or absent in others; in London this is continuously so. In only four of forty years was the incidence of scarlet fever in New York and Brooklyn the same; at times it differed widely, and yet their mean morbidity rates for the entire forty years were identical. Not only is scarlet fever more abundant in some places than in others, but its fatality in one locality may be much greater than in others. The disease, says Donnally, therefore does possess a *genius loci.*

Periodicity in the appearance of epidemics of scarlet fever cannot be made out from the newest epidemiologic study. Morbidity and mortality rates for the disease seem to be independent of each other. Season itself does not influence morbidity. A decline in morbidity has not generally been made out. Notification is at present probably more thorough than ever before. While insusceptible of proof, it is probable that this factor has served to keep morbidity rates in most places approximately level. Where notification has been of longest duration and most thorough (Norway), a reduction in the incidence of scarlet fever has been observed. The sexes as a whole show equal susceptibility. Under 5 years of age, boys are more susceptible, while between 5 and 15 years of age, girls are more susceptible than boys. About half of the cases occur in children between 3 and 8 years, and 90 per cent. in those under 15 years of age. About two children out of three between 3 and 8 years of age contract scarlet fever if exposed to it in their homes, if they have not previously had it.

Scarlet fever appears to be a milder disease than formerly. The most striking fact about the case fatality of scarlet fever in the past half century has been its consistent, general and marked reduction. This diminution in case fatality has occurred in the absence of specific treatment, and while there have been frequent irregularities in its descent, the general downward course is unmistakable and considerable, even comparable to diphtheria in its fall in some places. This reduction exceeds that of the general reduction in infant mortality.

Although the belief in the milder character of the scarlet fever of the present day is widely shared by those whose experience has given them a range of comparative observation over thirty or forty years, the explanation of the lowered fatality is not easy to find. Donnally suggests that the removal of scarlet fever patients to contagious hospitals has improved the care of many patients and may be a contributing factor to lowered fatality. Over 90 per cent. of the patients in London are treated in contagious hospitals, whereas in 1890 there were but 42.8 per cent. thus treated. As patients in hospitals are usually given diphtheria antitoxin, it is quite probable that this is another important factor, because combined scarlet fever and diphtheria have had a high fatality. It is conceivable, but incapable of proof, that there is an immunity which may have been increasing in the 300 years more or less since the disease was first recognized.

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[1] Donnally, H. H.: Scarlet Fever, Morbidity and Fatality, Am. Jour. Dis. Child., September, 1916, p. 205.

Donnally's studies further substantiate the belief that scarlet fever is more peculiarly a disease of childhood than is measles or whooping cough, although most children have the latter and acquire a consequent immunity. Nonimmune adults quite readily fall ill with them when exposed, but not so with scarlet fever, with which few exposed adults become affected.

As additional dicta derived from the newly collected data, it may be stated that scarlet fever has regularly been more prevalent and attended by greater fatality in some places than in others. At all ages males succumb more readily to it than females. Case fatality is lowest in those about 10 to 15 years of age. The younger the child, the less is his chance of recovery. About 90 per cent. of deaths from scarlet fever occur in those under 10 years of age.

THE ERADICATION OF WHOOPING COUGH

Pertussis is certainly not an uncommon disease, nor does it deserve to be ranked as a particularly mild affection. It is impossible to give any dependable statistics regarding the incidence of whooping cough because it has not been a reportable disease until lately. Even in New York City, several years after pertussis became legally reportable there continued to be more deaths from the disease than reported cases. The continued agitation and educational propaganda in the matter have begun to alter the situation so that in contrast with 174 cases reported in Greater New York in 1900, fifteen years later there were nearly 7,000 cases reported from Manhattan and Bronx alone.

The older writers regarded whooping cough as a distinctly fatal disease. In England the mortality has been rather high. In America, where it is regarded less seriously, there has nevertheless at times been a higher mortality from pertussis than from scarlet fever. Last year there was a case mortality of 5.6 per cent., that is, 385 deaths out of 6,868 reported cases in New York City. It has been stated that the actual case mortality, when one takes into consideration the unreported and atypical cases and those among adults, is probably from 0.5 to 1 per cent.

Adequate sanitary recommendations for the control and amelioration of a menacing contagious disease presuppose some epidemiologic information. To secure this has been the object of a study begun in 1913 in the Bureau of Laboratories of the New York City Department of Health, a few results of which are already available.[1] The mere history of the death rate from pertussis, independent of any notable progress in prophylaxis or treatment, points a moral as to what might be done if real scientific effort were applied to the problem of whooping cough, and all demands of modern hygiene were effectively enforced in the case of this underrated disease. In the last generation the death rate from whooping cough in the former city of New York (Manhattan and Bronx) has steadily decreased from 25.5 per hundred thousand population to about 7. It is interesting to note that it went up as high as 58.82 and that it was frequently four to five times its present rate. The lowest rate was 4.71 in 1908. Besides the general tendency toward a lower death rate, no rhythm of any kind can be discerned; the number of deaths seems to be independent of any meteorologic or other uncontrollable agencies. The steady lowering of the death rate is probably due to the general increase in knowledge and observation of public and personal hygiene.

One cannot refrain, says Luttinger, who compiled the facts here reported, from comparing this lowering of the pertussis death rate with that of diphtheria. Although no specific therapy had been used in whooping cough until recently, it compares favorably with the diphtheria curve influenced by antitoxin. How much greater might have been the beneficent outcome of an added earlier interest and an aggressive campaign for the management of whooping cough!

The new epidemiologic studies in New York City confirm the belief that pertussis still is a very prevalent disease. Even today probably not more than a tenth of all cases in the metropolis are reported to the department of health. The facts ascertained are as follows:[1] About 80 per cent. of all cases and 97 per cent. of all deaths are in children under 5 years of age. Fifty per cent. of the cases are in those under 2 years of age, and over 50 per cent. of all deaths are in children under 1 year of age. The incidence of pertussis among girls, as well as the number of deaths, is constantly higher than among boys, the proportion of both morbidity and mortality being about 44 per cent. for boys and 56 per cent. for girls. In contradistinction to other respiratory diseases, whooping cough seems to be most prevalent in the spring and summer months, and the mortality curve reaches its highest point in August, showing a similarity to the diarrheal diseases, although most deaths are due to pertussis pneumonia. Poor surroundings, congestion and lack of fresh air and proper care because of the guardian's precarious economic status seem to have a determining effect on both the morbidity and mortality of pertussis.

No one can doubt that whooping cough is transmitted by direct contact. Luttinger states that in nearly 60 per cent. of cases the source of infection is given as coming from a neighbor. He believes that adult pertussis carriers probably have been disseminating the disease and have remained unrecognized, owing to the atypical form in which it manifests itself. Here again, as so often in recent years, the unsuspected carrier has seriously complicated the problems of preventive medicine.

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[1] Luttinger, Paul: The Epidemiology of Pertussis, Am. Jour. Dis. Child., September, 1916, p. 290.

In view of the current divergence of opinion, which represents in reality a lack of dependable observations, on the efficiency of the vaccine treatment, the report from the New York health experts deserves serious consideration. We are told that pertussis vaccines, as prepared by the bureau of laboratories, when given early, have continued to give good curative and prophylactic results at the whooping cough clinic and in the hands of a large number of private practitioners and health officers. The very small number of deaths under vaccine treatment and the vast crowds who apply for treatment at the clinic indicate a favorable and possibly tangible influence of the specific treatment on the further epidemiology of the disease.[1]

In addition to the obvious measures which our present knowledge suggests to reduce the morbidity and mortality of whooping cough, especially in very young children, it is suggested that quarantine should extend during the first two weeks of the disease. Luttinger advises the establishment of more whooping cough clinics and the organization of boat camps, where possible, during the summer time for the rational treatment of pertussis. He also advocates the use of a suitably constructed pertussis hospital, in which the care of patients with severe attacks of whooping cough could be more efficiently undertaken and which would afford an opportunity for further scientific research on laboratory as well as clinical lines. If to these measures are added the education of the public and the awakening of the medical profession to its full duty in the matter, there is every prospect of a successful inroad on the ravages of a widespread contagion.

REMOTE EFFECTS OF NEPHRITIS

A variety of evidence, often of an ill defined and somewhat vague character, has gradually been accumulating to show that defects of the renal function such as are seen in nephritis exert something more than a purely local effect in the organism. Structural defects of the kidneys, as they are found in pathologic conditions of these organs or are induced by experimental methods, are often accompanied by consequences which concern the performance of tissues remote from the site of obvious disease.

An instance of what is here referred to is afforded by a recent investigation of the regulation of the blood volume after saline injections. In this research, conducted by Bogert, Underhill, and Mendel[2] at Yale University, the investigators have made use of the characteristic return of the blood volume to its normal, after dilution in various ways, as the index of a representative response of the organism. It is pointed out that the volume of the blood is one of the important constants of the body, the maintenance of which constitutes a condition of health. With widely varying fluid intake, there must frequently be a tendency toward disturbance of this equilibrium and toward an alteration in the volume of the blood. The mechanism by means of which a constant blood volume is maintained is, therefore, of very general physiologic interest.

After a considerable dilution of the blood, for example by saline injection, the normal volume is ordinarily resumed with surprising promptness. Following the introduction of a quantity of diluent equal to the calculated blood volume, the excess of fluid disappears from the circulation so rapidly that, in experimental animals, the original blood volume is usually restored within half an hour and often sooner. One might naturally be inclined to assume that this prompt regulatory removal of fluid is due entirely to the excretory functions of the kidneys. This is, however, by no means the case; for a comparable regulation proceeds even after ligation or exclusion of the kidneys so that they cannot take any part in the process. Inasmuch as, even in the absence of renal function, a dilution of the blood is still efficiently counteracted, it must be assumed that the tissues play some part in the process. Indeed, it seems clear now that the tissues act up to a certain limit as a reservoir for the excess of fluid, which later leaves the body gradually; and that the activity of the kidney plays only a small rôle in the immediate regulation of blood volume after intravenous injection of salt solutions.

In conditions of nephritis, on the other hand, an inability of the organism to restore the blood volume with equal ease to the normal after saline injections usually manifests itself. At any rate, incomplete or imperfect regulation in this respect has now been demonstrated in the case of individuals suffering from the nephritis induced by uranium salts,[3] by chromates[4] and by tartrates.[2] This failure of fluid to leave the blood and pass into the tissues as rapidly in the nephritic as in the normal individual can scarcely be ascribed solely to the deficient excretory capacity of the kidneys; for it has already been pointed out that these organs are not immediately essential. The Yale investigators believe that an alteration of the permeability of the blood vessel walls offers the only adequate explanation of the changed conditions prevailing in the nephritic subjects. It is concluded, therefore, that the condition of nephritis effects an alteration of the permeability of the walls of the capillaries of the general circulation in such a way as to hinder the passage of fluid from the blood to the tissues. In this way nephritic conditions exert an influence quite remote from the damaged kidneys themselves.

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[2] Bogert, L. Jean; Underhill, F. P., and Mendel, L. B.: The Regulation of the Blood Volume after Injections of Saline Solutions: Studies of the Permeability of Cellular Membranes, I, Am. Jour. Physiol., 1916, xli, 189; The Action of Saline-Colloidal Solutions upon the Regulation of Blood Volume, II, ibid., p. 219; The Influence of Alkaline-Saline Solutions upon the Regulation of Blood Volume, III, ibid., p. 229.

[3] Boycott, A. E.: Jour. Path. and Bacteriol., 1913, xviii, 11; ibid., 1914, xviii, 498.

[4] Chisholm: Jour. Path. and Bacteriol., 1914, xviii, 552.

RELATIVE VALUES IN PUBLIC HEALTH WORK

There is nothing more discouraging to a sincere worker than the realization that, because of meager information, or misinformation, his honest efforts may be misdirected. Certainly the authorities attempting to control the recent poliomyelitis epidemic have been conscious of this. To some degree, indeed, all workers for health preservation find a constant source of discouragement in the lack of accurate data on relative values in public health work. In view of the fact that from a fourth to a third of the deaths which occur in continental United States each year are preventable, no public health official can fail to realize that mistaken judgment on his part in the expenditure of the insufficient funds entrusted to him may mean lives needlessly lost. He has to face the problem of inadequate funds and possible political pressure for the misuse of those funds. Still more grave is the danger that, no matter how honest his own intentions, through lack of accurate information, he may still misuse his resources.

Public health protection is a new activity, there are comparatively few up-to-date reference books, and no one man can hope from his own experience to be able to grasp the whole field. In fact, the average health officer often lacks the specific training and length of tenure in his office which would justify him in depending on his own judgment. Such men particularly, and, indeed, all persons who are interested in original contributions to the scientific data on which all useful preventive medicine must be based, will therefore welcome the study of the "Relative Values in Public Health Work"[1] by Franz Schneider, Jr. Schneider, as the sanitarian of the Department of Surveys and Exhibits of the Russell Sage Foundation in New York City, has undertaken this analysis of relative values at a time when such a study is greatly needed. Schneider disclaims any high degree of accuracy for the conclusions which he offers. In the first place, the figures are based only on reports from cities in the registration area. These, unfortunately, include only about 35 per cent. of the total population, and are entirely inadequate as to sickness statistics; but with proper allowance also for the fluctuation of values caused by local conditions, the figures offered are significant both for the originality and suggestiveness of method by which they were worked out, and as offering a sound foundation for a scientifically planned health program. The thesis is that with limited funds a proper choice of activities is of chief importance. The four prime factors by which may be determined the relative value of activities directed against disease are the amount of damage the disease causes, its preventability, the cost of its prevention, and its tendency to become epidemic. Judged by all these criteria, and only in reference to their relative value as causes of death, the following preventable diseases are rated thus:

RATING OF PREVENTABLE DISEASES

Tuberculosis	16.9
Infants' diseases (including diarrhea, enteritis and bronchopneumonia)	33.9
Contagious diseases of children	30.5
Venereal diseases	9
Typhoid fever	6.1
Other infectious diseases	3.4
Nutritional diseases	.2
Total	100

There are certain activities indispensable to a health department, although they may only indirectly affect the death rate from these diseases. Such activities are health education, the physical examination of schoolchildren, the recording of vital statistics, and the maintenance of dispensaries, clinics and laboratory facilities. The foregoing figures, corrected by making an allowance for these activities and for other factors omitted in the first rating, are altered so as to indicate, as in the following table, the final values of health department activities:

FINAL VALUES OF HEALTH DEPARTMENT ACTIVITIES

Control of tuberculosis	12.1
Control of venereal diseases	6.6
Control of all other communicable diseases	25.3
Infant hygiene	20.3
Privy and well sanitation	3.5
Milk control	2.7
Fly and mosquito suppression	2.4
Food sanitation	.1
Inspection of schoolchildren	7
Vital statistics	5
Education	5
Dispensary and clinics	5
Laboratory	5
Total	100

Figures of this kind stimulate the reader to instant questions; but it is because of the careful explanations and painstaking justification of the values given that the report is well worth careful study.

THE ALCOHOL-URIC ACID QUESTION

The answer to the question as to what constitutes a food is becoming more complicated with the development and expansion of our knowledge of metabolism and nutrition. A few years ago the method to be pursued in finding the solution to such a query seemed clear. It was merely necessary to ascertain whether the substance in question could yield energy, not merely in a laboratory apparatus but also in the living organism. The reservation here indicated was necessary for the reason that many substances, which will burn up outside of the body to furnish heat and work, do not digest when ingested by the organism itself, and hence cannot enter the tissues proper to participate in metabolism; or they may be positively toxic, despite their combustibility. Cellulose readily yields heat in the bomb calorimeter; but it passes through the alimentary tract of man unchanged. Its energy is not available, as the student of metabolism expresses it. Strychnin is another organic compound which can easily be burned in a crucible; but it is too toxic for its energy-yielding capacity to be considered.

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[1] Schneider, Franz, Jr.: Relative Values in Public Health Work, read before the Massachusetts Association of Boards of Health, Providence, R. I., July, 1916; Am. Jour. Pub. Health, September, 1916.

Nowadays the food question is further complicated by the recognition of the unlike value of different proteins in nutrition,[1] and by the accepted need of food hormones or vitamins which play a rôle independent of any energy which they can yield. Popular enthusiasm for these more subtle and little understood factors in nutrition is now in the ascendant to a degree that may make it necessary soon to sound a reactionary warning. It is detrimental, if not dangerous, to permit the momentary interest in a new discovery to overshadow the importance of older well recognized facts. Energy is an indispensable feature of the body's needs, even if the repetition of the caloric aspects of nutrition tends to seem trite. Dietary preparedness can never be adequate with neglect of the energy problem.

The ever recurring debate on the use of alcohol invariably meets the question, sooner or later, as to whether or not alcohol in any dose can be a food. There can be no issue in the matter so long as one refers to doses of alcohol that are obviously toxic. When the detrimental effects of alcohol overshadow every possibility of latent nutrient virtue, discussion becomes unnecessary. The uncertainty of interpretation arises in connection with so-called moderate doses or among the moderate users of alcoholic beverages. If "beer is merely liquid bread," as the advertisements would sometimes have us believe, its nutritive value must be scientifically established before the statement can be accepted.

The chief mainstay of the defenders of alcohol as a possible food has been the demonstration that small, though not insignificant amounts of alcohol may replace carbohydrate or fat, with an equivalent protein-sparing action.[2] It has been stated in reply, however, that in many cases this effect did not appear until some time after the substitution of alcohol for one of the other nutrients in the diet. Despite the characteristic protein-sparing action of moderate doses of alcohol, it has been found by a number of investigators, more recently by Mendel and Hilditch,[3] that the addition of alcohol to the diet results in an increased excretion of uric acid. If this is to be regarded merely as a normal response to a nutrient stimulus, little exception can be taken to such a reaction; but if it represents a pharmacodynamic effect, one might seriously question the propriety of speaking of alcohol as a typical food in any sense, even if it burns up easily in the body.

The significance of "moderate" doses of alcohol has again come into prominence through the new investigations at the Carnegie Nutrition Laboratory in Boston indicating detrimental psychologic effects from rather small quantities.[4] It is a merit of modern studies in this field that they have been undertaken in a purely objective spirit and without the latent prejudice that almost inevitably attends the promotion of a propaganda, even for good. In this spirit of scientific impartiality, attention is directed to a recent investigation by Hammett[5] in the Medical Department at the University of Southern California. He has determined the effect, on the nitrogen partition in the urine, of substituting isodynamic quantities of alcohol for sucrose during an otherwise fixed diet in man. The alcohol was given in the form of rum, 40 c.c. (1⅓ ounces) at each of the three daily meals in place of 30 gm. (1 ounce) of sucrose, and yielding about 370 calories a day. The substitution produced no significant changes whatever in urinary nitrogen partition; in particular, the output of uric acid remained unaltered. The subjects were accustomed to the moderate use of alcoholic beverages.

Increased ingestion of foods — particularly of proteins — may augment temporarily the elimination of endogenous uric acid to a small extent. Hammett remarks that his results do not necessarily indicate that all or even the greater part of the increase in uric acid excretion recorded by Mendel and others, when they added alcohol to the diet, was due to increased caloric intake. He points out, in the first place, that the amount of alcohol ingested by Mendel's subjects was nearly 40 per cent. more than that consumed in the experiments detailed above. This would lead to a more pronounced pharmacodynamic action. In the second place, the subjects used by Mendel were not accustomed to the use of alcohol as a beverage, and hence might be expected to react to a greater extent than would Hammett's subjects, from whose continuous though mild use of alcohol the development of a tolerance might be assumed.

Hammett's deduction from his investigation is conservative. Comparing his results with the widely quoted statement of Mendel and Hilditch[3] that "even in the 'moderate' doses used alcohol increases the output of uric acid" in man, he says that it is indicated that several factors contribute to the effect of alcohol on uric acid excretion; and that in the light of our present knowledge we can make no statement as to the relative importance of any of these factors, much less explain their action.

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[1] For a review of this subject see Mendel, L. B.: Nutrition and Growth, The Journal A. M. A., May 8, 1915, p. 1539. Underhill, F. P.: Physiology of the Amino-Acids, New Haven, 1916.

[2] Physiological Aspects of the Liquor Problem, Boston, 1903, ii, 169. Rosemann, E.: Oppenheimer's Handbuch der Biochemie, 1909-1911, iv, Part i, 413.

[3] Mendel, L. B., and Hilditch, W. W.: Am. Jour. Physiol., 1910-1911, xxvii, 1.

[4] New Evidence Against Alcohol, editorial, The Journal A. M. A., March 4, 1916, p. 742.

[5] Hammett, F. S.: The Effect on Nitrogen Partition of Substituting Alcohol for Sucrose in an Otherwise Fixed Diet, Jour. Biol. Chem., 1916, xxv, 601.

Current Comment

EXPOSURE TO COLD AS A CAUSAL FACTOR IN DISEASES OF THE RESPIRATORY TRACT

While it is generally admitted that most diseases of the respiratory tract are of bacterial origin, it has not been wholly determined whether or not the sudden exposure of the whole or part of the body to marked changes of temperature predisposes to various infections. Chodounsky[1] in 1907 experimented with the effects of various bacilli on the lower animals and also made repeated studies on his own person. He was 57 years of age, subject to catarrh, to frequent attacks of bronchitis and to lumbago. He exposed himself naked to cold air and drafts at temperatures from 3 to 12 C. for periods of time varying from twenty minutes to one hour, immediately after cold or hot baths. Exposure to cold he concluded was not a causal factor in diseases of the respiratory tract. Yet considerable evidence has accumulated in support of the opposite view. Lipari,[2] Lode,[3] Pasteur,[4] and Kline and Winternitz,[5] experimenting variously with infected animals, are all in accordance with the general conclusion that exposure to sudden changes of temperature lessens the resistance of animals to infection. The New York State Commission on ventilation[6] reported the results of a clinical study of nearly 150 men subjected to sudden changes of temperature. It was concluded that such changes may be a factor in the causation of acute colds. Lately, J. A. Miller and W. C. Noble,[7] working under the auspices of the same commission, have added some important data still further supporting this view. They infected a number of rabbits with *Bacillus bovisepticus.* This organism produces a general septicemia at times, but in some cases it is localized in the upper respiratory passages, in which it produces a condition commonly known as snuffles and may terminate in pneumonia with or without septicemia. Thirty-seven rabbits were kept in an incubator at varyingly high temperatures for different periods of time. They were then infected by spraying the nasal mucous membrane with saline suspension of *Bacillus bovisepticus,* after which they were exposed to cold for periods of from one-half to three hours. The animals were also wet with water to facilitate chilling. Both the mortality and morbidity were greater in the exposed animals than in a like number of controls maintained under normal conditions. The same general results were obtained when the animals were exposed to several changes of temperature, and the effect was even more marked when they were subjected to heat after exposure to cold. Although positive conclusions cannot be drawn from animal experimentation along this line, taken in conjunction with the results of several of the clinical studies, there is sufficient evidence from which to draw certain practical, working conclusions. The importance of the outdoor treatment of pulmonary tuberculosis and many other conditions is well established. It must not be forgotten, however, that the resistance of many of these patients to various infections is low. They should not be subjected suddenly to violent extremes of temperature, and proper precautions should always be taken against chilling of the body surfaces. It seems evident that the exposure of a portion of the body to cold is more likely to be followed by acute respiratory infections than when the entire body surface is subjected to the same low temperature, and the popular idea that drafts predispose to respiratory infection in some individuals is therefore not without foundation.

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[1] Chodounsky, K.: Erkältung und Erkältungskrankheiten, Vienna, 1907.

[2] Lipari, G.: Morgagni, 1888, xxx, 523, 575, 651.

[3] Lode, A.: Arch. Hyg., 1897, xxviii, 344.

[4] Vallery-Radot, R.: The Life of Pasteur, New York, 1902, ii, 61.

[5] Kline, B. S., and Winternitz, M. C.: Jour. Exper. Med., 1915, xxi, 304.

[6] "Cold in the Head," editorial, The Journal A. M. A., April 15, 1916, p. 1201.

[7] Miller, James A., and Noble, Willis C.: Effects of Eposure to Cold on Experimental Infection of the Respiratory Tract, Jour. Exper. Med., Sept. 1, 1916, p. 223.

THE SUPRARENALS AND POLYCYTHEMIA

Last year Lamson[1] of the Pharmacologic Laboratory at the Johns Hopkins University called attention to the fact that, contrary to the customary assumption, the number of red corpuscles per unit volume of blood is not constant, but is subject to rapid and by no means negligible changes; indeed, it is continually changing under physiologic conditions. It appears that the "red count" is under nervous control. The number of erythrocytes is reported to increase after emotional excitement, such as fear or rage. Several important facts have been brought out in relation to acute experimental polycythemia. This condition can be provoked very promptly by injections of epinephrin. By a series of ingenious experiments Lamson[2] has found it more than probable that the liver is the organ responsible for the changes in the number of red cells induced in this way. Polycythemia will not take place unless the liver is connected with the circulation. The process by which the liver increases the number of erythrocytes is thought to be a loss of plasma from the liver capillaries, together with a constriction of these vessels driving the erythrocytes on into the blood stream. It has been experimentally shown that the liver capillaries constrict with epinephrin, causing a sudden diminution in size of the liver. What is the normal mechanism in the body for regulating the sudden changes in the red corpuscle content of the blood? It obviously is under nervous control and responds to nervous, chemical and emotional stimuli. A direct nervous influence, however, can scarcely be at work; for stimulation of the nerves to the liver causes no increase in the number of erythrocytes, according to the new observations of Lamson.[3] Furthermore, in animals in which epinephrin causes no polycythemia, nervous stimuli also cause no increase in the red blood count. It seems probable, therefore, to Lamson that the polycythemia following the stimulation of certain nerves is not due to a direct nervous influence, but to a reflex stimulation of the suprarenals, and a secondary action of epinephrin on the liver. Thus the burden of one more regulatory function in the ever responsive organism is laid at the feet of the suprarenal gland mechanism. It helps to explain the observation that removal of the suprarenals excludes the manifestation of polycythemia in rage, fear or asphyxia; although even suprarenalectomized subjects respond to the injection of epinephrin by the characteristic increase in the number of red cells. Furthermore, removal of the suprarenals is soon followed by a complete loss of functional control of the number of erythrocytes in a unit volume of blood.

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[1] Lamson, P. D.: The Rôle of the Liver in Acute Polycythaemia: The Mechanism Controlling the Red Corpuscle Content of the Blood, Proc. Nat. Acad. Sc., 1915, i, 521.

[2] Lamson, P. D.: Jour. Pharmacol. and Exper. Therap., 1915, vii, 169.

[3] Cf. Lamson, P. D.: The Processes Taking Place in the Body by Which the Number of Erythrocytes per Unit Volume of Blood is Increased in Acute Experimental Polycythaemia, Proc. Nat. Acad., 1916, ii, 365.

THE BLOOD PRESSURE IN PNEUMONIA

The development of accurate methods of investigation in clinical medicine and the expression of the results in terms of definite quantitative measurements have served to dispel many of the long current assumptions that had little more than a traditional probability to support them. In the descriptions of pneumonia, for example, one reads of sudden collapse of the circulation, with weakness and irregularity of the heart and the pulse, the low blood pressure, subnormal temperature, and other attendant symptoms. These have been ascribed to "toxic paralysis of the vasomotor centers, toxic degeneration of the myocardium, and excessive pressure in the pulmonary circulation." The long held belief that the toxins of pneumonia specifically injure the vasomotor apparatus has been clearly disproved by Porter and Newburgh.[1] Even in fatal cases, in animals about to die with almost wholly consolidated lungs, the vasomotor reflex commonly remains normal. Further studies by these investigators[2] at the Harvard Medical School indicate that the blood pressure in experimental pneumonia is frequently somewhat less than normal, but, in their experience, has never been so low as to endanger life. This corresponds with the observations by Newburgh and Minot[3] of blood pressure in pneumonia in the wards of the Massachusetts General Hospital and the Johns Hopkins Hospital. It was found that the average of the readings taken morning and afternoon during the course of the disease was from 110 to 120 mm. of mercury. The normal for human beings of corresponding age is 120 to 130 mm. The lowest observed pressure was 90 mm., with three cases at 100 mm. Taken in their entirety the now known facts, clinical and experimental, indicate that the blood pressure in pneumonia does not serve the same prognostic value that was formerly attributed to it when the dictum prevailed that persons likely to die of this disease would have a low or falling pressure days before the fatal issue.

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[1] Porter, W. T., and Newburgh, L. H., and I.: Boston Med. and Surg. Jour., 1914, clxx, 125; The State of the Vasomotor Apparatus in Pneumonia, Am. Jour. Physiol., 1914, xxxv, 1.

[2] Newburgh, L. H., and Porter, W. T.: The Blood Pressure in Experimental Pneumonia, Am. Jour. Physiol., 1916, xli, 384.

[3] Newburgh, L. H., and Minot, G. R.: Arch. Int. Med., 1914, xiv, 48.

A Smiling Countenance.—It is the mark of a skilled practitioner to sit a while by the bedside, with a blithe countenance.—Celsus.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

COLORADO

Personal.—Dr. Charles D. Rilance, Denver, sailed on the *Noordam*, September 23, to join the Convalescent Hospital at Bath, England.

Consolidation of Medical Departments.—A consolidation of the surgeons in the police department and the health department of Denver has been effected so that all the medical officers will work under one jurisdiction, responding both to ambulance calls and to poor and public service cases.

Sanitary Expert Visits Denver.—Surgeon Carroll Fox, U. S. P. H. S., is in Denver on invitation of the state survey commission and the state board of health to investigate the sanitation in the cities and rural districts of Colorado, the water supply and milk supply, the health laws of the state, and the facilities for fighting epidemics at home.

CONNECTICUT

Silliman Lectures.—The Silliman lectures at Yale University for 1916 were delivered by Dr. J. S. Haldane at the Lampson Museum, October 9, 10, 12 and 13, at 5 p. m., on "Organism and Environment as Illustrated by the Physiology of Breathing."

Yale Health Board Organized.—Yale University announces the organization of a university board of health, with Dr. James C. Greenway, New Haven, as university health officer. The board will be made up of the several deans; the professor of public health in the school of medicine; the professor of hygiene in the scientific school; the treasurer of the university; the director of the gymnasium, and the chairman of the athletic committee.

Pathologist Resigns.—Dr. Jessie W. Fisher, pathologist at the Connecticut Hospital, Middletown, for several years, has resigned to accept the position as pathologist of the Middlesex Hospital, Middletown. She will also be in charge of the new laboratory at that institution and will be pathologist of the Cromwell Hall Sanatorium. The vacancy on the Connecticut Hospital staff has been filled by the appointment of Dr. Arthur S. Gibson, Boston.

GEORGIA

Medical Defense Department Organized.—The Medical Defense Department of the Medical Association of Georgia met in Augusta, September 9, for organization and elected Dr. Mallie A. Clark, Macon, chairman; Dr. William C. Lyle, Augusta, secretary, and Col. M. L. Felts, Warrenton, general counsel.

Building Given to Emory University.—Bishop Candler, chancellor of Emory University, announces the receipt of a contribution of $50,000 from J. J. Gray, Jr., Rockdale, Tenn., for the erection of an outpatient building in conneciton with the medical department of Emory University, the building to be known as the J. J. Gray Clinic.

Personal.—Mr. Barnett Cohen, assistant in the laboratory of the Savannah Health Department, has resigned to accept a position in the department of public health of Yale University, New Haven, Conn.——Dr. Emory R. Park, Atlanta, has resigned from the state board of health.——Dr. Robert E. McClure, Macon, has been elected superintendent of the State Tuberculosis Sanatorium, Alto, succeeding Dr. William V. Parramore, Alto, resigned.——Dr. Walpole C. Brewer has been appointed a member of the board of health of Atlanta.——Dr. William C. Lyle has resigned the management of the University Hospital, Augusta.——Dr. Lamartine G. Hardman, Carrollton, is a candidate for governor of Georgia.——Dr. Henry M. Michel, Augusta, will remain in France until the end of the war.——Dr. William R. Houston, Augusta, who has been in charge of a large hospital at Lyons, France, has returned to this country.——Dr. Robert C. Goolsby, Forsyth, announces his candidacy for representative of the General Assembly.——Dr. John A. White, Augusta, has been elected commissioner of health for Dougherty County.

ILLINOIS

To Study Poliomyelitis.—In anticipation of an epidemic of poliomyelitis next summer, the Illinois State Board of Health has arranged for a number of conferences on the subject at different points in the state during the winter months.

Charities and Correction.—The twenty-first annual state conference of Charities and Correction will be held at Alton, October 20 to 22. The chief subjects for discussion are, children, rural social service, mental and physical efficiency, the family and its needs, probation and prevention of crime, and labor and compensation.

Chicago

Life Extension Institute.—The Life Extension Institute of New York City, it is reported, has arranged to open a branch office in Chicago.

Memorial Meeting for Dr. John B. Murphy.—October 11 was observed by the Chicago Medical Society as Dr. John B. Murphy memorial night. The following were announced as speakers: Drs. George W. Crile, Cleveland; C. A. L. Reed, Cincinnati; Frank Billings, L. L. McArthur, E. Wyllys Andrews, D. A. K. Steele, A. D. Bevan, W. E. Quine, A. J. Ochsner, Jacob Frank and W. A. Evans, Chicago.

Personal.—Dr. Dwight C. Orcutt has been appointed ophthalmic surgeon at the Illinois Charitable Eye and Ear Infirmary, succeeding Dr. Oscar Dodd, resigned.——Dr. Albert H. Roler, Evanston, has been appointed, by the secretary of state, assistant at the American Embassy in Berlin, his duties being to inquire into and report on the condition of British prisoners in Germany and German prisoners in Russia. Dr. Roler sailed for Berlin, October 12, via Denmark.——Prof. Roy G. Hoskins, formerly associate professor of physiology of Northwestern University Medical School, has been appointed professor and head of the department of physiology in that school.

IOWA

Clinical Society to Meet.—The Iowa Clinical Medical Society will hold its next meeting at the Iowa City University Medical School, Iowa City, December 2.

Personal.—Dr. Donald Macrae, Jr., Council Bluffs, has been placed in charge of the Brownsville (Texas) Base Hospital.——Dr. Ralston W. Sleeter has been appointed local surgeon at Rockford for the Rock Island System.——Dr. Hugh Mullarky, Manson, has been nominated as the Democratic candidate for state senator.——Dr. William E. Owen, Cedar Rapids, was elected vice president of the Iowa State Cymrodorian Society at its meeting in Iowa City, September 8.——Dr. Merle Bone has resigned as house physician at the Miners Hospital, Albia, and has been succeeded by Dr. Isaac H. Odell, Albia.

KANSAS

Car for Health Exhibit.—Mr. Robert Lincoln, chairman of the board of directors of the Pullman Company, has presented a car to the Kansas Department of Health to be used for the public health, child hygiene and propaganda exhibit of the board.

Personal.—Dr. Newton A. Seehorn, Hutchinson, has been appointed physician at the State Reformatory, succeeding Dr. Frederic A. Forney, Hutchinson, resigned.——Dr. William E. Michener, Ottawa, has succeeded Dr. Charles E. Buckley, Ottawa, resigned, as secretary of the Franklin County Medical Society. The society in accepting the resignation adopted a set of resolutions complimentary of Dr. Buckley and presented him with a gold watch charm.

MARYLAND

Personal.—Dr. Allen K. Krause, former head of the Trudeau Sanatorium at Saranac Lake, N. Y., has arrived at Johns Hopkins Hospital to assume general charge of the Phipps Tuberculosis Dispensary and to direct the work in this department, made possible by the recent gift of Mr. Kenneth Dows, New York. Dr. Krause has not completely severed his connection with Trudeau Sanatorium, but will return there each summer for four months. His connection with the two institutions will link together the work done at both places.

The Infantile Paralysis Situation.—A number of new cases having been reported to the city and the state departments of health, Health Commissioner Blake has deferred the opening of the kindergarten and six lower school grades. These cases are scattered through all parts of the city and the various counties. In a number of instances, the disease has not been recognized promptly and that, in part, accounts for this spread. Children under 16 years of age are no longer required to obtain certificates to leave the city, but the health officials of New York, New Jersey and Pennsylvania have been notified that all children under 16 years must have health certificates before coming to Baltimore and these will be quarantined for fourteen days. Several cases have developed here shortly after children have arrived from other states.——The United States Public Health Service has issued an order withdrawing its forces from Baltimore, but has recommended that no let-up be made in the quarantine regulations.——Dr. James R. Hurley and Dr. C. H. Waring of the U. S. P. H. S. have been recalled to Washington and Dr. Joseph R. Ridlon has been ordered to Tampico, Mexico, to investigate sanitary conditions.

Ordinance for the Pasteurization of Milk Urged.—On account of the minor epidemic of typhoid fever during the last few months, the cause of which has been traced to unpasteurized milk, the health department is making an effort to have the city council pass an ordinance requiring the pasteurization of all milk sold in Baltimore. The Milk Bottlers' Exchange is cooperating with the health department, and has adopted resolutions urging immediate action on the part of the city council. A series of meetings in the interest of the pasteurization of milk is to be held during the autumn and it is said that the proposed ordinance will be generally indorsed and passed with no opposition. It developed that the state agricultural board, recently appointed, has the power to order the pasteurization of all milk sold in Maryland, in the towns and villages as well as in the large cities. The board is already interested in a plan with this end in view and the statement has been made that it would back any ordinance passed by the city council or any regulation Dr. Blake adopted.——The monthly report of the health department, issued recently, showed 189 cases of typhoid fever were reported in September, three more than last year. Twenty died from the disease, compared with twenty-two a year ago.

MASSACHUSETTS

Hospital Soon to be Opened.—The Beth Israel Hospital, located at 45 Townsend Street, Roxbury, Boston, the first Jewish institution of its kind in Boston, will be formally dedicated, October 22. The hospital, although a Jewish institution, will not be restricted to any creed or color so long as the Jewish dietary laws are upheld.

Free Choice of Medical Attendance for Working Men.—A meeting of committees of five of the various district societies was held in Worcester, September 20, to consider and plan a movement looking to the amendment of the Workmen's Compensation Act which will allow injured employees freedom of choice of medical attendance.

Personal.—Dr. Beatrice H. Brickett, Newton Highlands, has been appointed superintendent and resident physician of the Massachusetts Women's Hospital, Parker Hill, Roxbury, Boston, succeeding Dr. Edith M. Brooks, who, after a period of twelve years in charge of the hospital, resigned this summer.——Dr. Thomas H. Kenney has been elected a member of the board of health of Northampton.

Harvard and Poliomyelitis.—Harvard Medical School has established a commission to assist in the early recognition, treatment and study of infantile paralysis. The commission consists of Dr. Robert W. Lovett, chairman; Drs. Milton J. Rosenau and Francis W. Peabody, Boston, and Mr. Roger Pierce as secretary of the commission. The commission will work in close cooperation with the state department of health and the local health authorities.

Poliomyelitis.—Surg. Lumsden D. Fricks, U. S. P. H. S., has reported for duty at Boston with the state board of health, and has gone to Holyoke, where infantile paralysis has obtained a strong hold, to give assistance to the local authorities, and to make a health survey.——On the recommendation of the governor, the legislature has passed the Bates bill, which allows local boards of health to establish quarantine when an epidemic of infantile paralysis is threatened.——Up to September 27, 523 cases of poliomyelitis had been reported to the state health department, or about double the number of cases reported in August.

Ether Day.—The seventieth anniversary of Ether Day will be celebrated at the Massachusetts General Hospital, October 16. The exercises will be held at 4 p. m. in the Moseley Memorial Building, which has been recently completed and was erected as a memorial to William Oxnard Moseley, a house pupil at the Massachusetts General Hospital in 1878. After introductory remarks and presentation of diplomas by Dr. Henry P. Walcott, Boston, president of the corporation and chairman of the board of trustees, there will be an address by Dr. Herbert Burr Howard, superintendent of the Peter Bent Brigham Hospital, followed by the Ether Day address by Dr. Haven Emerson, commissioner of health of New York.

Faculty Changes in Harvard.—Drs. Abraham Myerson, Farrar Cobb, Frederic Jay Cotton, William Edward Faulkner, Joshua Clapp Hubbard, Daniel Fiske Jones and Fred Bates Lund have been appointed associates in Harvard Medical School for one year; Dr. Horace David Arnold has been appointed director; Dr. Alexander Swanson Begg, dean, and Drs. Edward Hickling Bradford, George Gray Sears, Algernon Coolidge, Charles Locke Scudder, Milton Joseph Rosenau and Francis Weld Peabody, members of the administrative board of the Graduate School of Medicine of Harvard University.——The Harvard corporation has made the following appointments: Dr. Charles W. McClure, alumni assistant in medicine; Dr. Andrew Watson Sellards, associate in tropical medicine; Dr. George B. Magrath, instructor in legal medicine; Dr. Le Roi Goddard Crandon, assistant in surgery; Dr. Francis Gorham Brigham, assistant in medicine; Dr. Frederic Codman Cobb, associate in laryngology; Dr. Charles Locke Scudder, assistant professor of surgery; Dr. Harris Peyton Mosher, instructor in anatomy; Dr. David Cheever, associate in surgery; Dr. Samuel Walker Ellsworth, assistant in roentgenology; Dr. Peter Hunter Thompson, clinical assistant in ophthalmology; Drs. Joseph Maria Thuringer and Paul Eugene Lineback, assistants in histology and embryology, and Dr. William Richard Ohler, Austin teaching fellow in bacteriology.

MINNESOTA

Outing for Crippled Children.—The tenth annual outing for children from the State Hospital for Crippled and Deformed Children, given by Dr. and Mrs. Arthur J. Gillette, St. Paul, at their summer home, Dellwood, White Bear Lake, occurred September 12, when 100 children from the home were taken to the lake by automobiles, entertained with moving pictures and then taken for trips on the lake and for supper in the Gillette residence.

Charities and Correction.—The Minnesota Association of Charities and Correction opened its annual conference in the First Presbyterian Church, Stillwater, September 23, and continued in session until September 26. Dr. Robert M. Phelps, St. Peter, is president of the conference, and among topics for discussion were "Criminology and Its Alliance With Mental Defectives"; "Providing for the Mentally Defective Child," and "Standards in Child Placement."

Personal.—Dr. William H. Hengstler, Osakis, has disposed of the Park Region Hospital, Osakis, to Dr. Emil Haberman, Minneapolis, and expects to locate in Portland, Ore., next spring.——Dr. Horace H. Witherstine has been elected president of the newly organized antituberculosis society of Rochester.——Dr. Adrien J. Kirghis, Sauk Center, has returned after several months' service in the French war hospitals.——Dr. Carl F. Raver, Mankato, has been placed in charge of the Mankato laboratory of the state board of health.

Health Safeguards.—The governor has appointed a commission composed of the following members to investigate and report on the need of additional health safeguards for the citizens of the state: Dr. E. P. Lyon, dean of the University of Minnesota, Medical School, Minneapolis; C. G. Schulz, superintendent of the state department of education; William F. Houk, state labor commissioner; C. J. Swendsen, chairman, state board of control; Senator L. E. Potter, Springfield; Drs. Arthur T. Laird, superintendent of the Nopeming Sanatorium; Louis B. Wilson, Rochester; Warren L. Beebe, president, and Ignatius J. Murphy, St. Paul, executive secretary of the Minnesota Public Health Association. At the meeting for organization, held September 20, in St. Paul, Dr. E. P. Lyon was elected chairman, and Dr. Ignatius J. Murphy, secretary of the commission.

MISSOURI

Personal.—Dr. Herman E. Pearse has been elected president of the staff of the Kansas City General Hospital, succeeding Dr. Jefferson D. Griffith, retired.——Dr. Charles R. Woodson, St. Joseph, entertained nearly 100 members of the Buchanan County Medical Society at dinner at the Woodson Sanitarium, September 16.

St. Louis

Care for Families of Militiamen.—Cooperating with the National Militiamen's Association, the members of the St. Louis Medical Society have given medical and surgical service to about sixty families. In addition St. Mary's Infirmary, St. John's, St. Louis Mullanphy, St. Anthony's, Jewish, Alexian Brothers, Mt. St. Rose, Barnes, St. Luke's, Deaconess and Lutheran hospitals, the Missouri Baptist Sanitarium and St. Ann's Maternity have volunteered to accommodate members of the militiamen's families free of charge.

NEW HAMPSHIRE

Society Meeting.—At the annual meeting of the Dover Medical Society at Rochester, September 8, the following officers were elected: president, Dr. Thomas J. Morrison, Somersworth; vice president, Dr. John H. Bates, East Rochester, and secretary, Dr. Roland J. Bennett, Dover.

NEW YORK

State Plans After-Care of Infantile Paralysis.—Dr. Dinsly R. Williams, Albany, deputy state commissioner of health, has announced a comprehensive plan for the after-care of infantile paralysis patients. He announces that Dr. Robert W. Lovett, Boston, will cooperate with the state health department, and that clinics will be held in various places throughout the state where persons who have had the disease may come for advice and treatment.

Personal.—Dr. Herbert H. Smith, Cape Vincent, has been appointed physician in charge of the Jefferson County Tuberculosis Hospital, Watertown.——On account of the reduction in the number of cases of infantile paralysis, Dr. Frederick J. Garlick, Rochester, has been relieved of duty as expert diagnostician for the state department of health.——Dr. John Van Duyn, Syracuse, has returned after several months' service in France.——Dr. Guy H. Turrell, Smithtown Branch, has been appointed sanitary supervisor in the state department of health.

New York City

Federal Inspection of Infantile Paralysis Ends.—The federal inspection of interstate travel, which was instituted last July in this city, was discontinued, October 4. The number of new cases of infantile paralysis reported on that date was twelve, with eight deaths. That represents a fair average of the number of new cases reported each day during the week.

Gifts to Columbia.—At a recent meeting of the trustees of Columbia University, a number of gifts were announced, among which were an additional contribution of $7,000 toward the proposed new building for the dental school, $5,000 from Clarence H. Mackay to be added to the fund for surgical research, and $1,000 from Willard V. King to be applied to the medical school removal and rebuilding.

Health Library for City.—The Municipal Reference Library, which is in the Municipal Building, will establish a public health division on the fifth floor of the Health Department Building. It will specialize on child hygiene, drugs, food analysis, food inspection, food regulations, food supply, hospitals, health insurance, milk supply, occupational hygiene, school inspection, contagious diseases and vital statistics. This library will be open to the public.

The Cartwright Lectures.—The Cartwright lectures of the Association of the Alumni of the College of Physicians and Surgeons will be delivered at the College of Physicians and Surgeons, 437 West Fifty-Ninth Street, Tuesday and Wednesday afternoons, October 24 and 25, 1916, at 5 o'clock, by Dr. Richard M. Pearce, Jr., professor of research medicine, John Herr Musser Department of Research Medicine, University of Pennsylvania, Philadelphia. His subject will be "The Spleen in Its Relation to Blood Destruction and Regeneration."

Personal.—Dr. Arthur M. Jacobus has been appointed a member of the council of the New York Academy of Medicine to fill the place of Dr. Adoniram Brown Judson, deceased. ——Dr. James R. Hayden has resigned his professorship of urology at the College of Physicians and Surgeons of Columbia University.——Dr. James W. Jameson has been appointed instructor in surgery at Columbia University and Dr. Guy Alvin Caldwell and Dr. Donald Gordan have been appointed instructors in clinical surgery.——Dr. Henry L. Shively has been appointed professor of clinical medicine in the department of tuberculosis of Fordham University.

Harvey Society Lectures.—The twelfth course of Harvey Society lectures will begin October 14 and close April 7. The lectures will be given on Saturday evenings in the New York Academy of Medicine. The following lectures are announced:

October 14—Prof. J. S. Haldane, "The New Physiology." November 4—Dr. F. M. Allen, "The Rôle of Fat in Diabetes." November 25—Dr. Paul A. Lewis, "Chemo-Therapy in Tuberculosis." December 16—Prof. Henry H. Donaldson, "Growth Changes in the Mammalian Nervous System." January 13—Prof. E. V. McCollum, "The Supplementary Dietary Relationships Among Our Natural Foodstuffs." February 3—Prof. J. W. Jobling, "The Influence of Non-Specific Substances on Infections." February 24—Prof. John R. Murlin, "The Metabolism of Mother and Offspring Before and After Parturition." March 17—Prof. Francis W. Peabody, "Cardiac Dyspnea." April 7—Prof. W. H. Howell, "The Coagulation of the Blood."

Mental Hygiene Lectures.—Six free lectures on mental hygiene are to be given during October and November at the Y. M. C. A. hall at 5 West One Hundred Twenty-Fifth Street, under the auspices of the city department of education. The course has been arranged in cooperation with the mental hygiene committee of the State Charities' Aid Association. The first lecture was given on October 11 when Mr. Homer Folks spoke on "Why Should So Many Go Insane?" Other lectures will follow: October 18, "The Social Cost of Mental Disease," by George. A. Hastings; October 25, "Preventable Mental Diseases and How to Prevent Them," by Dr. Stewart Paton, Princeton, N. J.; November 1, "Social Hygiene as an Aid to Mental Health," by Dr. Ira S. Wile; November 8, "How the Empire State Cares for 34,000 Insane," by Dr. William Mabon; November 15, "The Immigration Problem and Insanity," by Dr. Henry Smith Williams.

Quack Preventives and "Cures" for Infantile Paralysis.—The department of health has succeeded in obtaining jail sentences and substantial fines as penalties in the case of two persons who attempted to exploit "cures" for poliomyelitis in this city. The first of these was a Mr. Frooks who made and sold amulets to be worn around the neck as a protection against infantile paralysis. An analysis made by the department of laboratories showed that the amulet consisted of a cotton bag containing cedar shavings. The court found Frooks guilty and sentenced him to thirty days in jail and a fine of $250. James T. Manchester was also sentenced to thirty days in jail for having manufactured and sold a preparation called "Sol" which was represented as being a cure for infantile paralysis, consumption, rheumatism and other ailments. This preparation, on analysis, was found to consist essentially of capsicin, sassafras and alcohol.

Supreme Court Upholds Health Department.—Considerable newspaper publicity has been given the case of Mrs. Anton Anderson, Jamaica, whose 19-months-old son was forcibly taken to the Queensborough Hospital for Contagious Diseases by officers of the health department. The diagnosticians of the health department stated that the child had infantile paralysis, while a private physician differed in regard to the diagnosis. The mother applied for a writ of habeas corpus and the case was taken to the supreme court, where it was dismissed, Judge Garretson holding that the board of health, in safeguarding the public health, is "clothed with discretionary powers," and that it exercised these properly in forcibly seizing the child. He vindicated Mrs. Anderson, however, stating that she had shown a commendable readiness to comply with the law until confused by conflicting medical opinions. The child was remanded for the full period of quarantine, eight weeks.

OKLAHOMA

Hospital News.—Work has commenced on the $80,000 addition to St. Anthony's Hospital, Oklahoma City.——Hardy Hospital, Ardmore, has recently received gifts amounting to more than $53,000 from Robert Watchorn, at one time commissioner of emigration.——Dr. Loyal M. Martin, Newkirk, has opened a hospital in that place.

Personal.—Dr. Harry H. Cloudman, Oklahoma City, has been reelected athletic director of the city high school.——Dr. Hugh L. Scott, formerly of the National Guard and more recently on duty in Mexico, has been ordered to the Philippine Islands.——Dr. G. Fowler Border, Mangum, mayor of that city, has purchased the *Mangum Star* and the *Greer County Democrat,* which will be consolidated and conducted hereafter under his editorship.

PENNSYLVANIA

State Quarantine Lifted.—Dr. Samuel G. Dixon, state health commissioner, on October 2, lifted the quarantine that has been enforced for the last sixty days to prevent entrance into Pennsylvania of children under 16 years of age. Under the direction of Dr. Dixon more than 1,000 men have been engaged in watching over 100 miles of border. It has been, it was admitted, the most effective and far reaching measure of its kind ever instituted in this state. Cool weather is putting an end to the epidemic and makes quarantine no longer necessary, according to the statement of Dr. Dixon. The quarantine in New Jersey was lifted, October 4. Until October 5, the health reports show that 1,163 cases of infantile paralysis had been reported, beginning with July 1. Eight hundred and seventy-six of these occurred in Philadelphia. Since July 1, 414 deaths have occurred throughout the state from this disease.

Philadelphia

Personal.—Dr. Gwilym G. Davis, professor of orthopedic surgery at the University of Pennsylvania, has been elected to membership in the executive committee of the North American Children's Sanatorium, to fill the vacancy caused by the death of Dr. William L. Rodman. Dr. John B. Carnett was elected chairman of the executive committee.

The University and Jefferson Merger Held Up.—As pointed out in a recent issue of The Journal, the merger of the University of Pennsylvania and the Jefferson Medical College was postponed for a year. It is now thought that the union which was proposed between the Jefferson Medical College and the Medical Department of the University of Pennsylvania may be indefinitely postponed and that the two schools will in all probability remain on their former independent basis.

CANADA

School of Instruction Opened.—A school of instruction for the Canadian Army Medical Corps was opened at Camp Borden, September 5, under the direction of Capt. Victor H. McWilliams of the Camp Hospital, and a number of officers are taking the courses. There are also nearly 100 accepted applicants at the University of Toronto where Captain McLean is in charge.

Hospital News.—The following Toronto practitioners have been appointed to the staff of the new Military Hospital (old Toronto General Hospital), Toronto: Dr. William B. Thistle, chief of the medical service; Dr. Charles B. Shuttleworth, chief of the surgical service, and Dr. Goldwin W. Howland, chief of the neurologic service. Drs. Gordon Bates, Colin Campbell, Archie C. Campbell, Charles E. Treble, Albert G. Fleming (Toronto Board of Health) have also been added to the staff with the rank of captain.

Personal.—Dr. F. Evelyn Windsor, physician for the Calgary (Alta.) School Board, has been made a member of the Army Medical Corps, and will go to the front on active service.——Col. Herbert A. Bruce, Toronto, recently cabled his resignation of the presidency of the Academy of Medicine. Dr. John Ferguson was elected by the council to the presidency, and Dr. D. J. Gibbs, Wishart, vice president.——Dr. Ferguson gave a dinner for Professor Carlson, Chicago, and members of the academy at the York Club the evening of October 3. Afterward Professor Carlson gave an illustrated lecture on studies on the motility of the stomach and on the gastric juice.——Profs. Irving H. Cameron and John J. Mackenzie will address the Aesculapian Society, Toronto, the evening of October 19, on their experiences at Orpington and Saloniki, respectively.——The following well known Canadian medical men have recently been promoted from lieutenant-colonels to colonels: Herbert S. Birkett, Montreal; James A. Roberts, Toronto; Arthur E. Ross, C. M. G., Kingston; Charles A. Hodgetts, Ottawa; Murray MacLaren, C. M. G., St. John, N. B., and George Acheson, Hamilton, Ont.——Maj. Perry G. Goldsmith, Toronto, has been transferred from the Canadian Eye and Ear Hospital at Folkstone, England, to the Military Hospital, Bramshott.——Dr. Edward Ryan, Kingston, Ont., who has been with the Ontario Military Hospital, Orpington, England, is home on leave of absence but will return about November 1.——Maj. John L. Todd, Montreal, who has been at the front, has been returned to Canada to assist the Dominion Hospitals Commission. He has been appointed one of the three members of the Canadian Pension Board.

GENERAL

Bequests and Donations.—The following bequests and donations have recently been announced:

Hahnemann Hospital, New York, $40,000, by the will of Mrs. Juliet C. Percival.

Roosevelt Hospital, New York, $5,000; Presbyterian Hospital, $7,500; St. John's Guild, $3,000; Manhattan Eye and Ear Hospital, $5,000, and Babies Hospital, $5,000, by the will of Harris Brisbane Dick.

Hospital for Deformities and Joint Diseases, New York, through Dr. Henry W. Frauenthal, a donation from Mr. Herbert Kaufman, Pittsburgh.

Flushing Hospital, New York, a sum sufficient for the endowment of a free bed, by the will of S. Vernon Mann.

St. Elizabeth's Hospital and St. Joseph's Hospital, Chicago, each $5,000, by the will of Mary J. McLaughlin.

Tuberculosis relief work of the Vanderbilt Clinic, $10,000; Department of Tuberculosis of the Presbyterian Hospital, New York, $10,000; Home Hospital for Consumptives conducted by the Association for Improving the Condition of the Poor, $10,000; research work in tuberculosis at the Babbott Memorial Laboratory of the Loomis Sanatorium, Saranac Lake, N. Y., $2,000; Trudeau Foundation, Saranac Lake, N. Y., $2,000; Roentgen Laboratory of St. Joseph's Hospital for Consumptives, New York, $1,000, appropriated by the East River Homes Foundation of New York.

Home for Incurables, New York, $15,000, by the will of Mrs. Emily Thorburn.

Caroline Rest, a home for convalescing mothers and babies at Hartsdale, N. Y., the bulk of his $2,000,000 estate, by the will of George H. Schrader.

Railway Surgeons to Meet.—The tenth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held at the Hotel Radisson, Minneapolis, December 12 and 13.——The nineteenth annual meeting of the Sante Fe Medical and Surgical Society will be held at Topeka, Kan., October 13 and 14.——The twenty-sixth annual meeting of the New York and New England Association of Railway Surgeons will be held at the Hotel McAlpin, New York, October 18. Dr. William Seaman Bainbridge, New York, will deliver the address in surgery on "The Cancer Problem."——The fourteenth annual meeting of the Surgical Association of the Rock Island lines was held in St. Paul, September 27 and 28, under the presidency of Dr. Samuel C. Plummer. The first day of the meeting was devoted to the reading of papers, and a banquet followed in the evening. On the second day clinics were held in Minneapolis and St. Paul and the Institute of Public Health and Pathology was visited.

New Head for Tuberculosis Society.—At the meeting of the Mississippi Valley Conference on Tuberculosis, held in Louisville, October 4 to 6, Mr. James Minick, Chicago, was elected president; Robert G. Patterson, Columbus, Ohio, vice president, and Dr. Robinson Bosworth, St. Paul, secretary-treasurer.

Army Medical Corps Examination.—The surgeon-general of the army announces that preliminary examination for appointment of first lieutenants in the Army Medical Corps will be held in January, 1917. Full information concerning this examination can be procured on application to the Surgeon-General, U. S. Army, Washington, D. C. There are at present 228 vacancies in the Medical Corps of the army.

Fever Commission Returns.—The Yellow Fever Commission of the Rockefeller Foundation, headed by Maj.-Gen. William C. Gorgas, Surgeon-General, U. S. Army, returned from its tour of investigation in South America, arriving in New York, September 25. The commission has thus far visited Equador, Peru, Colombia and Venezuela. No yellow fever was found excepting at Guayaquil, Equador, where thirty deaths occurred during June and July. October 7, the commission sailed again to study the situation in Eastern South America and the Amazon Valley, and eventually it will go to Mexico and Yucatan.

National Research Council.—In the National Research Council which was appointed by the National Academy of Sciences at the request of President Wilson, the medical profession is represented by Dr. William H. Welch, president of the National Academy of Sciences; Maj.-Gen. William C. Gorgas, Surgeon-General, U. S. Army; Dr. Simon Flexner, director of the Rockefeller Medical Institute, and Dr. Victor C. Vaughan, Ann Arbor, Mich., formerly president of the American Medical Association. The object of the council is to coordinate the scientific research work of the country in order to secure efficiency in the solution of the problems of war and peace.

FOREIGN

Edinburgh University Admits Women.—It is reported that at a meeting held August 28, the Edinburgh University Court decided to admit women students to its medical classes. This decision is especially interesting since when the question came up eight years ago the court voted emphatically against it. The changed viewpoint is doubtless the result of the European war, which has seriously reduced the numbers of male medical students.

Metchnikoff's Ashes in Pasteur Institute.—According to his expressed wishes, the body of Metchnikoff was cremated. The ashes are to be kept in a marble urn beside the ashes of Pasteur in the Pasteur Institute at Paris, the scene of their labors.

Tuberculosis Dispensaries in France.—The German Consul of the Department of the Loire, following instructions from the general government whereby several dispensaries for hygienic measures and protection against tuberculosis must be maintained, has opened the first dispensary at St. Etienne under the direction of a specialist and a certificated nurse. The service is entirely free and the purpose of the regulation and establishment is to produce general and methodical action in the improvement of conditions and reduction in the numbers of tuberculosis cases in housing and working quarters, to aid families of afflicted persons and to afford thorough protection to the community against avoidable infection.

Deaths in the Profession Abroad.—The cable reports the death of A. Magnan, one of the leading alienists of France and authority on matters connected with the internment of the insane.——C. Tiraboschi, assistant in the laboratory at Rome of the national public health service, aged 40. He had published a number of reports of research on transmission of disease by insects and water.——Our Holland exchange reports the death of A. Weil of Wiesbaden, aged 68. It was in 1886 that he called attention to the acute syndrome with jaundice, nephritis and enlargement of the spleen now called by his name. He was professor of pathology and internal medicine at the University of Dorpat for a time but returned to private practice at Wiesbaden in 1893. His works embrace many fields of medicine.——The cable also brings word of the death of V. von Czerny, professor of surgery at the University of Heidelberg since 1877 and chief of the cancer research hospital there, aged 74. He has written many articles on all phases of surgery and the treatment of cancer, and has long been preaching the necessity for state aid for research on the causation of diseases and especially of cancer. In a special plea at an international scientific gathering in 1912 he deplored the negligence of the various governments in this line of activity.

WAR NOTES

Prison Camp Conditions.—As the result of a tour of inspection of East Siberian prison camps undertaken by members of a Red Cross organization, it is reported that at Atchinsk there was no hospital nor even a room for the sick; that at Krasnoyarsk there was a hospital in camp and one in town fitted out by donations, but there was a shortage of foods, instruments and medicine; at the hospital in Godorok 1,116 prisoners had died between October, 1914, and July, 1915; at Kansk the 250 patients had been kept on the floors of four rooms in a brewery and the rations were insufficient and there was a shortage of medicine; at Nijni Udinsk there was only a miserable room for sick prisoners and there were many cases of scurvy due to undernourishment; at Beresowoska there was a hospital on the pavillion system for 600 patients, but this did not satisfy the needs of the camp and nursing and proper food were lacking and in the camp itself there were well provided rooms for the sick, and at Chita there was a military hospital occupying the large barracks of the city with good sanitary arrangements, but insufficient food.

Medicine in War Group System.—In a recent article by Sir Alfred Keogh, director-general of the Army Medical Service, he pays tribute to the preparedness of the medical service of the British army and to the aid given by laboratory workers and the National Research Committee. In addition to the regular corps and nursing service there was a territorial corps and a territorial nursing service with reserves. In addition to the home hospital reserves, it is suggested that it would have made for increased efficiency had there been an inclusive Imperial Army Service instead of a separate service for each unit of the empire.

Want Surgeon at Nice.—Mr. H. W. Bartol, president of the American Hospital at Nice, France, appeals for an American surgeon to take charge of a Red Cross hospital in that city. It is asked that some surgeon be sent out who would be willing to serve six months without compensation, board and lodging being furnished by the hospital. The institution has accommodations for fifty beds and at present forty-nine of these are filled with wounded from the Saloniki front.

OUR TROOPS ON THE BORDER

Field Hospital Ordered Home.—Field Hospital No. 1, Ill. N. G., has been ordered home to be mustered out of the United States service.

Red Cross Unit for the Front.—The Sioux City unit of the American Red Cross, with ten nurses under the direction of Miss Nellie Porter, left, September 11, for service on the Mexican border at Llano Grande, Mexico.

Health Record on the Border.—Capt. Donald Macrae, who went to the border in June with the Iowa Field Hospital Company and was placed in charge of all operative work at the Base Hospital, Brownsville, reports that there has been only one case of typhoid fever and that only one death has occurred, this being from sarcoma of the cecum. There is an average of 400 patients in the hospital, and when it is considered that there are more than 50,000 men both from the regular establishment and the organized militia in this district, the low record for morbidity is remarkable.

PARIS LETTER

Paris, Sept. 14, 1916.

The War

TRENCH FEVER

Dr. Beauchant communicated to the Réunion médicale de la IV-e armée the history of five patients presenting an unusual clinical type, and one which does not fit any known disease. After a prodromal period of vague malaise lasting for some days, the illness commences suddenly by chills, intense headache, pains in the loins and lower extremities and fever rising rapidly to 40 C. (104 F.). In the first stage, there is a certain amount of prostration, while the headache, lumbar and limb pains persist. These last are the object of special complaint by the patient. Their seat is not in the muscles but in the bones, the tibia being tender in its whole length. These pains are especially severe at night, interfering with sleep; the tongue is moderately furred, there is no diarrhea and no constipation, no exanthem, the spleen is moderately enlarged, there are no chest symptoms, and the liver is normal. At this stage, the fever has a peculiar character. It is polycyclic, rising to about 104 on the first and second day and then falling to normal or very nearly normal; afterward, it rises again to a second maximum, again falling to normal. Sometimes a third rise occurs before an apyrexia lasting some days. This last occurred in the three first cases on the eleventh day; in the fourth on the fifteenth day, and in the fifth case on the twentieth day. One would now be led to believe the disease cured. The patient feels well, and there is but little stiffness in the limbs; the apyrexia does not last. In four or five days a fresh febrile attack occurs, with a sudden rise of temperature to 104 or higher, rigors, more headache, lumbar and limb pains. The duration is short; the temperature falls gradually after two or three days, accompanied by moderate sweating; everything appears to be well when again the same cycle repeats itself. One patient had seven such attacks. The total duration of the illness was considerable, varying between four and ten weeks. Beauchant believes this disease is identical with that which occurred during last winter and summer in Flanders and Artois (The Journal, Jan. 22, 1916, p. 290), and which has been described under the name of trench fever. It appears to be due to a parasite which has not yet been isolated and which probably lives in the interior of the globules. The disease has been reproduced by the injection of blood or of red blood corpuscles from a patient into a healthy person. The intermediate host is probably the louse.

TRAINING THE LEFT HAND OF CRIPPLES

Training the left hand to produce ambidexterity has been the subject of several successful experiments in the schools of the United States, England and the Scandinavian countries. These results are encouraging from the point of view of vocational education of those victims of the war who have lost their right arm, although it is evident that a late apprenticeship cannot be expected to give the same results as training in childhood. Moreover, in the case of these cripples, there is no question of ambidexterity but of giving to the remaining arm the strength and skill necessary for the acquisition of a trade. In an article published in the *Revue Scientifique,* Mlle. Josefa Joteyko, a lecturer at the Collège de France, who has made a special study of neuromuscular physiology, has attempted to formulate scientific rules for this reeducation of the left hand. The general principle to follow in such cases is to make every attempt to enable the cripple to resume his former occupation. In other words, an endeavor is made to teach the left hand to carry out the movements formerly performed by the right, as experience has shown that practice acquired by one hand helps the other. If one asks a person to write with the left hand he will succeed after several attempts in producing fairly well-formed letters. Moreover, the writing of the left hand presents the same peculiarities as that of the right. It bears the personal imprint by which the authorship of handwriting is recognized. According to Dr. Meige the graphic education of the right upper extremity is reflected in the left limb as a mirror image. The expression "mirror writing" is commonly employed to designate writing which resembles the image of ordinary writing seen in a mirror. In consequence of the bilateral symmetry of the body, mirror writing may be considered as the normal physiologic writing of the left hand. By analogy the term "mirror movements" has been applied to movements executed by the left hand in a sense inverse to those executed by the right. These are the most natural and the easiest to carry out. Mlle. Joteyko believes that the explanation of a certain number of failures in the education of the left hand is that this hand has been required to perform movements superposable on those of the right hand and therefore, in general, contrary to its special aptitudes. She, therefore, deduced the following rule: In training the left hand for a trade, movements should follow the laws of bilateral symmetry; that is to say, the left hand should not be made to copy the right hand but to carry out the movements of the latter in an inverse direction. This rule should prevail, not only in educating the left hand to do work previously executed by the right, but also in learning a new trade. Can this education of the left hand be applied to all trades? Mlle. Joteyko concludes from her unpublished experiments that intensive work of the left hand produces more considerable effect on the heart than that of the right. Therefore, it must be concluded that the use of the left hand cannot be extended to all trades because of injurious effects on the heart. Physicians, therefore, should examine the hearts of cripples and recommend a change of trade when left-handed work causes too great a strain on that organ.

FOR THE PROFESSIONAL REEDUCATION OF WAR CRIPPLES

The chamber of commerce of Troyes has taken up the subject of war cripples in connection with the local industry, hosiery. There is a shortage of labor in this line, and the chamber has decided to open a competition for the making of artificial arms and hands especially adapted to the hosiery industry. A commission composed of employers and hosiery workers as well as orthopedic specialists has just been constituted. These instructions are to establish the conditions for such a manufacture by defining the movements necessary for the control of hosiery looms so that the artificial hands may serve the purpose for which they are designated. It is intended to offer a valuable prize in this competition. For this purpose a subscription list has been opened by the chamber, which has subscribed 1,000 francs ($193).

Vocational reeducation is being actively pushed at the physiotherapy establishment at Troyes, and the work will be carried on continuously through the creation of a regional school of reapprenticeship to which the syndical chamber of hosiery and the chamber of commerce have promised their support. The hosiery works of Troyes have accommodation for 1,000 cripples.

CANADIAN MILITARY SURGEONS IN PARIS

The Canadian military surgeons in France who serve in the medical formations created by their compatriots have founded an association of which the Parisian section (Canadian Hospital of the Entrenched Camp of Paris) held its solemn inauguration in the grand amphitheater of the Faculté de médecine. Professor Landouzy, dean of the faculté, presided over this ceremony. Dr. Albee of New York, honorary member of the Association des médecins militaires du Canada, and at present surgeon of the hospital of Ris-Orangis, was a guest of this meeting. Captain Pariseau, radiologist of the Canadian Hospital of Saint-Cloud, explained before this meeting Dr. Albee's method of bone grafts.

THE GOLDEN BOOK OF MEDICINE

The Société de pathologie comparée has placed on sale for the benefit of works of charity (Comité de secours anglo-franco-belge et Caisse d'assistance médicale de guerre) the second illustrated instalment of the Livre d'or de la grande famille médicale (The Golden Book of the Great Medical Family) containing the names of those dead on the field of honor, mentioned in dispatches, named for the Legion of Honor, or who have obtained military medals.

CONVALESCENT OFFICERS ON THE BORDERS OF LAKE GARDA

The mayors of the towns situated on the borders of Lake Garda in Italy have held a meeting to examine a proposition formed by the allied governments that convalescent officers should be sent to this region. This initiative has been supported by the chambers of commerce of Paris, London and Petrograd, and has obtained the help of the General Direction of the Railways. After a short discussion, the mayors unanimously voted their acceptance of the proposition.

THE AMERICAN HOSPITAL ON THE SERBIAN FRONT

Under the auspices of the commission for coordination of auxiliary service of the armies of the East, a surgical hospital has been installed quite close to the Balkan front, especially devoted to the wounded of the Serbian armies. This hospital, provided with all recent improvements, is almost entirely due to generous contributions of Americans (The American Relief Clearing House), who have given 200 complete beds, the operating theater, roentgenographic and roentgenoscopic installations, electrovibrator, Carrel-Dakin apparatus, etc. Therefore, the commission of coordination of the direction of the Serbian sanitary service of health have given to this model formation the name of the "American Hospital of the Second Serbian Army."

The League for the Increase of the French Birth Rate

A league has just been constituted under the presidency of Mr. Paul Bureau, professor at the Faculté libre de droit de Paris and at the Ecole des hautes études sociales, to unite all citizens who are conscious of the peril which their country runs in consequence of birth control, and who desire to assure the progressive increase of its population. This group intends to devote itself to a campaign of moral education intended to bring home to each citizen the duties imposed on him by the necessity for the perpetuation of the race. The tragic circumstances of the present time render this duty imperative. The headquarters of the league are at 85 Richelieu Street, Paris.

Marriages

Samuel Pritchard Fetter, M.D., Portsmouth, Ohio, to Mrs. Gertie Meek Mayo of Paintsville, Ky., at Ashland, Ky., September 23.

Frank Curtiss Davis, M.D., Lewistown, Mont., to Miss Frieda Ullig of Vienna, Austria, at Lewistown, September 25.

Sumner Cheever Andrews, M.D., Gloucester, Mass., to Miss Hilda Simmons of Waldo, Ark., about September 28.

Henry Charles Schmitz, M.D., Marshalltown, Iowa, to Miss Margaret Alice Rourke of Sterling, Ill., October 10.

P. A. Surg. Robert Olesen, U. S. P. H. S., Pittsburgh, to Miss Florence Watson of River Forest, Ill., October 6.

William G. Wood, Jr., M.D., St. Louis, to Miss Ida Heidbrink of Maplewood, Mo., at St. Louis, September 23.

Edward Carl Gaebe, M.D., Halliday, N. D., to Miss Iva Dell Larson of New Salem, N. D., September 28.

Kimball Bannister, M.D., Phoenix, Ariz., to Miss Elizabeth Clayton Davis of Milwaukee, September 23.

Charles Bradley Pinkham, M.D., to Miss May Agnes Austin, both of San Francisco, September 27.

Henry Blakeslee Boyden, M.D., Grand Island, Neb., to Miss Eva Brix of Omaha, September 20.

Eugene Lindsay Opie, M.D., St. Louis, to Miss Margaret Simpson of Toronto, Ont., September 16.

Jay Claude Simmons, M.D., Norris, Ill., to Miss Rachel Cattron of Fairview, Ill., September 27.

William Ford, M.D., Morea, Pa., to Miss Rose Straub of Ashland, Pa., at Buffalo, September 18.

Charles C. Jones, M.D., Comfort, Texas, to Miss Dove McElroy of Oklahoma City, October 1.

Anthony Mathias Drummy, M.D., Lincoln, Ill., to Miss Nora Ryan of Paxton, Ill., October 4.

W. Frank Gemmill, M.D., Woodbine, Pa., to Miss L. Evis Waters of Norfolk, Va., September 25.

Jason W. Albaugh, M.D., to Miss Ruth Long, both of Mingo Junction, Ohio, September 18.

Joseph J. Sarazin, M.D., to Miss Ethelwyn Trevor Boydell, both of Nyssa, Ore., September 20.

Deaths

Harry Huston Whitcomb, M.D., Norristown, Pa.; University of Pennsylvania, Philadelphia, 1880; aged 60; a Fellow of the American Medical Association; formerly vice president of the Medical Society of the State of Pennsylvania and of the Norristown Board of Health; consulting physician to the State Hospital for the Insane; surgeon of Charity Hospital and St. Joseph's Protectory; secretary of the Montgomery County Medical Society and a member of the state board of health; died in Atlantic City, N. J., September 28, from angina pectoris.

Arthur William Tanner, M.D., Moosomin, Sask.; University of Toronto, Ont., 1899; aged 44; for six years a member of the town council and for two years mayor of Moosomin; lieutenant-colonel in the Canadian Army Medical Corps; in command of No. 10 Field Company, Canadian expeditionary forces in France; while advancing to a dressing station, June 3, was struck by a shell and killed.

William H. Barry, M.D., Hot Springs, Ark.; Memphis (Tenn.) Medical College, 1858; aged 80; a pioneer practitioner of Hot Springs; formerly president of the Arkansas State Medical Society; founder and chief surgeon of the Barry Hospital; a Confederate veteran; for many years a member of the city council and organizer of the first board of health; died at his home, September 26.

John Lester Keep, M.D., Brooklyn; Hahnemann Medical College, Philadelphia, 1860; New York Homeopathic Medical College, New York, 1866; aged 79; medical director of the Gates Avenue Dispensary; surgeon of the Thirteenth Infantry, N. G., N. Y., in 1868 and in 1883 made colonel, attached to the Second Division; died from heart disease at his summer home at Shelter Island, N. Y., September 30.

Josiah Coloman Haney, M.D., Dalton, Ohio; Ohio Medical University, Columbus, 1895; aged 50; a Fellow of the American Medical Association and a well known practitioner of Wayne County, Ohio; while driving over a grade crossing of the Wheeling and Lake Erie Railroad near East Greenville in his automobile, September 23, was struck by a locomotive and instantly killed.

Albert Currier Buswell, M.D., Epping, N. H.; Medical School of Maine, Brunswick, 1878; aged 63; a member of the New Hampshire Medical Society; formerly chairman of the Epping Board of Health; once president of the Rockingham County Medical Society; died at his home, August 12, from diabetes associated with tuberculosis of the lungs.

Ernest E. Hamilton, M.D., Wichita, Kan.; University of Michigan, Ann Arbor, 1879; aged 60; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; local oculist for the Missouri Pacific and Frisco systems; died suddenly from heart disease, while taking lunch at the Wayside Inn, Drury, September 29.

John Archibald McLeod, M.D., Milwaukee, Wis.; University of Michigan, Ann Arbor, 1878; aged 61; for several years a practitioner of Ironwood, Mich.; surgeon and acting brigade surgeon, Michigan National Guard; one of the organizers of the First National Bank of Ironwood; died suddenly at his home, September 21.

John Vernon Solandt, M.D., Hayden, Colo.; Gross Medical College, Denver, 1898; aged 46; a member of the Colorado State Medical Society and in 1913 president of the Routt County Medical Society; was instantly killed by the overturning of his automobile, September 26, while on his way to make a professional call at Steamboat Springs.

George Brinton Wilson, M.D., Captain and Medical Director, U. S. Navy; Dartmouth Medical School, Hanover, N. H., 1889; aged 53; commandant of the U. S. Naval Hospital, Chelsea, Boston; died in that institution, October 1, after eleven years and eleven months' sea service and thirteen years, two months' shore or other duty.

James Y. Shearer, M.D., Reading, Pa.; Jefferson Medical College, 1862; aged 79; a Fellow of the American Medical Association and for fifty-two years a practitioner of Sinking Springs, Pa.; once president of the Berks County Medical Society; died at his home, September 23, from arteriosclerosis.

Bishop Asbury Rose, M.D., Linton, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 66; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; died at his home, September 25, from diabetes.

William D. Moore, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1893; aged 49; formerly a Fellow of the American Medical Association; also a graduate in pharmacy; died at his home in Germantown, Philadelphia, September 27, from heart disease.

Cecil L. Hudgins, M.D., Olive Hill, Ky.; St. Louis College of Physicians and Surgeons, 1889; aged 59; a Fellow of the American Medical Association; local surgeon of the Chesapeake and Ohio System for many years; died at his home, September 28, from arteriosclerosis.

Robert M. Hill, Farmington, Pa. (license, years of practice, Fayette County, Pa., 1881); aged 74; for two terms a member of the assembly from Fayette County; a veteran of the Civil War; died suddenly from cerebral hemorrhage, while visiting in Dawson, Pa., September 21.

James H. Callahan, M.D., Carthage, Ill.; Bellevue Hospital Medical College, 1870; aged 72; formerly a member of the Illinois State Medical Society, and president in 1913 of the Hancock County Medical Society; died at the home of his daughter in Cedar Rapids, Iowa, September 22.

George W. Boerstler, M.D., Lancaster, Ohio; University of Wooster, Cleveland, 1867; aged 70; a Fellow of the American Medical Association and one of the oldest and most prominent practitioners of Fairfield County; died at his home, September 19, from cerebral hemorrhage.

William H. Begg, M.D., Columbus Grove, Ohio; Medical College of Ohio, Cincinnati, 1881; aged 63; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home, July 26, from mitral insufficiency.

Charles Roy Armstrong, M.D., Thorntown, Ind.; Homeopathic Medical College of Missouri, St. Louis, 1896; aged 42; died in St. Elizabeth's Hospital, Lafayette, Ind., September 21, three days after an operation for appendicitis.

Frank Webster, M.D., Dayton, Ohio; Pulte Medical College, Cincinnati, 1882; aged 62; for many years a member of the staff of the Miami Valley Hospital; died at his home, September 21, from heart disease.

Harry Carpenter Weber, M.D., Louisville, Ky.; Kentucky School of Medicine, Louisville, 1898; aged 46; a member of the Kentucky State Medical Association; a specialist in urology; died at his home, October 6, from uremia.

Baldwin Berne Scott, M.D., Mt. Vernon, Ohio; University of Wooster, Cleveland, 1876; aged 67; at one time secretary of the Knox County Medical Society; died at his home, September 19, from heart disease.

Adam Miller, M.D., Jordanville, N. Y.; Geneva (N. Y.) Medical College, 1844; aged 97; surgeon of volunteers during the Civil War; and at one time superintendent of schools for the town of Warren; died at his home, September 28.

Luther J. Ingersoll, M.D., Denver; Homeopathic Medical College of Missouri, St. Louis, 1875; aged 78; a practitioner of Denver; died at his home, September 19, from cerebral hemorrhage.

Paul W. Fayn, M.D., St. Louis; St. Louis College of Physicians and Surgeons, 1900; an advertising specialist; died at Shelbyville, Mo., September 13, it is said from an overdose of cocain.

James Evans, M.D., Burlington Junction, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1879; aged 83; who was operated on in St. Joseph, September 4, died in the Noyes Hospital in that city, September 14.

Albert W. Cochran, M.D., Hammonton, N. J., and Charlottesville, Pa.; Medico-Chirurgical College of Philadelphia, 1896; aged 63; died suddenly at the home of his daughter in Fitchburg, Mass., September 15, from heart disease.

John Bell Whitehead, M.D., Lovingston, Va.; Gate City Medical College, Texarkana, Texas, 1902; aged 72; died at his home, September 5.

Elmer Morton Druley, M.D., Centerville, Ind.; Eclectic Medical Institute, Cincinnati, 1891; aged 52; died at his home, July 18, from paresis.

Samuel J. Tilden Carswell, M.D., Jacksonville, Fla.; Medical College of Georgia, Augusta, 1900; aged 40; died at his home, September 14.

Aaron J. King, M.D., Atlanta, Ga.; Southern Medical College, Atlanta, 1895; aged 68; died in a hospital in Atlanta, September 8.

Reuben Marshall, M.D., Cowan, Ind.; Miami Medical College, Cincinnati, 1876; aged 76; died at his home, July 10.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NAPHTHALENE IN GASOLINE FOR AUTOMOBILES

To the Editor:—Your note "Naphthalene in Gasoline for Automobiles," THE JOURNAL, September 16, p. 897, is to the point. There is another aspect to the question, however, which may be of interest to your readers who own cars, and some of whom might feel inclined to experiment with naphthalene, or as you suggest, moth balls.

The present day automobile engines are constructed for the use of liquid fuels of comparatively low boiling points. In the fractional distillation as usually carried out for the testing of gasoline the final boiling point of most brands is near or under 175 C. The higher this final boiling point, the greater will be the tendency to incomplete combustion and consequent carbon formation in the cylinders.

It is plain that the presence of naphthalene (boiling at 218 C.) and similar compounds in gasoline will be disadvantageous in this respect. There may be "quiet, smooth, easy running" for a while, but then most of the "augmented power" may crop out in the owners temper when he finds his cylinders clogged up "in a jiffy." Naphthalene, etc.—whether as moth balls or otherwise—in an appropriate vehicle are all right for Diesel engines, but they are liable to cause indigestion when fed to the average automobile.

F. W. L. TYDEMAN, M.D., Martinez, Calif.

BRAINS AS A DEPILATORY

To the Editor:—Will you explain this phenomenon: "When the raw or fleshy side of the hide of a deer or squirrel is rubbed vigorously with the fresh brains of the same animal, and the same side exposed to a temperature of 150 degrees (dry heat), the hair can very readily be removed by scraping the same, thus acting as a depilatory." This is the method of dressing hides used by the Indians of the West.

HUNTER.

ANSWER.—Our correspondent asks us to "explain this phenomenon," which he quotes. Before explaining the "phenomenon," we should want to be quite sure that it exists. It sounds very much like the superstition in regard to planting this, that or the other "garden truck" in the "dark" or the "light" of the moon. It is quite possible that the Indians of today, some of them at least, would know when the temperature reached 150 degrees. The loosening of the hair previous to tanning by partial putrefaction of the epidermis is a known process, sometimes called sweating. In this the fleshy side of the hide is salted or treated with crude acetic acid. It is possible that the loosening of the hair on the hides under the condition mentioned is simply due to partial putrefaction of the epidermis. The brain tissue contains lipoid substance and moisture. It would make a fairly good culture medium because of its fatty content. It would also be protective and so facilitate the growth of certain anaerobic bacteria which cause putrefaction. Using the "fresh brains from the same animal" would be the natural thing to do, because they would be handy, especially to the Indian.

ETIOLOGY OF RHUS POISONING

To the Editor:—Relative to the Current Comment on "The Poisonous Principle of Poison Oak" (THE JOURNAL, Aug. 5, 1916, p. 441) and the communication of Dr. Leland (Queries and Minor Notes, Sept. 2, 1916, p. 763), allow me to state that I have made a careful research of the etiology of rhus poisoning covering the past two years, and have collected somewhat more than 100 reports of cases in my own practice and in that of other physicians. From the study of these I am driven to take issue with the answer to the query of Dr. Leland, which in effect denies the occurrence, except in very rare instances, of poisoning by this plant *without contact.* I have several very detailed histories of cases in which all possible contacts through clothing, or delayed and latent poisoning by other adventitious means, were beyond question eliminated. Consideration of the possibilities in the etiology, together with studies of the bacteria always found on the leaves of the rhus plants, has forced me to lay less stress on the rôle of the active principle, toxicodendrol, and to assign to these bacteria an active agency in the etiology. The subject is one which calls for an open mind and special laboratory investigation. I should be very glad to hear from any workers in this field.

LOWELL C. FROST, M.D., Beverly Hills, Calif.

Credulity.—Man is a dupable animal. Quacks in medicine, quacks in religion, and quacks in politics know this and act on that knowledge. There is scarcely any one who may not, like a trout, be taken by tickling.—Robert Southey.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

Connecticut: Homeopathic, New Haven, Nov. 14. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Florida: Homeopathic, Jacksonville, Nov. 10. Sec., Dr. J. B. Griffin, St. Augustine.

Iowa: Des Moines, Oct. 17-19. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Maine: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Mississippi: Jackson, Oct. 24-25. Sec., Dr. J. D. Gilleylen, Jackson.

Nevada: Carson City, Nov. 6. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, 438 E. State St., Trenton.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

West Virginia: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

Medical Colleges Not Accredited in Missouri

According to the official bulletin of the Missouri State Board of Health, the board at a meeting, held July 17, 1916, by unanimous vote declared that after that date the following medical schools would not be accredited:

College of Physicians and Surgeons, San Francisco.
College of Medical Evangelists, Loma Linda, Calif.
Georgia College of Eclectic Medicine and Surgery, Atlanta, Ga.
Chicago Hospital College of Medicine, Chicago.
Jenner Medical College, Chicago.
College of Physicians and Surgeons, Boston.
Lincoln Medical College, Lincoln, Neb.
New York Medical College and Hospital for Women, New York City.
Ohio State University, College of Homeopathic Medicine, Columbus, O.

The board at previous meetings had taken similar action regarding:

Southwest School of Medicine and Hospital, Kansas City, Mo.
Eclectic Medical University, Kansas City, Mo.
University of West Tennessee, Medical Department, Memphis, Tenn.

A New Medical School in India

A new medical school, the Belgachia Medical College, is reported[1] as having been formally opened in July, 1916, at Belgachia, a suburb of Calcutta, India. It is said to be "the first medical college in Bengal organized by private enterprise and managed entirely by Bengali medical men." Instruction is in the English language, the course extends over five years, and the curriculum agrees with that for the Bachelor of Medicine degree of the University of Calcutta, with which it is in affiliation. It is said to have ample buildings and fair hospital and dispensary facilities, and it has government recognition. Its enrolment of students is limited, since it is reported that 725 students applied for admission last year but there were only 137 vacancies.

It is said that the main purpose of the government medical colleges, of which there are five in India, is to provide officers for the public services and that they are not adequate to supply the medical practitioners needed by the native population of India. Previous efforts were made to establish private medical schools, but, owing to lack of funds and suitable accommodations, they failed, since government recognition was not granted to them.

This new medical school is evidently the result of years of effort. It was organized in 1887 under great difficulties as the Calcutta Medical College. It was not permitted to have dissecting done, nor could it carry on clinical instruction since it had neither hospital nor dispensary. The following year limited access was obtained to a native hospital, and in its second year permission for dissection was secured. In 1897 a fifteen-bed hospital was provided, and five years later it opened a forty-bed hospital at Belgachia, its present location. In 1904 it absorbed the College of Physicians and Surgeons, another private, unrecognized medical school. It has since received liberal financial support from the government, the municipality, the University of Calcutta, and from influential and wealthy natives of India. The result was the opening in July of the reorganized medical college, which has received recognition by the government.

New York May Report

Mr. H. H. Horner, Chief, Examinations Division of the New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, May 16-19, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 59, of whom 47 passed and 12 failed. Three candidates were licensed through reciprocity, and four were granted reregistration licenses. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Leland Stanford Junior University	(1914)	1
University of California	(1900)	1
Georgetown University	(1913)	1
George Washington University	(1915)	1
Tulane University of Louisiana	(1914)	1
College of Physicians and Surgeons, Baltimore	(1914)	1
Johns Hopkins University	(1914) (1915)	2
Albany Medical College	(1902) (1914, 3) (1915)	5
Columbia Univ., Coll. of Phys. and Surgs.	(1913) (1915, 2)	3
Cornell University	(1915)	2
Fordham University	(1914) (1915)	2
Long Island College Hospital	(1911) (1914) (1915)	3
New York Homeo. Med. Coll. and Flower Hosp.	(1914, 2) (1915, 3)	5
New York Med. Coll. and Hosp. for Women	(1915)	1
Syracuse University	(1915)	2
Univ. and Bellevue Hosp. Med. College	(1914, 2) (1915, 2)	4
University of Cincinnati	(1911)	1
Jefferson Medical College	(1912) (1913)	2
Medico-Chirurgical College of Philadelphia	(1915)	1
University of Pennsylvania	(1902) (1912)	2
University of Vermont	(1914) (1915, 2)	3
University of Virginia	(1914)	1
University of Toronto	(1916)	1
University of Naples	(1905)	1
FAILED		
Howard University	(1916)	1
Northwestern University	(1896)	1
Boston University	(1915)	1
Albany Medical College	(1911) (1915)	2
Columbia University, Coll. of Phys. and Surgs.	(1914)	1
New York Homeo. Med. Coll. and Flower Hosp.	(1914) (1915)	2
University of Buffalo	(1913)	1
University of Nashville	(1906)	1
University of Turin	(1892) (1914)	2

College	LICENSED THROUGH RECIPROCITY Year Grad.	Reciprocity with
New York Homeo. Med. Coll. and Flower Hosp.	(1914)	New Jersey
Medical College of Ohio	(1907)	Ohio
University of Virginia	(1913)	Virginia

Louisiana June Report

Dr. E. L. Leckert, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 8-10, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 60, of whom 52 passed and 8 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1914)	80.9
Bennett Medical College	(1915)	88.7
Tulane University of Louisiana	(1910) 77.4; (1915) 79.3, 85.8; (1916) 81, 81.8, 82.4, 82.5, 82.7, 84.5, 85.3, 85.5, 85.7, 85.7, 86.3, 86.7, 86.8, 86.8, 87, 87, 87.2, 87.5, 87.6, 87.6, 87.7, 87.9, 88.1, 88.2, 88.3, 88.4, 88.4, 88.6, 88.7, 88.8, 89.3, 89.4, 89.4, 89.6, 89.6, 89.7, 89.8, 89.9, 90.5, 90.8, 91, 91.2, 91.6	
Hahnemann Med. College and Hospital, Philadelphia	(1914)	84.6
Meharry Medical College	(1916)	75.6
Baylor University	(1911) 82.7; (1912)	79.6
FAILED		
University of Alabama	(1907)	70.7
College of Physicians and Surgeons, Memphis	(1911)	56.7
Memphis Hosp. Med. Coll.	(1908) 68.6; (1910) 67.5; (1911)	73.1
University of Tennessee	(1913) 66.3, 73.9; (1914)	72.8

College	LICENSED THROUGH RECIPROCITY Year Grad.	Reciprocity with
Atlanta Medical College	(1915)	Georgia
College of Physicians and Surgeons, Keokuk	(1888)	Illinois
University of Maryland	(1911)	Maryland
University of Tennessee	(1915)	Arkansas

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[1] The Belgachian Medical College, Brit. Med. Jour., Sept. 2, 1916, page 333.

Book Notices

The Dream Problem. By Dr. A. E. Maeder. Authorized translation by Drs. Frank Mead Hallock and Smith Ely Jelliffe. Paper. Price, 60 cents. Nervous and Mental Disease Monograph Series No. 22. New York: The Nervous and Mental Disease Publishing Company, 1916.

Maeder presents the subject as an expression of personal conviction, but his views are suited to show the existing differences in opinion between the Vienna and Zurich schools of psychanalysis. He believes that no real or necessary differences exist between them, as the things accomplished by the Zurich school have been the natural outcome of what Freud gave them. According to his conception, the axiom that the dream is a wish fulfilment "is too indefinite and especially one sided, for it actually fails to embrace the important teleological side of the unconscious function." He assumes two functions of the dream, the cathartic action, on the unloading of the emotion, on which the chief stress has been laid up to date, and the preparing function, the overcoming of the conflict, the real freeing by means of sublimation. In the interpretation of the latter function, Maeder attaches a greater importance to the manifest dream content than Freud. The conception of the dream as a wish fulfilment contains only the regressive side of the phenomenon, and is an expression of the "pleasure principle," whereas the preparing function indicates the progressive form of the activity of the libido and is the expression of the "reality principle." The principal idea of a former contested article of Maeder is, "In the dream there is at work a preparatory arranging function which belongs to the work of adjustment." This expresses clearly his point of view on the reality principle. In presenting this subject, Maeder gives some good dream analyses and discusses the significance of the manifest dream content, the dream in its psychic environment, types of dreams, and the tendencies of the Vienna and Zurich schools in psychanalysis. The monograph is written clearly and concisely, and by its lack of ambiguity shows Maeder's grasp of the situation. Too many references to further publications and a forthcoming book strike a discordant note.

The American Encyclopedia and Dictionary of Ophthalmology. Edited by Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology and Head of Department, College of Medicine, University of Illinois. Volume 9—Institutions for the Blind to Lemotes. Cloth. Price, $6. Pp. 6419 to 7190, with illustrations. Chicago: Cleveland Press, 1916.

The American Encyclopedia of Ophthalmology shows no lowering, but rather a raising, of its standard, in Volume IX. Judging by the past rate of progression, this monumental work will run to twelve or fourteen volumes. Among the more important articles in the present volume are: "Institutions for the Blind" (concluded) by Charles F. F. Campbell, by far the best of all the books or articles on this subject in any language; "Intracranial Organs of Vision," by Carl Dudley Camp; "Iritis" by Charles P. Small; "Krönlein's Operation," by the editor, and the series of articles on the various forms of keratitis, by Joseph D. Lewis. The article on "Lacrimal Apparatus," by Howard F. Hansell, is especially clear, succinct and practical. The longest article is one of 147 pages by Thomas Hall Shastid, entitled "Legal Relations of Ophthalmology," a subject which, as the editor declares in a footnote, was first developed by Dr. Shastid. This article exhibits the results of untiring industry, as well as a wide and accurate knowledge of both law and medicine. Once again, the only fault which could properly be found with the encyclopedia is an occasional overinclusion, or minor omission. For example, under the definition of Colles' law, a statement should have been added to the effect that this law is no longer regarded as correct in its old form, the reason that a mother is not infected by her child being that she has syphilis already.

The publisher, the editor and the collaborators who are responsible for the American Encyclopedia of Ophthalmology are to be congratulated.

Miscellany

The Scope and Function of the U. S. Pharmacopeia and National Formulary

In a review of the National Formulary in the August number of the *Journal of the American Pharmaceutical Association,* Mr. Wilbur L. Scoville of Parke, Davis & Co. makes some statements concerning the U. S. Pharmacopeia and the National Formulary. Mr. Scoville is not a member of the Revision Committee of the U. S. Pharmacopeia, and therefore it is presumable that he erred through ignorance of the facts rather than through intention. He says in part:

"There is one very essential difference between the Pharmacopeia and the National Formulary which will keep them distinct and will avoid conflict. The Pharmacopeia is an authority on therapeutics, and its scope is controlled by therapeutic considerations, but the National Formulary does not vouch for any therapeutic efficiency, and recognizes any preparation of pharmaceutical soundness which is used to a marked extent by physicians.

"The Pharmacopeia is controlled by the 'regular' school of practice, but the National Formulary makes no distinction between allopaths, homeopaths, osteopaths, chiropractors or any other school of practice. Its mission is to perfect or select the pharmaceutical qualities of the formulas, and to allow the physicians as a whole to adjust or judge the therapeutics. Hence there is not likely to develop any rivalry or antagonism between the two books."

In the September number of the *Journal of the American Pharmaceutical Association,* Dr. Oliver T. Osborne, a member of the Committee of Revision of the U. S. Pharmacopeia, replies to some of the statements made by Mr. Scoville. He says in part:

"In the first place, the Pharmacopeia is not an authority on therapeutics, and it was repeatedly and distinctly so stated and so urged in various discussions held by the Subcommittee on Scope, a component part of the Revision Committee of the Pharmacopeia. I was a strong advocate that a drug which was therapeutically useless should not enter the ninth revision of the United States Pharmacopeia, but I was repeatedly and permanently outvoted, those who differed from me voting for the principle that the United States Pharmacopeia was 'not a book on therapeutics.' The Subcommittee on Scope, consisting of nine members, passed a 'guiding principle' that a drug to be admitted to the United States Pharmacopeia should be of 'therapeutic usefulness' or of 'pharmaceutic necessity.'

"On the floor of the Pharmacopeial Convention held in 1910, it was stated that it was the duty of physicians to select the drugs, and the duty of pharmacists to decide how the preparations of the drug should be made. Neither was this obviously correct division of labor lived up to, nor were the 'guiding principles' of the Subcommittee on Scope lived up to.

"Of the fifty members of the Revision Committee only six were physicians engaged in the practice of medicine, and four of these physicians were members of the Subcommittee on Scope. Basing their recommendations on the fact that very many drugs and preparations in the Pharmacopeia of 1900 were therapeutically useless, this Subcommittee on Scope recommended the deletion of more than 150 drugs and preparations, and more than half of these drugs and preparations were recommended for the Pharmacopeia by the Executive Committee, only one member of which was a practicing physician. This all-powerful Executive Committee also introduced into the Pharmacopeia drugs that had not even been passed upon by the Subcommittee on Scope. In other words, the votes, advice and decision of the hard-working Subcommittee on Scope, aiming at therapeutic usefulness of drugs that should enter the new Pharmacopeia, were largely turned down, overruled and overvoted by the Executive Committee (an all-powerful committee that passed on all recommendations of the subcommittees), and only one member of this Executive Committee is a practicing physician, and therefore the only one qualified to pass upon the therapeutic value of a drug or preparation. Hence the reasons that more than half of the drugs and preparations recommended for deletion by the Subcommittee on Scope, and introduced into the Pharmacopeia by the Executive Committee, in spite of such deletion recommendation, were not therapeutic reasons. Therefore the book is *not* an authority on therapeutics and was not intended to be such. In fact, it is a book of valuable therapeutic drugs interspersed with several hundred drugs and preparations that are either useless or inferior to the few that are of value.

"A drug, to have therapeutic value, must have some recognized activity on the human body. A very large number of those in the new Pharmacopeia have no such activity. Even the doses of the drugs are not authoritative, only suggestive. The dose of a drug is enough to produce the results required, more or less than the dose suggested by the Pharmacopeia.

"That the Pharmacopeia is controlled by so-called "regulars" is another statement that is not a fact. Only four members of the Executive Committee, which committee is *entirely responsible* for the contents of the Pharmacopeia, have the degree of M.D. Hence the book represents the drugs and preparations that the expert drug men in all branches of the drug traffic desire to have in the book.

"Also, one cannot well see how those who use no drugs in the treatment of disease could be interested in a book on drugs. Therefore, to intimate that such were shut out of the United States Pharmacopeia is a reflection on their supposedly drugless practice, and criticism cannot be made of the Revision Committee, thirty-two of whose fifty members are drug experts.

"Exactly how the so-called osteopaths, their pseudo friends, the chiropractors, and 'other schools of practice,' perhaps mental and Christian scientists, i. e., drugless treaters of disease, can or will find the fourth revision of the National Formulary useful, is a question in psychology. And also it should be remembered that the state medical laws prohibit these sects from giving or prescribing drugs."

Homologous Serotherapy in Poliomyelitis

A. Netter has called attention to the therapeutic value of the serum from persons who have recovered from poliomyelitis in treatment of fresh cases of the disease. He now has a record of 34 patients thus treated, and he reports that 8 were completely cure, 3 almost completely, 9 were materially improved and 3 somewhat improved. In 3 cases no influence was apparent and 8 died. In the 2 latest cases the poliomyelitis developed with symptoms suggesting cerebrospinal meningitis. The first signs of paralysis were noticed the third and the fifth days, and the serotherapy was commenced in less than forty-eight hours thereafter. It was kept up for six or eight days. Benefit was apparent within twenty-four hours, and the paralysis had entirely disappeared by the fourth and the nineteenth days. Some of the serum used had been taken three months before from a girl who had had poliomyelitis and had entirely recovered nearly a year before. The other serum had been drawn a month before from a young man who had had infantile paralysis in early childhood. In one of the later cases the first symptoms of the poliomyelitis were noticed the day after the child had been vaccinated, and the family regarded the vaccination as responsible for the poliomyelitis.

The intraspinal technic for this homologous serotherapy is the same as for antimeningitis serum. The total amount injected was 35 c.c. in six injections in one of the last two cases, and 46 c.c. in eight injections in the other. The blood is obtained for the purpose from a vein at the elbow; 200 or 250 gm. of blood yields 80 or 100 gm. of serum. The latter is distributed in vials containing 5 or 8 c.c. They are repeatedly tyndallized (intermittent sterilization) for several days and then kept on ice. The meningitic form of poliomyelitis permits the earliest diagnosis, and the limpid cerebrospinal fluid confirms the differentiation. (The fluid may contain cells.) The absence of the knee jerk suggested the true nature of the trouble in some of the cases even before lumbar puncture. In one case the diagnosis was based in part on the knowledge of another case of poliomyelitis in the family, and the serotherapy was instituted in time to ward off all paralysis. Netter's latest communication on the subject was published in the *Bull. et mém. Soc. méd. d. hôp. de Paris,* March 23, 1916, p. 299.

Medicolegal

Laborer Being Overheated and Overworked

(Louisville & N. R. Co. vs. Sawyers (Ky.), 184 S. W. R. 1123)

The Court of Appeals of Kentucky reverses a judgment for $3,000 that was rendered in favor of plaintiff Sawyers, who alleged that he was permanently and painfully injured by becoming too hot and being overworked on a day in July while he was employed as a shoveler and mover of sand in the company's sand pits. The court says that if the case was to be treated as one seeking a recovery because the plaintiff became overheated while engaged in his work, it was clear there could be no recovery under the principles laid down in a comparatively recent cinder pit case, in which it was held that "the master is under no duty to prevent his servant from becoming overheated at his work, resulting from atmospheric or weather conditions, as they are matters entirely beyond his control. In such case, while the servant may not always certainly know how to keep himself within the limits of safety, he is better able to judge than any one else how much heat he can safely stand, how it affects him, and when his endurance reaches a point beyond which he ought not, for his own safety, to continue to work. For these reasons it is for him, and not the master, to determine whether he shall engage in the work at all; or, if so, how energetically, and when he should rest or quit," etc. And if under the allegations the present case could be properly treated as one for damages because the plaintiff was overworked or was required to overtax his physical strength, the same result must be reached. It is a pathetic thing to see a trusted employee, who has faithfully toiled in the service of his employer until he has reached the limit of his physical endurance, cast adrift; but until there has been a revolution in our whole industrial system such things must be. It is an inexorable decree of Nature that wornout things, no matter what may have been their value in the past, shall be cast aside. The only safe and practicaly rule is that each man is the best judge of his own physical strength and powers of endurance; that he knows better than any other can when the limit has been reached, and, when, in following his own instinct of self-preservation, he must desist and exercise his right under the law to give up his work if it is more than he can stand. In either view of this case, the motion for a directed verdict for the defendant should have been sustained.

Disclaimers by Chiropractor of No Avail—Attack on Law Not Sustained

(Teem vs. State (Tex.), 183 S. W. R. 1144)

The Court of Criminal Appeals of Texas, in affirming a conviction of defendant Teem of illegally practicing medicine, says it thinks there can be no sort of doubt but the testimony showed, as charged in the indictment, that he unlawfully practiced medicine, as denounced by law, and no honest jury could have done otherwise than find him guilty. It may be that colleges, from one of which he had a diploma, teach a new science of how to relieve "human beings" of some of the disorders or ills of this life, and effect cures thereof; but, if so, the evidence clearly demonstrated that the practice of it by the defendant, whatever it be named or called, as shown in this case, without a license, and proper record of it, violated both the spirit and the letter of the law. The fact that he studiously abstained from calling his work on patients a "treatment" of them, but instead an "adjustment of a displacement" of them, could have no possible effect to relieve him of the penalties of the law which he violated. No sort of substitution of other words for those used in the statute, or refraining from using them, could change the law. The fact that in his advertisements posted on his home and office and to his patients he stated specifically that he did not profess to do, nor do, the things that the statute denounces, yet, when it was unquestionably shown that he did those very things, could not possibly have the effect to put him without the pale of the law. His assertions in his advertisements and to his patients that he was not a doctor or surgeon, and that he did not treat disease, etc., was clearly an attempt to evade the law, and should have deceived no one. No other practitioner of any other school of medicine, whether he be called doctor, surgeon or otherwise, or whatever his method or system, treats the disease, etc., as contradistinguished from the patient suffering from the disease, etc. They each and all treat the patient in order to relieve him from the disease and suffering, and thereby assist Nature to heal him, as the defendant was shown to have done the several persons, his patients, who testified herein. Each practitioner may have a different system or method, but the object and purpose of each is to accomplish the same result. The court can see no possible reason, and none was shown in this record, why the defendant should be exempted from procuring and registering his license to practice, when every other practitioner from every other school is required to do so. His school of medicine, or science, or practice, or adjustment, or whatever he may choose to call it, is clearly embraced by the Texas law, as prohibiting him from practicing it on human beings for pay, without first procuring and having a license duly recorded. If he desires to practice his profession, and does so, he should first procure and record his license to do so under the law, as every other practitioner is required to do, and does; and, if he refuses to do this, then he must suffer the penalty of his own acts. Nor does the court find anything to relieve him, in his contention, on a motion for rehearing, that the medical practice act, as it now appears in the revised civil statutes and penal code, was not in fact enacted at the time it purports to be, but that the act, as it first reached the governor's hands, instead, was enacted and became the law, and that, therefore, he was convicted under what purported to be the law, but which in fact and reality was not the law. The court considers that, in any and all events, the law under which the defendant was convicted was in every way valid and legal.

Failure to Diagnose Diphtheria

(Hrubes vs. Faber et al. (Wis.), 157 N. W. R. 519)

The Supreme Court of Wisconsin reverses a judgment rendered in favor of the plaintiff for damages for the death from diphtheria of his daughter a little over 7 years old, the death being alleged to have been caused by unskilful and improper treatment by the defendant. The court says that the child first complained of sickness on Friday afternoon. She was at school in the morning, but at home in the afternoon. The only definite symptom was headache. She did not complain of anything else, and did not complain of sore throat at any time. The defendant saw her on Saturday afternoon, about twenty-four hours after she began to complain. She then complained of headache, and the defendant found a swelling in the back of the throat. There was no redness; the color was like the rest of the throat, only thickened; her general appearance was favorable, and she had no fever. She would not hold still, and the defendant advised her father to bring her to his office the next morning, in order that a more thorough examination might be made. At that time the defendant, assisted by another physician, administered enough chloroform to relax the patient, and the defendant made a careful examination of the swelling and the throat, and found no membrane present, and discovered no other symptoms which caused him to suspect the presence of diphtheria. The other physician, who administered the anesthetic, examined the throat, and outside of a small, circumscribed area on the left side, which he thought looked like an abscess, and which might contain pus or fluid, there was no swelling or any sign of membrane, and no signs or symptoms of any serious condition, outside of what appeared to be an abscess. The condition of the throat did not, in the opinion of such other physician, resemble diphtheria at all. The patient returned to her home, and the defendant did not see her again until Tuesday evening, when he was requested by the father to visit her again, which he did at her home. At that time she walked into the room where he was sitting and he made a slight examination. She had the same swelling, slightly enlarged; there were no local signs to indicate the presence of diphtheria. On Tuesday evening the swelling was more pronounced, and particularly on the outside. At that time the defendant prescribed the use of an ointment which is commonly used in treating mumps, and gave no other treatment. He did not see the child again, and she died without further treatment or examination the next day, Wednesday, at 11 a. m. At the time of her death she was unconscious, in great pain, and was bleeding from her mouth and nose, and catching for breath. After consultation with the health authorities of the city, the defendant signed a death certificate stating the cause of death to be diphtheria. The jury found (1) that the defendant failed to exercise ordinary care in diagnosing or treating the case; (2) that such failure on his part to exercise ordinary care caused the death of the child; (3) that he did not, on Sunday, advise the plaintiff to get a physician other than himself to treat the child; (4) that he did not make known to the plaintiff that he did not want to take cases requiring visits or treatment outside of his office; (5) that the damages resulting from the death were $800. But the court holds that the verdict of the jury to the effect that the failure of the defendant to exercise ordinary care and skill resulted in the death of the child was a mere conjecture, and had no foundation, substantial or otherwise, in the evidence. Verdicts cannot rest in mere conjecture. It followed that the defendant's motion for judgment notwithstanding the verdict should have been granted; and a judgment for the defendant is ordered, dismissing the plaintiff's complaint on the merits. The law does not require impossibilities, or even the exercise of the very highest degree of skill or the utmost care, but only such reasonable care and skill as is usually possessed by physicians of the same school in the locality. The presence of a membrane not being established, there was no evidence in this case on which the jury could base a verdict finding that the defendant did not exercise ordinary care.

Society Proceedings

COMING MEETINGS

Am. Assn. for the Study and Prev. of Inf. Mort., Milwaukee, Oct. 19-21.
American Association of Railway Surgeons, Chicago, Oct. 17-19.
American Public Health Association, Cincinnati, Oct. 24-27.
Clinical Congress of Surgeons, Philadelphia, Oct. 23-28.
Kentucky State Medical Association, Hopkinsville, Oct. 24-27.
Southern Medical Association, Atlanta, Ga., Nov. 13-16.
Virginia State Medical Society, Norfolk, Oct. 24-27.

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Sixth Annual Meeting, held at Scranton, Sept. 18-21, 1916

The President, Dr. John B. McAlister, in the Chair

Epilepsy as a Medicolegal Problem

Dr. N. S. Yawger, Philadelphia: Medicolegally, the mental manifestations are grouped as: 1. Paroxysms in which the individual is not insane but in which he may be irresponsible; these are (*a*) irresistible impulses or impulsive acts; (*b*) the state of automatism. 2. Paroxysms in which the individual is insane; these may be (*a*) acting under the domination of an insane delusion; (*b*) in a maniacal epileptic outbreak. While these patients often have long intervals of lucidity, they are highly dangerous. This emphasizes the desirability of having the insane detained under the more secure form of committment by court procedure rather than by certificate. It might be desirable that all cases of insanity of considerable duration in which confinement is necessary should be committed similarly.

DISCUSSION

Dr. Hugh E. Meredith, Danville: If the epileptic is mentally defective and irresponsible, no punishment should follow a crime committed. Of the approximately 2,000 epileptics in Pennsylvania, many are cared for in insane institutions; and of the number passing under my observation, I have not found one not legally committed in accordance with the lunacy act of 1883. Institutions for the insane are not the places for these patients. I see no reason why the several classes of epilepsy could not be cared for in a properly organized institution in which they may receive special attention and treatment.

Dr. William H. Carmalt, New Haven, Conn.: The state of Connecticut has endeavored to meet legally the care of epileptics by the establishment of a state farm for their care and treatment where, if confirmed epileptics, they may be kept indefinitely. Another method, less satisfactory in its working, is a law prohibiting the marriage of epileptics and the feebleminded and imposing a fine of $50 on any one performing the ceremony. Unfortunately, no one has been fined for making these marriages. The law, however, acts as a moderate deterrent.

Care of the Indigent Insane

Dr. Charles W. Burr, Philadelphia: My object is to arouse physicians to active endeavor in the enforcement of wise legislation in the matter of the care of the indigent insane, and to urge that the solution of this problem lies in the state assuming the entire burden and control of these people. Future work will be to prevent insanity by a real system of eugenics—not the newspaper kind. A certain proportion of the income of the state should by law be appropriated for the care of the insane; there should be a board appointed by the governor, the assembly or both, the members of which should serve terms of given length. To this board should be left entirely the expenditure of funds. It would seem better that each local hospital have its own board of managers, appointed by the central board, and dependent on it for money. The medical member of the central board should decide in doubtful cases whether or not any given patient needs longer hospital care. The board controlling the insane, feebleminded and epileptics should be entirely separate from the board of charities. Acute and chronic insanity should be treated in separate institutions. The hospitals for the acutely ill should have a corps of research workers in the real meaning of the phrase. The chronic insane should not be herded in great institutions, doing, seeing, hearing nothing; the institutions should be small, in the country—real farms. While it is manifest that the state cannot undertake at once the entire care of the indigent insane, it can and ought to adopt such state care as a permanent policy, and then gradually evolve the whole question.

DISCUSSION

Dr. Charles H. Frazier, Philadelphia: About three years ago the Public Charities Association, which has for its object the adoption of more efficient methods of caring for the state's dependent people, made a survey of all the institutions in this state caring for the insane. This survey shows that in many instances our county institutions were merely adjuncts to almshouses, improperly manned as to medical officers and attendants, without proper facilities for the treatment of the insane, giving, in fact, merely custodial care rather than medical treatment. To say that it is cheaper to care for the insane in county hospitals is a discreditable argument for the state to use against the care of this unfortunate class. To carry out the plan suggested by Dr. Burr, this society should, through its Committee on Public Policy and through its Subcommittee for the Promotion of More Efficient Laws for the Insane, be prepared to introduce certain remedial measures at the next meeting of our legislature; and, that the county medical societies should appoint committees, the members of which shall familiarize themselves with the conditions prevailing in their county asylums or almshouses that they may from first-hand knowledge advise those representing them in the senate and house.

Dr. Owen Copp, Philadelphia: Adequacy in medical examination and treatment is the first and indispensable requirement of any system of provision for these people. Experience teaches that the state alone can reasonably be expected to provide sufficiently for medical treatment and scientific study of these classes. The so-called economy of local and county care is delusive in that it is a saving by deprivation of sufficient medical attention, facilities for treatment, precautions against secondary infections and reproduction of defectives. The development of the colony idea in the care of the insane will eventually completely surpass the claims made by the advocate of county asylums. The problem is medical and will find solution only through the action of the medical profession. Its neglect is a menace to mental health and racial soundness.

Dr. John A. Lichty, Pittsburgh: Apparently little is to be hoped for from the standpoint of cure. We must, therefore, prevent the condition so far as possible through a study of its cause. We need a state organization for the care of the insane which will allow us to inquire concerning conditions and enable us to correct that which is detrimental in the life of the patient.

The Workmen's Compensation Law

Dr. William L. Estes, South Bethlehem: At the request of the board of trustees that its chairman present suggestions for amendments, and after consideration of suggestions received from the various county societies, the following amendments are proposed: 1. Define major operation as used in the wording of the act. 2. Extend the period of direct payment for treating the injured workman to thirty days. 3. Increase the limit of payment for "reasonable surgical, medical and hospital services," etc. The matter of proper fees in return for treatment of injured employees is apparently the crux of the whole difficulty. The only efficient remedy in the present business error seems to be thorough organization through the county medical societies in demanding from insurance companies the same rate of remuneration each physician is entitled to and is accustomed to receive for similar services from members of the community in which he lives. If the tendency of the law is to reduce the remuneration of physicians, it is necessary and proper to amend it. The medical profession has a right to be consulted in the drafting of these laws.

Internal Secretions and Their Relation to Nervous Disorders

Dr. Seymour DeWitt Ludlum, Philadelphia: Studying nervous cases by their physiologic symptoms points toward etiologic factors which, taken in consideration with the morphology of the patient and with Abderhalden's reactions done on the blood serum for internal secretions, give quite definite conceptions of backwardness, some forms of insanity, neurasthenia, dystrophies, etc.

Fecal Incontinence

Dr. Samuel Goodwin Gant, New York: The loss of sphincter control is in the majority of cases due to improper treatment of anorectal wounds. The condition will become rare when surgeons learn to treat fistula-in-ano properly and cease divulsing the sphincter rapidly with the finger and mechanical dilators and decline to perform Whitehead's operation for hemorrhoids. The cause of fecal incontinence may be nonoperative (brain and cord diseases, ulcerative proctitis, rectal cancer, injuries to the sphincters, etc.) and surgical. Loss of sphincter control is due to imperfect drainage, permitting skin or mucosa to grow into cut, useless probing, cauterization of wound, etc. Division of the internal with the external sphincter does not materially increase the danger of incontinence, but severing the nerves controlling the sphincter does. Nonoperative treatment is unsatisfactory, but usually surgical treatment brings relief.

DISCUSSION

Dr. Ira G. Shoemaker, Reading: I have seen pitiable cases, the result of lack of care and good judgment in operations for fistula. In cases in which both sphincters are involved, the best results are obtained in the use of the elastic ligature. I have used it successfully many times. An irritation is produced as the ligature cuts through the tissues which forms a good base and promotes healing.

Cooperation of Physician and Surgeon in After-Treatment of Patients Operated on for Diseases of Gastro-Intestinal Tract

Drs. Edward H. Goodman and John Speese, Philadelphia: Cooperation of physician and surgeon should begin immediately after operation during the stay in the hospital. Even greater cooperation should follow in cases in which the physician is consulted in a case surgical from the beginning, but in which he drops out after examination and the surgeon again assumes entire charge. Such a practice is unfair to the patient, increases the burden of the surgeon, and ignores certain potentialities of the internist valuable to patient and surgeon. If from the hospital the patient returns to a physician not familiar with his idiosyncrasies, the hospital physician should fully inform the medical attendant of all important facts relative to the patient. It is unfair to the patient to discharge him from the surgical ward, believing him cured, and neglect to instruct him as to his mode of living during the ensuing six to twelve months or longer. Comparatively few patients are immediately relieved by operation. Each patient, though believing himself to be in perfect health, should report to his physician at regular intervals.

DISCUSSION

Dr. John A. Lichty, Pittsburgh: This cooperation should be operative and preoperative as well. There is opportunity for meddling on the part of the internist, and there are surgeon's who are dogmatic to an unpleasant degree. Reasonable men, however, will get together, and as consequence have satisfactory results in these very difficult cases.

Clinical Interpretation of the Wassermann Test

Drs. John A. Lichty, Pittsburgh, and James H. Whitecraft, Wilkinsburg: The Wassermann test, while not absolutely certain, is the most valuable laboratory aid in the diagnosis of syphilis. A negative test in suspected cases should be repeated before the suspicion is dropped, often after a provocative dose of salvarsan. A negative reaction may be due to previous treatment, which has not been curative. The influence of specific treatment on clinical manifestations of syphilis tends to show the reliability of the Wassermann test. The existence of a positive Wassermann should not be construed to mean that syphilis is the only condition present which requires treatment.

Modern Diagnosis and Results Clinically, Serologically and Sociologically of Syphilis, Treated with Salvarsan and Its Substitutes

Dr. B. A. Thomas, Philadelphia: The treatment of syphilis remains empiric. The ultimate proof of cure rests rather on complete freedom of symptoms for a generation or more. The Wassermann reaction furnishes the best control of treatment, and is the most reliable index of cure subsequent to proper treatment. The sheet anchor in the treatment of syphilis is salvarsan, neosalvarsan or one of their substitutes. It is of paramount importance, however, that the injections of arsenobenzol, in the beginning, be administered as early as possible and intensively in full doses commensurate with the physiologic tolerance of the patient. Serologically, judged on a three months' to a five year duration, syphilis in the chancre stage, if diagnosed early, may be cured by two injections of salvarsan or neosalvarsan; if diagnosis be made before the advent of a positive Wassermann, one dose of either of these drugs may be sufficient. Secondary syphilis seems to do just as well without as with mercury, provided enough salvarsan or neosalvarsan is given to produce a negative Wassermann. The serologic results in tertiary syphilis treated intensively with salvarsan and its substitutes are not so brilliant as those of the secondary period. The best substitute for salvarsan and neosalvarsan is our American arsenobenzol. The French preparation of arsenobenzol and the Canadian diarsenol may be just as efficient as salvarsan and neosalvarsan, but because of their greater tendency to toxic phenomena are not destined to supersede the German products. The arylarsonate soamin and sodium cacodylate, both clinically and serologically, have no place in the effective treatment of syphilis.

Treatment of Syphilis by Salvarsan Controlled by the Wassermann Reaction

Dr. John D. Wilson, Scranton: My experience with these cases has led me to believe that salvarsan is most useful during the early active period of the disease and that, small, frequently repeated doses, namely, salvarsan, from 0.3 to 0.4 gm. every week or ten days for twelve injections, and in conjunction with active mercurial treatment, should constitute the first course of treatment in any new active case. The after-treatment is to be determined by the return of suspicious symptoms and by the Wassermann reaction on the blood and spinal fluid.

DISCUSSION

Dr. George Morris Piersol, Philadelphia: The successful treatment of syphilis depends on its early recognition and prompt management. The secretion of all doubtful venereal sores and early mucosal lesions should be examined for the *Spirochaeta pallida,* in both of which lesions it is abundant. If the spirochetes cannot be found, a definite prognosis should not be given until repeated examinations have been made and the Wassermann reaction thoroughly tried out. The time of the appearance of the Wassermann is subject to wide individual variations. The Wassermann reaction is not a primary but a secondary aid to diagnosis. In many of the more obscure visceral lesions of the nervous system, cardiovascular apparatus and in latent hereditary syphilis, very definite clinical manifestations may be present, and yet the blood Wassermann reaction negative. Conversely, while a positive blood Wassermann reaction means that a syphilitic infection is present, it far from proves that the trouble of which the patient complains is due to this infection. No apparently cured case of secondary syphilis should be discharged until spinal puncture has demonstrated that involvement of the nervous system is absent. The present equipment of the majority of our state and hospital dispensaries for the care of syphilitic cases is totally inadequate for the thorough treatment of active syphilitics. Attention should be directed to the desirability of performing the gold sol test, or Lange colloidal gold test on all spinal fluids in addition to the Wassermann, cell count and globulin tests. In primary infections it is possible to abort the condition by the intensive use of salvarsan alone; but such treatment must be adequate. The criteria of a cure depend on a repeatedly negative Wassermann reaction for at least two years after a provocative injection of salvarsan, and a normal spinal fluid.

Dr. John A. Kolmer, Philadelphia: Experiments and clinical data indicate the superior spirocheticidal activity of salvarsan and arsenobenzol over neosalvarsan. Sodium cacodylate was found absolutely without effect in experimental trypanosomiasis, and this drug should not be relied on to destroy *Spirochaeta pallida.* In an experimental study of the toxicity of various mercurials, we find that insoluble salts of mercury, as the salicylates, are very slowly absorbed from the subcutaneous and muscular tissues. Physicians should therefore avoid administering such preparations at very close intervals in order to avoid cumulative effects, particularly expressed in renal irritation as shown by the presence of albumin and casts in the urine. My colleague, Dr. Schamberg, always continues treatment until the Wassermann reaction is negative with cholesterinized antigens. This result can be obtained only after the administration of a large number of doses of salvarsan. I believe it a serious error to discontinue treatment on the basis of a negative test with an antigen of alcoholic syphilitic liver, because experience has taught me that a number of these persons are still Wassermann positive and can be rendered Wassermann negative with additional treatment. I have used the Hecht-Gradwohl reaction as a control on the Wassermann and find that it yields about 12 per cent. more true positive reactions than the Wassermann. I have confirmed the observations of Sherrick that normal persons taking potassium iodid may yield positive syphilitic reactions. The influence of the iodids should, therefore, be carefully ruled out before conducting this test.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, XII, No. 4

1 Protein Metabolism of Infant. F. B. Talbot and J. L. Gamble, Boston.—p. 333.
2 *Bacteriology of Urine in Healthy Children and Those Suffering from Extra-Urinary Infections. C. Beeler and H. F. Helmholz, Boston.—p. 345.
3 *Frequency of Hereditary Syphilis. F. S. Churchill and R. S. Austin, Chicago.—p. 355.
4 Clinical Course and Physical Signs in Hereditary Syphilis of Early Age. A. Post, Boston.—p. 364.
5 Clinical Signs and Diagnosis of Late Hereditary Syphilis. P. C. Jeans, St. Louis.—p. 374.
6 *Comparative Study of Luetin and Wassermann Reactions in Infancy and Childhood. L. R. DeBuys and J. A. Lanford, New Orleans.—p. 387.
7 *Treatment of Hereditary Syphilis. P. H. Sylvester, Boston.—p. 395.
8 Review of Literature of Syphilis in Infancy and Childhood. H. P. Towle, Boston.—p. 406.

2. **Urine Bacteriology.**—In 118 specimens of carefully catheterized urine from sixty-one different girls, examined by Beeler and Helmholz, sixty-one were sterile and fifty-seven contained bacteria. Of those from normal infants, thirteen were sterile and eleven contained bacteria. Of those from extra-urinary infections in patients under 2 years of age, none were sterile and twenty-four contained organisms. In those from girls over 2 years, thirty-eight were sterile and twenty-two contained bacteria. The number of bacteria found in Series 1 was considerably larger than in Series 2. This may be explained by the fact that in the older children one can cleanse the urethral orifice much easier than in the infant and introduce the catheter directly into the urethra. The bacterial flora was practically the same in both series, gram-positive cocci and diphtheroid organism predominating, the former being present in practically every case in which any organisms were found. In no instance were gram-negative bacilli found in such numbers in both specimens that it seemed probable that it was more than an accidental contamination from the urethra.

3. **Frequency of Hereditary Syphilis.**—Intensive study by Churchill and Austin of a group of 695 patients in the Children's Memorial Hospital, during the winter of 1915-1916, the study embracing both clinical and laboratory methods of investigation, shows an incidence of 3.3 per cent. of hereditary syphilis. The amount of hereditary syphilis among the hospital infants and children in New York, St. Louis, San Francisco and Chicago ranges from 2 to 6 per cent.

6. **Tests for Syphilis.**—According to DeBuys and Lanford the Wassermann reaction is not so valuable as the luetin test in cases of hereditary syphilis. Their series shows that it is impossible for a mother to give birth to a child who gives positive laboratory tests for congenital syphilis without herself giving positive tests. While the authors believe that the luetin test is of more value in being more often positive than the Wassermann, they do not believe that it should displace the Wassermann, as both tests, it would seem, serve distinct purposes, the Wassermann to give evidence of the presence of antibodies in the circulation, indicating an active process; while the luetin not only gives this evidence, but also indicates an existing syphilitic condition, even though it be inactive. The luetin test is not without its disadvantages, as it requires considerable experience in differentiating the lesion from the simple reaction produced by the intradermal injection of sterile inert foreign material. It is also influenced by the administration of certain drugs, which may give rise to a pseudoreaction, thereby adding to the possible inaccuracy in the interpretation of its reading. Therefore, luetin reactions should not be considered negative until sufficient time shall have elapsed to warrant such a reading.

7. **Treatment of Hereditary Syphilis.**—Sylvester advises that fetal syphilis should be treated by treating the pregnant syphilitic mother vigorously. The balance of evidence shows that the child is much benefited thereby. Arsenic should be used in fairly large doses if immediate intense action is desired. Mercury in one form or another should be used in conjunction with arsenic and continued a long time after all evidence of the disease has disappeared. Treatment should be persisted in for at least two years, after which a negative Wassermann, after six months without treatment, may be considered evidence of a cure. Neosalvarsan appears to be the most favored arsenical. Lesions other than of the central nervous system may be readily relieved. Latent cases should be treated.

American Journal of Public Health, Boston

September, VI, No. 9

9 Sixty Years of Providence Health Department. C. V. Chapin, Providence, R. I.—p. 905.
10 Relative Values in Public Health Work. F. Schneider, Jr., New York.—p. 916.
11 Harm Done in Ascribing All Babies' Sore Eyes to Gonorrhea. C. C. Van Blarcom, New York.—p. 926.
12 Period of Life at Which Infection from Tuberculosis Occurs Most Frequently. S. A. Knopf, New York.—p. 934.
13 Efficiency of Venereal Clinics. P. S. Platt, New York.—p. 953.
14 Industrial Hygiene and Health Insurance. J. B. Andrews.—p. 959.
15 Registration of Non-Resident Deaths. W. H. Davis, Boston.—p. 964.
16 Census of Contagious Diseases of 8,786 Children. E. C. Henderson, London.—p. 971.
17 Relation of Hospital and Dispensary to Occupational Diseases. W. G. Thompson, New York.—p. 982.
18 Handling of Shucked Oysters. C. Bates, Washington, D. C.—p. 987.
19 Suggestions for Test to Measure Drainability of Emscher Tank Sludge. W. L. Stevenson, Philadelphia.—p. 991.
20 Providence City Hospital. D. L. Richardson, Providence, R. I.—p. 995.

American Journal of Roentgenology, New York

September, III, No. 9

21 Roentgenoscopy of Respiratory Organs. A. W. Crane, Kalamazoo, Mich.—p. 419.
22 Congenital Anomalies and Variations of Bony Skeleton as Revealed by Roentgen Ray. A. Hartung, Chicago.—p. 430.
23 Idiopathic Infantile Osteopsathyrosis. E. S. Blaine, Chicago.—p. 438.
24 Roentgenographic Diagnosis of Renal Calculus. J. Friedmann, New York.—p. 443.

Arkansas Medical Society Journal, Little Rock

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25 Erotomania. T. Douglass, Ozark.—p. 67.
26 Healthy Citizen. J. T. Clegg, Siloam Springs.—p. 77.

Boston Medical and Surgical Journal

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27 Importance of Early Reduction of Fractures with Displacement. W. Darrach, New York—p. 437.
28 Treatment of Hip Fractures. F. J. Cotton, Boston.—p. 438.
29 Operative Treatment of Fracture of Patella. C. L. Scudder and R. H. Miller, Boston.—p. 441.
30 Some Aspects of Treatment of Compound Fractures Under Civil and Military Conditions. D. Cheever, Boston.—p. 442.
31 Flexed Spica and Wheel Chair in Treatment of Fracture of Neck of Femur. G. A. Moore, Brockton.—p. 448.

Canadian Medical Association Journal, Toronto

September, VI, No. 9

32 Epidemic of Pneumococcus Infection. T. McCrae, Philadelphia.—p. 769.
33 Experiences in Surgery of Present War. E. A. Archibald.—p. 775.
34 Irritable Heart of Soldiers (Soldier's Heart). R. D. Rudolf, Toronto.—p. 796.
35 Field Ambulance and Its Organization. W. L. Watt.—p. 811.
36 Treatment of Diphtheria at Alexandra Hospital, Montreal. H. B. Cushing and E. V. Murphy, Montreal.—p. 817.

Cleveland Medical Journal

August, XV, No. 8

37 Fecal Fistulae. G. W. Crile, Cleveland.—p. 507.
38 Etiology and Symptomology of Acute Poliomyelitis. H. C. King, Cleveland.—p. 510.
39 Recent Advances in Gynecology and Obstetrics. W. D. Fullerton, Cleveland.—p. 514.
40 Neurologic Reviews. T. S. Keyser, Cleveland.—p. 516.
41 Progress of Medicine. H. Feil, Cleveland.—p. 521.
42 Recent Advances in Pediatrics. H. C. King, Cleveland.—p. 523.

Florida Medical Association Journal, Jacksonville

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43 Fracture of Neck of Femur. J. Reeve, DeLand.—p. 65.
44 Fractures at Elbow. R. A. Ely, Tampa.—p. 69.

45 Study of One Hundred and Eighty-Four Blood Examinations from Standpoint of Malarial Index in Acute Febrile Conditions. J. S. Turberville, Century.—p. 71.
46 Some of Symptoms of Pancreatitis. M. G. Chancey, Tampa.—p. 73.
47 Apendicitis Complicating Pregnancy. C. L. Jennings, Jacksonville.—p. 82.
48 Report of Urologic Cases. E. P. Merritt, Atlanta.—p. 86.

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49 Formation of Methemoglobin by Streptococcus Viridans. F. G. Blake, Boston.—p. 315.
50 *Further Study of Gastric Ulcers Following Adrenalectomy. F. C. Mann, Rochester, Minn.—p. 329.
51 *Agglutination of Treponema Pallidum in Human Syphilis. J. A. Kolmer, S. Broadwell, Jr., and T. Matsunami, Philadelphia.—p. 333.
52 Study of Physiologic Activity of Adenomata of Thyroid in Relation to Their Iodin Content. A. Graham, Cleveland.—p. 345.
53 *Spontaneous Diabetes in Dog. E. B. Krumbhaar, Philadelphia.—p. 361.
54 Technic of Cultivating Human Tissues in Vitro. R. A. Lambert, New York.—p. 367.
55 *Study of Serum Salvarsanized in Vitro. H. F. Swift, New York.—p. 373.
56 Latent Period in Growth of Bacteria. A. M. Chesney, New York.—p. 387.
57 *Rapid Method for Diagnosis of Renal Tuberculosis by Use of Roentgenized Guinea-Pig. J. J. Morton, Boston.—p. 419.

50. **Gastric Ulcers Following Adrenalectomy.**—In order to determine whether the acid medium was the important factor in the production of acute stomach ulcers, a loop of the first part of the jejunum, varying in length from 6 to 12 cm., was functionally resected under anesthesia and implanted in the posterior wall of the stomach in the region of the antrum pylori. The continuity of the intestine was maintained by an intestinal anastomosis. The dogs quickly recovered from the operation and maintained excellent health for many months. Animals killed at various periods after operation demonstrated that the transplanted mucosa underwent definite changes, but ulcers did not develop except in one instance in which an ulcer was found around a retained silk suture. In four of these animals after a considerable length of time had elapsed, the right suprarenal was removed, and a few months later the left gland was extirpated. All developed the typical symptoms of suprarenal insufficiency and died at various times after the removal of the last gland. In all these animals definite lesions of the gastric mucosa were found at necropsy. In three there were ulcerations, while in one the mucosa was injected only and showed areas of erosion. In three the jejunal transplant appeared exactly similar to the control. In one there appeared to be a slight loss of jejunal mucosa in pin-point areas, which microscopically proved to be small ulcers.

51. **Agglutination of Treponema Pallidum.**—The authors believe that with a suitable culture or cultures well marked agglutination of *Treponema pallidum* in dilutions of 1:5, or better 1:10 and higher, indicates pallida infection and may prove of value in the diagnosis of isolated cases, particularly in the later stages.

53. **Spontaneous Diabetes in Dog.**—The clinical picture in the case of this dog was one of a true diabetes mellitus, first attracting attention after miscarriage. Although the G:N ratio sank from 3:1 on 10 gm. of nitrogen to 1.7:1 after three days' fasting, the disease progressed steadily in spite of a long continued carbohydrate-free diet. Together with the usual complications of diabetes, a malignant tumor of the thymus developed, so that after five months' observations a slow death was forestalled by chloroform. The most striking feature at necropsy was the large, apparently normal pancreas, which exhibited histologically marked changes in the islands of Langerhans, extreme hydropic degeneration and exhaustion of granules, involving both alpha and beta cells, but especially the latter, and replacement of some islands by fibrous tissue.

55. **Serum Salvarsanized in Vitro.**—Swift summarizes his study as follows: addition of salvarsan to serum in vitro produces a spirocheticidal mixture which is increased in potency by heating. The heated serum of salvarsan treated patients is more spirocheticidal if it has been in contact with the clot over night than if it has been separated immediately after coagulation. This is not true with the serum from blood which has been salvarsanized in vitro. The addition of salvarsan directly to serum produces a more potent mixture than results from the serum from blood to which salvarsan has been added in equivalent amounts. The increase in activity of salvarsanized serum produced by heating to 56 C. is due in part to the removal of inhibitory substances in the serum and in part to a direct increase in spirocheticidal power in the heated salvarsan. Both salvarsanized and neosalvarsanized serum are rendered more spirocheticidal by heating. A more active spirocheticidal mixture is produced by mixing small amounts of salvarsan with the serum of a salvarsan treated patient than with normal serum.

57. **Diagnosis of Renal Tuberculosis.**—Morton says it is possible to reduce the resistance of guinea-pigs to tuberculosis by Roentgen exposures, so that when animal inoculation is required for a diagnosis a much quicker result may be had than by the use of normal animals. In renal tuberculosis when it is necessary to resort to the use of animals, it ordinarily requires from five to seven weeks, while by the use of roentgenized guinea-pigs the diagnosis can be made in from eight to ten days. The resistance can be sufficiently lowered by one massive dose of Roentgen ray administered either shortly before or after the inoculation of the material to be tested. The lesions are so marked in these animals that the diagnosis is certain after the interval indicated above.

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58 *Etiology of Cholecystitis and Gallstones and Their Production by Intravenous Injection of Bacteria. E. C. Rosenow, Rochester, Minn.—p. 527.
59 Modification of Römer's Intracutaneous Method for Determination of Small Amounts of Diphtheria Antitoxin in Blood Serums. A. Zingher, New York.—p. 557.
60 Diphtheria Bacilli in Microscopic Sections of Tonsils from Diphtheria Carriers. M. W. Brown, Chicago.—p. 565.
61 Attenuation of Hog-Cholera Virus. D. J. Healy and E. J. Gott, Lexington, Ky.—p. 569.
62 *Specificity of Streptococci. A. T. Henrici, Minneapolis.—p. 572.
63 Correlation of Certain Reactions of Colon Bacilli and Like Organisms with Source. F. Hulton, Philadelphia.—p. 606.
64 *Fate of Mammalian Tuberculosis Bacillus in Sparrows and Chickens. L. Van Es and A. F. Schalk, Agricultural College, N. D.—p. 614.
65 Experimental Epidemiology in Tuberculosis. A. Distaso, Cardiff, Wales.—p. 628.
66 Immune Reactions in Scarlet Fever. Antigenic Properties of Bacteria Found in Scarlatina. G. F. Dick and G. R. Dick, Chicago.—p. 638.
67 Presence of Soil and Fecal Strains of Organisms of Colon Aerogenes Group in Waters of Kansas. M. Greenfield, Lawrence, Kan.—p. 647.
68 Milking Machine Source of Bacterial Contamination of Milk. G. F. Ruediger, La Salle.—p. 652.

58. **Etiology of Cholecystitis and Gallstones.**—Rosenow records the results of cultures by special methods from the liquid contents of the gallbladder, from the centers of gallstones, from the wall of the gallbladder, and from the adjoining lymph glands removed at operation, in a series of cases of cholecystitis, and the results of animal experiments with the bacteria thus isolated. These results, it is believed, throw definite light on the mechanism of the occurrence of cholecystitis and gallstones. The cultures were made from material removed at operation in 47 cases. The bile or other fluid content of the gallbladder was cultured in 29 cases, 13 of which showed no bacteria. In the remaining 16 cases the streptococcus was not found in pure culture, being found in conjunction with the colon bacillus in 5 instances, and with other bacteria in 2. The colon bacillus was found in pure culture 4 times. Cultures from the nuclei of the common types of gallstones were made in 33 cases, showing no bacteria. In the remaining 29 cases the streptococcus was isolated in pure culture in 17, and the colon bacillus in pure growth in 1. The streptococcus occurred with the colon bacillus in 3 cases, and with other bacteria in 4. Cultures made from 4 typical cholesterin stones showed no streptococci; 2 were sterile, 1 yielded a few colonies of a diphtheroid bacillus, and 1 the colon bacillus. Cultures from the wall of the gallbladder were made in 32 cases, 5 of which were sterile. Of the remaining 27 the streptococcus was found in pure culture

in 10, the colon bacillus in 1, mixtures of streptococcus and colon bacillus in 8, and the streptococcus with other bacteria in 3. Of the cases in which the fluid contents were sterile the streptococcus was isolated from the wall of the gallbladder in 8, and from the center of gallstones in 6. The adjacent lymph glands were cultured in 8 cases; 1 gave no bacteria, 4 showed pure cultures of the streptococcus, 1 the streptococcus and a diphtheroid bacillus, and 1 a pure culture of colon bacillus. *Bacillus welchii, Staphylococcus aureus,* diphtheroid bacilli, fusiform bacilli, *Bacillus mucosus* and the typhoid bacillus were found occasionally.

62. **Specificity of Streptococci.**—Fifty-three strains of streptococci from various sources were inoculated by Henrici into 225 rabbits, and the virulence and elective organ affinities were compared with the powers of hemolysis and carbohydrate fermentation. The carbohydrate fermentation tests are of no significance from the standpoint of virulence, and of slight or doubtful significance from the standpoint of tissue localization. The hemolytic streptococci are more virulent than the nonhemolytic, but the two classes localize in the same tissues with equal frequency. Henrici does not believe that we are not justified, from evidence obtained by rabbit inoculation experiments, in recognizing any particular class of streptococci as specific for rheumatic fever, since the various rheumatic lesions, arthritis, myocarditis, endocarditis, and myositis, may be produced by some strains in each of the varieties, and are produced in equal proportion by both hemolytic and nonhemolytic strepococci. Streptococci of various kinds may produce in rabbits types of myocarditis which cannot be differentiated from the Aschoff-Geipel nodules generally considered diagnostic of rheumatism. Experimental streptococcal endocarditis usually develops by implantation rather than by embolism.

64. **Fate of Mammalian Tubercle Bacilli in Birds.**—It was found by Van Es and Schalk that a considerable number of birds into which mammalian tubercle bacilli are introduced, either by ingestion or by inoculation, die in a highly emaciated state. As a result of the incorporation of such bacilli into the bodies of birds, the latter may retain the organisms for long periods with their pathogenic characteristics fully preserved. In consequence it is well within the range of possibility that birds may serve as intermediary carriers and transmitters of mammalian tuberculosis.

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69 Poisonous Proteins. V. C. Vaughan, Ann Arbor, Mich.—p. 851. To be continued.
70 *Peripheral Action of Opium Alkaloids with Special Reference to Bladder. D. E. Jackson, St. Louis.—p. 862.
71 *Antidotes in Mercuric Chlorid Poisoning — Experimental Study. B. Fantus, Chicago.—p. 879.
72 Bence-Jones Protein. W. A. Groat and R. K. Brewer, Syracuse, N. Y.—p. 895.
73 Detection of Small Amounts of Blood. T. H. Kelly, Cincinnati. —p. 897.
74 Temperature Reactions in Anaphylaxis. M. I. Smith, Ann Arbor, Mich.—p. 902.
75 Behavior of Certain Nitrogenous Metabolites in Blood in Nephritis. H. T. Karsner, Cleveland.—p. 910.
76 New Container for Pathologic Specimens. C. Kellner, New Haven, Conn.—p. 917.
77 *Simple Method of Concentrating Tubercle Bacilli in Sputum and Urine. W. Krauss and J. S. Fleming, Memphis, Tenn.—p. 919.

70. **Peripheral Action of Opium Alkaloids.**—The experiments described by Jackson prove that those opium alkaloids which belong to the phenanthrene series, that is, morphin, codein, thebain, heroin, dionin, etc., in large intravenous doses cause in dogs a profound contraction of the bladder. A similar contraction of the bronchioles is produced by these drugs. Jackson failed in a few experiments to obtain this contraction with some other ones of these alkaloids, notably papaverin, cryptopin and cotarnin. Apparently the contractions of the bladder and of the bronchioles produced by these drugs are strictly analogous and in all probability of identical origin. The contractions in both organs occur simultaneously, are usually of approximately the same proportions, last for corresponding periods of time, and when the initial contraction is maximal then later injections of any sized doses of either the initial drug or of any other of the series will not produce any further contraction whatever of either bladder or bronchioles. These reactions closely resemble those produced by drugs which first simulate and secondarily paralyze nervous structures, such, for example, as the action of lobelin on ganglia. But so far as Jackson has been able to determine by pharmacologic means no paralysis of either nervous or muscular structures is produced by these alkaloids.

71. **Antidotes in Mercuric Chlorid Poisoning.**—Fantus says that egg albumin is of little value as an antidote to mercuric chlorid, unless it is given immediately after the poison is swallowed. Milk and serum albumin are worthless. Hall's solution (potassium iodid and quinin), is useless as an antidote. Sodium bicarbonate and sodium acetate possibly have a moderate antidotal value. Sodium carbonate is of no value. Potassium bitartrate and sodium sulphate have no antidotal value. Stannous chlorid has little antidotal value. Calcium sulphite is probably too toxic to be of use as an antidote. Sodium phosphite alone has no antidotal value; but mixed in a certain proportion with sodium acetate it has antidotal efficiency. Sodium hypophosphite mixed with a certain proportion of sodium acetate or of hydrogen peroxid is also highly efficaceous as an antidote. As the result of his studies, Fantus recommends the following antidotal treatment for mercuric chlorid poisoning: immediate administration of a tablet composed of sodium phosphite, 0.36 gm., and sodium acetate, 0.24 gm. If this be not available, give the following: sodium hypophosphite, 1.00 gm.; water, 10.00 mils and hydrogen peroxid, 5.00 mils. If the amount of the poison taken be known, ten times as much of the hypophosphite should be given as poison was taken. As this might require a large and possibly harmful amount of hypophosphite, it should immediately be followed by copious lavage, with a very dilute solution of the antidote. This may be followed by a safe dose of the antidote, which is to be retained, and which might be repeated every eight hours for several days. This antidotal treatment might be combined with some such eliminant treatment.

77. **Method of Concentrating Tubercle Bacilli in Sputum and Urine.**—For sputum: place 5 c.c. sputum in a 15 c.c. centrifuge tube, add 5 c.c. of a 10 per cent. sodium chlorid solution and shake in a shaking machine, or by hand if none available, until it is a thin homogenous fluid as free from clumps as possible. Add 0.5 c.c. of gasoline and repeat shaking process until the gasoline is thoroughly emulsified. Centrifuge at a low rate of speed until the gasoline forms a supernatant liquid immediately beneath which is a scummy layer in which tubercle bacilli will be found, if present in original specimen. For urine: place 10 c.c. urine in 15 c.c. centrifuge tube and centrifuge three minutes at a rapid rate of speed. Pour off supernatant fluid. To the sediment add 10 c.c. of original urine and 1 gm. of sodium chlorid. Shake thoroughly or until the sodium chlorid is dissolved, and add 0.5 c.c. of gasoline. Shake again for about five minutes, then centrifuge slowly. The scum beneath the gasoline contains tubercle bacilli, if present.

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78 *Studies in Immunity to Tuberculosis. Cutaneous Reaction to Tuberculo-Protein. A. K. Krause, Saranac Lake, N. Y.—p. 1.
79 *Id. Anaphylactic State in Its Relation to Resistance to Tuberculous Infection and Tuberculous Disease. A. K. Krause, Saranac Lake, N. Y.—p. 25.
80 *Id. General Tuberculin Reaction. A. K. Krause, Saranac Lake, N. Y.—p. 43.
81 Endameba Buccalis in Mouths of Institutional Children. O. W. H. Mitchell, W. L. Culpepper and W. D. Ayer, Syracuse, N. Y. —p. 51.
82 Studies on Paratyphoid Enteritidis Group. Reaction in Litmus Milk as Method of Biologic Differentiation. C. Krumwiede, Jr., J. S. Pratt and L. A. Kohn, New York.—p. 55.
83 *Action of Benzol. Deuterophase of Diphasic Leukopenia and Antigen Antibody Reaction. H. G. Weiskotten, S. C. Schwartz and H. S. Steensland, Syracuse, N. Y.—p. 63.
84 *Id. Urinary Phenols with Special Reference to Diphasic Leukopenia. R. K. Brewer and H. G. Weiskotten, Syracuse, N. Y. —p. 71.
85 Lipase Studies. Regional Lipolytic Activity in Normal Human Brain. C. Quinan.—p. 79.

*Studies on Circulation. Effect of Disease on Renal Arterial Bed. Capacity of Coronary Arteries as Related to Weight and Age of Heart. A. A. Ghoreyeb, Boston.—p. 87.
Use of Mallory's Connective Tissue Stain as Indicator of Character of Thyroid Colloid. A. L. Tatum, Philadelphia.—p. 95.
*Fluid Enrichment Medium for Isolation of Typhoid Bacilli from Stools. O. Teague and A. W. Clurman, Rosebank, N. Y.—p. 107.
Lipoma Myxomatodes. Review of Literature; Report of Case. H. E. Robertson, Minneapolis.—p. 131.
*Etiology of Rocky Mountain Spotted Fever. Occurrence of Parasite in Tick. S. B. Wolbach, Boston.—p. 147.

8. **Cutaneous Reaction to Tuberculo-Protein.**—Krause ims that cutaneous hypersensitiveness to tuberculo- tein is inaugurated by the establishment of infection and development of the initial focus. It increases with pro- essive disease. It varies directly with the extent and ensity of the disease. It diminishes with the healing of disease. It is probably never entirely lost (except in the esence of intercurrent disease, pregnancy, etc.). It is reased by reinfection. It is diminished or completely ped out during the period of the general tuberculin reac- n. It is suggested by the author that tissue hypersensitive- ss may be a function of immunity to reinfection.

9. **Anaphylactic State in Its Relation to Resistance to berculous Infection and Tuberculous Disease.**—The experi- nts outlined by Krause were concerned with the influence resistance of a single, marked, anaphylactic intoxication. concludes that anaphylactic shock, experienced by guinea- s a short time before infection with tubercle bacilli of low ulence, did not reduce their resistance to such an extent t the parasitism of the particular micro-organism con- ned was markedly increased, although there were sug- stions that the extent of disease was probably increased. ause found that if tuberculous disease of low grade is once ablished in guinea-pigs a single attack of anaphylaxis es not bring about conditions that favor the extension of disease and that anaphylactic shock suffered just before inoculation of a nonpathogenic acid fast organism, the *st bacillus,* does not lay the body open to progressive asion by this germ. No success attended the efforts to ance the virulence of a certain strain of the tubercle cillus when the method of Thiele and Embleton was fol- ved. Evidence is submitted that tubercle bacilli can pre- ve their viability and their original virulence after being t in a dried state for from fifteen to seventeen months.

0. **General Tuberculin Reaction.**—On the basis of Krause's periments it seems to him reasonable to conclude that any sue products if thrown rapidly into the circulation in usual amounts will intoxicate an animal. In other words, e's own tissues, whether normal or pathologic, may con- vably poison one if they get into the blood stream in excess. erefore, if the focal reaction, following a tuberculin injec- n, establishes a better circulatory give and take between tuberculous focus and the animal organism, and, as it re, "unlocks" or "opens" the focus, the resultant symptoms a general reaction may be due merely to substances that primarily toxic for the organism. The same absorption nging about symptoms of illness will occur whenever the ditions for focal absorption are enhanced, whether it be more or less continuous absorption from a poorly invested us or the occasional absorption following physical strain, ercurrent disease, or drug action, any of which may pro- ce circulatory conditions about the focus that favor reased absorption.

3. **Action of Benzol.**—In connection with experimental rk on the action of benzol, rabbits were given two or more ly subcutaneous injections of equal parts of olive oil and zol. It was found that in all cases in which the animals vived the primary fall in the leukocyte curve there fol- ved a primary rise which reached a normal level and in ny instances reached the original level. This primary rise s always independently of any further injections, followed a secondary fall, which in turn was followed by a secon- ry rise to a normal level. In the secondary fall the leuko- e curve almost invariably reached a level nearly as low as the primary fall, and in some instances even lower. Further rk has given similar results. The author's experience indicates that the mortality during the secondary fall is practically as great as during the primary fall. In all animals surviving the secondary fall there occurred a return of the leukocyte curve to a normal level, and there was no evidence of any subsequent falls. As a descriptive term appropriate for indicating the occurrence of the two periods of leukopenia above described Southard has suggested the term "diphasic leukopenia." The first period the authors designate as the "protophase"; the second as the "deuterophase."

84. **Urinary Phenols with Reference to Diphasic Leukopenia.**—The deuterophase of the diphasic leukopenia following subcutaneous injections of equal parts of olive oil and benzol, the authors found, is not accompanied by an increase in the phenol content of the urine, as is the protophase. These results seem to indicate that the deuterophase is not the result of "slowness of absorption of the poison" giving rise to "considerable variation" in the amount of poison existing at various times in the circulating blood; and that it is not due to delayed absorption.

86. **Studies on Circulation.**—In all over 200 hearts were injected by Ghoreyeb. In only one of all the casts obtained was an anastomosing vessel found between the right and left coronaries. As this vessel was larger in caliber than many of the smaller ramifications appearing in the casts, it was concluded that the failure to obtain more anastomosing vessels was principally due to the fact that very few existed. Ghoreyeb concludes from his study that while age causes an increase in the size and weight of the heart, there is no proportionate increase in the capacity of the coronary arteries.

88. **Fluid Medium for Isolation of Typhoid Bacilli from Stools.**—Teague and Clurman use a Congo-red brilliant green nutrient gelatin, that is, 4 c.c. of 2 per cent. Congo red with 0.083 + per cent. brilliant green. To inhibit the growth of some of those bacteria that are resistant to brilliant green without injuring the typhoid bacilli, bromoform is added. About 20 c.c. of bromoform are added to 100 c.c. of sterile distilled water. The mixture is shaken thoroughly and allowed to stand at room temperature over night. Then some of the saturated solution is pipetted into a sterile flask, care being taken not to disturb the bromoform at the bottom of the bottle or to include any of the globules of bromoform floating on the surface. One c.c. of the saturated solution is added to 10 c.c. of the Congo-red brilliant green gelatin immediately before inoculation with the feces. Meat infusion is used for the preparation of the nutrient gelatin. One-half per cent. of dextrose is added to further favor the rapid development of the typhoid bacilli present.

90. **Etiology of Rocky Mountain Spotted Fever.**—A parasite has been found by Wolbach in proved infected ticks in large numbers, morphologically identical with the parasite found in the lesions of guinea-pigs and monkeys infected with Rocky Mountain spotted fever. This parasite does not occur in the tissues of ticks proved to be noninfective. Wolbach believes that the distribution of the parasite in the infected ticks indicates that the transmission occurs by way of the salivary gland secretions. Transmission by fecal contamination of the wound caused by the tick does not seem possible because of the character of the tick's feces.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

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91 Central Action of Curare. H. McGuigan, Chicago.—p. 471.
92 *Spontaneous Liberation of Epinephrin from Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 479.
93 *Influence of Suprarenals on Kidneys. E. K. Marshall, Jr., and D. M. Davis, Baltimore.—p. 525.
94 Pharmacology of Vas Deferens. J. A. Waddell, Charlottesville, Va.—p. 551.

92. **Liberation of Epinephrin from Suprarenals.**—The spontaneous liberation of epinephrin was studied by Stewart and Rogoff (in the cat) by means of the (denervated) eye reactions and the blood pressure changes caused by blood from the suprarenals when permitted to pass into the circulation from a pocket of the vena cava in which it has been collected in known amounts and for known periods of time. The amount of epinephrin spontaneously liberated in cats was

found to vary in different experiments within a rather narrow range considering the differences in the conditions from 0.0008 to 0.0028 mg. per minute per animal, or from 0.0003 to 0.001 mg. per minute per kilo of animal. After section of both sympathetic trunks in the thorax near the diaphragm, including the major splanchnics, the spontaneous liberation of epinephrin is completely abolished. Division of the major splanchnics in the abdomen does not necessarily cause total cessation of the secretion in all cats. In one animal a detectable amount was still liberated but the liberation was entirely stopped when all the fibers coming to the semilunar ganglion were cut. The fall of blood pressure caused by section of both splanchnics has nothing to do with the failure of the suprarenals to liberate epinephrin. For when the nerves of the right gland are alone divided and the left suprarenal vein clipped, the blood collected from the right suprarenal in the cava pocket yields no epinephrin reactions on release of the pocket. Although, as is known, cats survive indefinitely the removal of one suprarenal and division of the nerve supply of the other, no detectable epinephrin was found in the blood coming from the remaining suprarenal five weeks after the operation. Good reactions were obtained on massaging the gland. No increase in the epinephrin liberation was detectable when sensory nerves (brachial) were stimulated. If any increase was produced by asphyxia in the authors' observations it was very slight.

93. **Influence of Suprarenals on Kidneys.**—The results of Marshall's and Davis' operations confirm in general experience of Elliott and other previous workers on suprarenal problems. Their animals have always succumbed after complete operations, with symptoms similar to those described in the literature. Cats, from which both suprarenal glands have been completely removed by the interval method and precautions employed by Elliott, have survived from one to seven days. The urea concentration in the blood rises after complete removal of the suprarenals to about twice the normal value and remains approximately stationary at this level until shortly before death when it again rises. The phenolsulphonephthalein excretion shows a tendency to diminish after suprarenalectomy. Cats with both suprarenals removed excrete much less urea and creatinin in the urine after an injection of these substances than normal or singly suprarenalectomized animals. The kidneys of suprarenalectomized animals show no noticeable histologic change from the normal, but those of suprarenalectomized animals which have received an injection of urea, creatinin and sodium chlorid show a striking change from the control animals. The nitrogen excretion in the urine of suprarenalectomized cats is slightly diminished after the operation; the diminution being accounted for by the retention of nitrogen products in the organism. There is hence no marked change in protein catabolism. These facts the authors regard as indicating a marked lowering of kidney efficiency in suprarenalectomized cats. This may occur with a normal blood pressure, and when the animals are in excellent physical condition.

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95 Empyema. P. F. Barbour, Louisville.—p. 478.
96 Metastatic Infection of Bone. C. B. Spalding, Louisville.—p. 480.
97 Monstrosities and Congenital Deformities. C. K. Beck, Louisville.—p. 484.
98 Cases of Insanity Selected from Long and Busy Practice. J. W. Crenshaw, Cadiz.—p. 486.
99 Crime as Disease; Its Treatment. J. L. Carter, Whitesville. p. 488.
100 Intussusception in Adult; Report of Case. W. L. Gambill, Jenkins.—p. 492.
101 Report of Louisville Vice Commission. T. H. Mulvy, Louisville. p. 493.
102 Twilight Sleep. J. E. Wilson, Butler.—p. 499.

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103 Psychologic Study of Deaf Child. M. A. Goldstein, St. Louis. p. 1129.
104 Auditory Reeducation. T. J. Harris, New York.—p. 1139.
105 Experimental Treatment of Three Congenitally Deaf Children with Sonorous Vibrations. L. M. Hubby, New York.—p. 1152.
106 Present Status of Carcinoma with Special Reference to Head and Neck. J. C. Beck, Chicago.—p. 1158.
107 Impacted Foreign Body in Trachea. C. J. Imperatori, New York. —p. 1176.
108 Diffuse Diabetic Ulceration of Pharynx and Larynx. H. Arrowsmith, New York.—p. 1177.

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132 Routine in Eye Work. G. C. Savage, Nashville.—p. 189.
133 *Solar Treatment in Affections of Bones and Joints. W. C. Campbell, Memphis.—p. 199.
134 *Percy Cautery Treatment of Inoperable Carcinoma of Uterus; Report of Cases. E. T. Newell, Chattanooga.—p. 203.
135 Cardioneuroses. S. T. Rucker, Memphis.—p. 208.
136 Progress in Treatment of Crippled and Deformed. R. W. Billington, Nashville.—p. 211.
137 Intractable Gonorrhea. G. R. Livermore, Memphis.—p. 215.

133 and 134. Abstracted in The Journal, April 22, p. 1348.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

September, XIII, No. 153

1 *Case of Gastro-Enteritis Due to Bacillus Proteus. W. Boxwell.—p. 257.
2 *Case of Prolonged Hyperpyrexia in Child with Midbrain Tumor. C. V. Turner.—p. 261.
3 Glandular Carcinoma of Uterus in Child Aged Two and One-Half Years. J. E. Adams.—p. 266.

1. **Gastro-Enteritis Due to Bacillus Proteus.**—The striking features of Boxwell's case were a sudden attack of gastro-enteritis, with sharp hemorrhage from the bowel; high fever and delirium; pain in the muscles and joints; transient paralysis of the limbs, probably of toxic origin; an acute bedsore, long protracted fever of a hectic type with extreme emaciation; the reaction of her blood to a proteus like organism recovered from her feces; and the almost dramatic

improvement and ultimate recovery after the administration of a vaccine made from this organism. Boxwell believes that this must have been a genuine case of infection with *Bacillus proteus* because in nearly every important particular the morphology and biology of the organism obtained from the feces corresponded with that of *B. proteus.*

2. **Case of Prolonged Hyperpyrexia.**—The temperature was the most remarkable feature of Turner's case; it was irregular and intermittent throughout, showing great variations at times; once, or sometimes twice, every twenty-four hours it would rise to 105, 106 or 107 F., and then rapidly fall, so that in eight or twelve hours it would be normal or subnormal. The maximum was per axilla, 109 F. and per rectum 111 F. Four hours later it was down to 100 F., and in eight hours it was normal. The rises occurred most frequently at 11 p. m., but this was not constant; the temperature never fell below 97 F. The pulse rate varied in proportion with the temperature; it became uncountable when the temperature was high, and only 80 to 100 when the temperature was down; the respiration rate showed corresponding variations. During the last week the respirations were grouped, and became Cheyne-Stokes in character before death. Diarrhea, vomiting and marked wasting were terminal features; for forty-eight hours before death the extremities were icy cold, and the last twenty-four hours the temperature was so low as to be unregisterable by an ordinary clinical thermometer. Postmortem a solid rounded tumor was found situated in the midline in the region of the corpora quadrigemina.

British Medical Journal, London

September 9, II, No. 2906

4 Educational Number.—p. 345.

Edinburgh Medical Journal

September, XVII, No. 3

5 Hunchback or Gibbus Pelvis (Kyphotic Pelvis; Kyphosis Pelvis). D. B. Hart.—p. 150.
6 Report of Surgical Cases: Paget's Disease of Nipple, Coccygeal Gland, Tumor, etc. J. C. Burns.—p. 161.
7 Case of Progressive Subcutaneous Edema. D. M. Greig.—p. 187.

Indian Journal of Medical Research, Calcutta

July, IV, No. 1

8 Sugar of Blood and Sugar in Urine in Varying Conditions of Health in Bengali. D. McCay.—p. 1.
9 Cultivation of Tubercle Bacillus Directly from Sputum and Postmortem Material. M. B. Soparkar.—p. 28.
10 Fallacies of Certain Modifications of Wassermann Reaction Due to Variation in Complement Content. H. C. Brown and K. R. K. Iyengar.—p. 41.
11 Detection of Origin and Mode of Spread of Epidemic of Diarrhea, Dysentery and Cholera in Poona. J. Morison and E. C. R. Fox.—p. 49.
12 Genus Ankylostoma in India and Ceylon. C. Lane.—p. 74.
13 Genus Dacnitis Dujardin, 1845. C. Lane.—p. 93.
14 *Kala-Azar. J. W. Cornwall.—p. 105.
15 New Anopheline with Unspotted Wings from Mesopotamia (Anopheles Lukisii). S. R. Christophers.—p. 120.
16 Studies in Flies. Study of Specific Differences in Genus Musca. Structures Other Than Genitalia. P. R. Awati.—p. 123.
17 Study of Osteomalacia in India. A. C. Scott.—p. 140.
18 Calcium Content of Urine and Blood with Special Reference to Its Variation in Osteomalacia. A. C. Scott.—p. 169.
19 *Experimental Production of Congenital Goiter. R. McCarrison.—p. 183.
20 Malaria in Muscat. C. A. Gill.—p. 190.

14. **Kala-Azar.**—All attempts made by Cornwall to make bugs, infected with *Leishmania,* transfer the infection by biting, either to a sterile culture medium or to an animal, failed. Degenerated forms of *Leishmania* and free flagella are found in the intestine and rectum of *Cimex rotundatus* but no viable resistant cystic forms could be demonstrated in either the rectum or the feces of *Cimex.* On the other hand, infected bugs may be devored by some other insect or by a vertebrate and the infection somehow passed on to man. If no such bug eater which is capable of transferring the infection can be found, some insect host other than the bug must be sought for. Resistant forms, which are capable of becoming flagellates when fresh nutriment is supplied to the bug, do not remain in the stomach of either the nymphal or adult *Cimex* after the flagellate infection has died out. No indications of an intracellular phase of *Leishmania* in the stomach of *Cimex* were met with by Cornwall. The fresh serums of man, goat, sheep and guinea-pigs are all inimical to flagellates of *Leishmania;* those of rabbit, dog, hen and cat seem to have little ill effect. The inimical action of a serum is destroyed by heating it to 55 C. for 30 minutes. The parasites of an oriental sore are all intracellular, so *Cimex* can only infect itself when the parasite is in the circulating blood, and not directly by biting the lesion. Cornwall points out that this investigation brings into prominence once again two things, first, our lack of definite knowledge concerning the bionomics of common insects, such as bugs, and the wide field that exists for close observations of the habits, life history, food supply and natural enemies of the insects and small vertebrates that frequent our houses. Second, it is clear that for the elucidation of problems in the insect transmission of disease the close cooperation of a committee consisting of a medical man, an entomologist, and a zoologist is a desideratum.

19. **Experimental Production of Congenital Goiter.**—Three classes of goats were under McCarrison's observation: Class *A,* included twelve female goitrous goats, intimately mixing one with another, and to all of whom cultures from the feces of goitrous individuals were administered daily throughout the experiment. Class *B,* included eight female goats of the same age, but isolated one from another, and receiving no cultures. These were further subdivided into four which were muzzled and four which were not muzzled. Class *C,* comprised one young female goitrous goat living in the animal houses of the institute within a distance of a few yards from those of class *B.* All these were impregnated during the same season by the same male, while in every other respect their conditions of life were identical. The only factors, then, to which differences of results could be attributable were: (1) intimate contact, (2) muzzling, (3) the presence of goiter in the mothers of classes *A* and *C,* and (4) the administration of the cultures. With regard to the mothers themselves; it was not observed that the goiters of those in the first and third classes underwent any considerable increase in size during pregnancy. Among the mothers in class *B,* however, two of the unmuzzled animals developed small goiters during pregnancy. With regard to their offspring 100 per cent. in the first class were goitrous, while 90 per cent. were stillborn, macerated, hairless, ill developed and goitrous, death having been intra-uterine.

In the second class, on the other hand, none of the offspring showed all these pathologic characteristics at one and the same time. Three of the five kids born in this class were perfect in health and development, that is 60 per cent. One had a slight goiter which disappeared shortly after birth. A fourth was stillborn and goitrous, but as it was otherwise well developed, covered with a thick coat of healthy hair and showed no signs of maceration its death was probably extra-uterine. The fifth was born prematurely but was not goitrous. Its premature birth might well have been due to influences quite outside the scope of the present experiment. The kid born of the mother in the third class was perfectly healthy; its thyroid was palpable, but there was no goiter. Among the nine control animals, therefore, six had offspring. Of the kids born 66.6 per cent. were living and healthy, 33.3 per cent. were stillborn, while 33.3 per cent. were goitrous at birth. In neither of the two kids born with goiter did the enlargement reach the size of the majority of cases in class *A.* McCarrison believes, therefore, that his previous conclusion is confirmed, namely: That congenital goiter is due to the action on the fetal thyroid of toxic substances derived from the maternal intestine. These substances are the products of micro-organisms originating in fecally contaminated soil which are conveyed to man and animals by infected food and water.

Journal of Tropical Medicine and Hygiene, London

September 1, XIX, No. 17

21 Cercariae of Natal. F. G. Cawston.—p. 201.
22 Dermatitis Due to Secretion of Beetle in British East Africa. P. H. Ross.—p. 202.

Archives des Maladies du Cœur, etc., Paris

September, IX, No. 9, pp. 377-424

23 *Drug Tests of Bradycardia. (Critique de l'emploi des épreuves de l'atropine et due nitrite d'amyle dans le diagnostic des bradycardies.) H. Frédéricq.—p. 377.
24 *Comparison of Diastolic Pressure in Different Arteries. (Du niveau de la pression diastolique mesurée au Pachon dans les différentes artères des membres.) J. Heitz.—p. 382.
25 The Low Blood Pressure in the Pregnant. (Grossesse et tension artérielle.) C. Doljan.—p. 388.

23. **Drug Tests of Bradycardia.**—Frédéricq protests against the generally accepted view that when the heart beat in bradycardia is accelerated by atropin and amyl nitrite the trouble is of nervous origin, while a myocardial origin is assumed when these tests give negative findings, that is, when there is no acceleration. Wenckebach seems to be the only one who has raised his voice in protest against this assumption, Frédéricq says, and he reports the results of some experimental research which sustain this protest. A positive result, namely, a notable acceleration of the pulse after administration of these drugs proves merely that the physiologic tonus of the vagus nerve is not abolished; not at all that this tonus is unduly exaggerated. The rhythm of the beat is determined by a number of factors, and the normal inhibiting action of the vagus plays certainly some part in it. But this is not necessarily the factor that determines the bradycardia. Whatever the cause of the bradycardia, however, as long as the vagus has its physiologic tonus, its suppression by these drugs will accelerate the abnormally slow rhythm. Frédéricq induced bradycardia in dogs by moderate compression of the region of the bundle of His, thus inducing a condition similar to the clinical permanently slow pulse from dissociation of the auricle and ventricle action. The nerve control of the myocardium was not interfered with. Arresting the nerve control with atropin, amyl nitrite or severing the vagus then accelerated the ventricle beat. This disproves that a nervous origin is necessary to explain the positive response to these drug tests.

24. **Diastolic Pressure in Different Arteries.**—Heitz gives a table showing the diastolic pressure at approximately the same time in the humeral and radial arteries and in the femoral and tibial, on each side. Surprising differences were found, even in arteries on the same side. This renders it necessary in recording cases to mention on which artery the blood pressure was measured and how high up on the artery.

Bulletin de l'Académie de Médecine, Paris

September 5, LXXVI, No. 35, pp. 167-182

26 *Prophylaxis of Tetanus. (Au sujet de la prévention du tétanos par le sérum antitoxique.) Vaillard.—p. 167.
27 Serotherapy in Diphtheria. Deléarde.—p. 173.
28 Tests of Reserve Power of the Heart. (Epreuve d'aptitude cardiaque à l'effort.) C. Lian.—p. 176.
29 Carbon Tetrachlorid for Cleansing the Skin Around a Wound. (Dégraissage de la périphérie des plaies de guerre, par le tétrachlorure de carbone.) L. Mac-Auliffe.—p. 180.

26. **Prophylaxis of Tardy Tetanus.**—Vaillard analyzes the various experiences with tetanus developing months after the injury and after preventive inoculation of antiserum. It has been proved in this way that the tetanus spores are not destroyed by the usual antiseptics, but only by being incorporated by the leukocytes and digested by them. They have been found nonmotile but with apparently unimpaired vitality in leukocytes six months after the injury, in experimental research on dogs and in the clinic. A wound infected with tetanus spores may develop tetanus long after it has apparently healed. The danger is most imminent when a foreign body infected with the germs is in muscle tissue. With dogs under these conditions it proved absolutely impossible to ward off tetanus with antiserum injections; its development was only postponed a little. The practical conclusions from his study of the subject are that the primary injection of the antiserum should be proportioned to the severity of the wound. The doses should be large, especially when there are foreign bodies in the wound whose removal is not practicable at once. In twenty-six of the 105 cases of tardy tetanus of which he has records, the tetanus developed in connection with some secondary operation in the region of the wound incurred from twenty days to six or even ten months before. In other cases the tetanus developed after some sequester or foreign body had been mobilized in the tissues or cast off. The eliminating process seems to have had the same effect in rousing the slumbering germs as an operative procedure. In another group of cases the tetanus came on from one to four months after the wound, which had continued to suppurate. In these cases of interminable suppuration, an occasional injection of antiserum might have warded off the disease. In a few cases the tetanus developed from forty-nine days to three months after the wound and it had apparently healed and a definite scar had formed. Two men in this group had been doing exercises for mechanotherapy and two others had been severely chilled through on some occasion. Nothing can be suggested in prophylaxis for such cases, but it is evident that a preventive injection of the antiserum is called for before any secondary operation on the wounded, and when there is reason to suspect that a foreign body or sequester is moving about. To avoid possible danger of anaphylaxis, the antiserum might be injected by the small preliminary, "refractory dose" method. In conclusion he reiterates that the biologic phenomena are too complex for any of our preventive measures to be absolutely infallible in their action.

Paris Médical

September 2, VI, No. 36, pp. 181-224

30 *War Psychoses. (Psychoses hystéro-émotives de la guerre.) H. Claude, M. Dide and P. Lejonne.—p. 181.
31 *Nervous Phenomena from Explosion Nearby. (Les accidents nerveux déterminés par la déflagration des explosifs.) G. Roussy and J. Boisseau.—p. 185.
32 *Rapid Rhythmic Spasms of the Diaphragm. (Chorée du diaphragme d'origine hystérique.) Simonin and Chavigny.—p. 191.
33 *Dual Personality Controlling the Gait as a War Psychosis. (Troubles de la marche consécutifs aux émotions et commotions de la guerre.) M. Laignel-Lavastine and P. Courbon.—p. 194.
34 Secondary Contracture after War Injury of Peripheral Nerves. (Hypermyotonie ou contracture secondaire dans les paralysies des nerfs périphériques par blessure de guerre.) A. Thomas.—p. 203.
35 *Sequels of War Wounds of the Head. (Le syndrome psychique résiduel des traumatismes cranio-cérébraux de la guerre.) M. Villaret and M. Mignard.—p. 209.
36 Electrodiagnosis in Wartime. (Considérations sur l'électrodiagnostic de guerre.) Larat.—p. 215; (Interprétation des discordances entre les réactions électriques et les signes cliniques, dans les lésions nerveuses périphériques.) J. Chiray, G. Bourguignon and Dagnan-Bouveret.—p. 220.

30. **War Psychoses.**—Claude and his coworkers cite some typical cases, explaining the trouble by exclusion as a hysteric neurosis created by emotional stress on a constitutional predisposition and perpetuated by dread of being sent back into danger.

31. **Nervous Disturbances from Explosion Nearby.**—Roussy and Boisseau report some of their 133 cases of this kind among 1,300 war patients in nine months. None had any signs of external injury. In the vast majority of the cases the disturbances were of the hysteric type, all curable at once by psychotherapy.

32. **Chorea of the Diaphragm.**—The extremely rapid rhythmic contraction of the diaphragm, in two cases related, developed after recurring pleurisy or the chest had been kicked by a horse. The clinical picture in the recurring attacks was identical with that described by old writers as "dyspnea and cough from diaphragmatic spasm" or "chorea of the diaphragm." Roentgenoscopy in one case showed that the right and left halves of the diaphragm rose and fell alternately. Both cases date from long before the war, although both were in soldiers.

33. **Disturbances in the Gait as a War Psychosis.**—In this study of the locomotor disturbances in those the writers call the *émotionnés,* and the *commotionés* of the war, one characteristic is manifest through the manifold varieties of such disturbances. This characteristic is the ease and promptness with which these disturbances settle into established habits, and the difficulty of breaking up these habits. It seems as if the locomotor automatism has actually escaped beyond the influence of volition. In short, they say, there is a more or less complete dual personality so far as the gait is concerned.

35. **Sequels of Wounds of the Head.**—Villaret and Mignard have kept under surveillance to date the 350 cases of brain wounds which have passed through their neurologic service at a base hospital. In no instance has the destruction of brain tissue been followed by any characteristic form of insanity or the syndrome of true dementia, idiocy or imbecility. To date, the only sequels seem to be a syndrome of sluggish psychic action and early fatigue from mental effort, while the intellect, emotions and will can be evoked at any time. There may be occasional brief periods of confusion, suggesting the psychic equivalents of epilepsy. The location of the wound does not seem to have any influence on this residual psychic syndrome.

Presse Médicale, Paris

September 7, XXIV, No. 49, pp. 389-396

37 General Principles for Making Artificial Legs. (Quelques principes pour la prothèse du membre inférieur.) A. Broca.—p. 389.
38 Alkaline Chalybeate Mineral Water in Treatment of Hard Edema. (Guérison des oedèmes durs traumatiques et phlébitiques par les injections sous-cutanées d'eau du Breuil.) Denis.—p. 390.
39 Colloidal Metals in Treatment of Typhus and Relapsing Fever when Serotherapy is Not Available. (Traitement du typhus exanthématique et du typhus récurrent par l'or et l'argent à l'état colloïdal.) J. Bouygues.—p. 391.
40 Prophylaxis of Tardy Tetanus by Reinjection of Antiserum. (La prévention du tétanos par le sérum antitoxique.) Vaillard.—p. 393. See abstract 26 above.

September 11, No. 50, pp. 397-404

41 *Periodic Vomiting with Acetonemia Not a Form of Appendicitis. A.-B. Marfan.—p. 397.
42 *Cartilage to Close Gap in Skull. (Technique opératoire de la cranioplastie cartilagineuse.) Villandre.—p. 399.
43 Sandals to Wear Over Shoes to Correct Varus. (Les patins correcteurs contrevarus et contre-équin.) L. Lortat-Jacob and P. Meunier.—p. 400.

41. **Periodic Vomiting with Acetonemia.**—Marfan says that he has never known a case of this kind developing for the first time after the age of 10. The first attack may occur during the first months of life or at any time between this and 10, and they never return after puberty. We must assume that some abrupt disturbance in the nutritional interchanges sets at liberty some substance that has an emetic action, causing the vomiting, while at the same time the fats are split and an excess of fat acid is thrown into the circulation, overtaxing the liver and permitting the passage of acetone into the blood. The disturbance in the nutritional interchanges resembles in many respects that from chloroform poisoning. It occurs almost exclusively in children with an inherited neuro-arthritic taint, and is favored by a diet rich in fats. The theory that the appendix is a factor is disproved by twenty-one cases which he reports in detail, all in children who had had the appendix removed. In some cases the attacks had long preceded and continued after the appendicectomy. In others they developed for the first time a few months to a year afterward. In some cases it may be difficult to differentiate the periodic vomiting from acute appendicitis, but with the latter the temperature is abnormally high and the acetonemia is slight, inconstant and tardy, as it results merely from the lack of food, and the abdomen is distended and tender at certain points. Appendicitis also is rare in children under 5. Sometimes palpation through the rectum may clear up the diagnosis. In case of doubt it is wiser to act as if appendicitis were certain, as in several of the cases reported the two affections coexisted.

42. **Cartilage Implant to Close Gap in Skull.**—Villandre describes with illustrations how he shovels out scraps of cartilage from the sixth, or seventh costal cartilage, using a bistoury with bayonet handle. The gap is filled with from two to five of these scraps, and they are held in place by catgut passed back and forth through the edges of the periosteum of the skull and inner layer of the scalp, thus forming a grating over the scraps in the gap.

Progrès Médical, Paris

August 20, XXXI, No. 16, pp. 137-144

44 *Prophylaxis of Gas Gangrene. (Etude histologique sur un cas de gangrène gazeuse au debut. Considérations thérapeutiques.) M. Sénéchal.—p. 137.
45 Narrow Steel Arches and Supports to Bridge Opening in Plaster Casts. (La transformation de nos appareils plâtrés en chirurgie de guerre.) P. Barbarin.—p. 140.

September 5, No. 17, pp. 145-162

46 *Reeducation of Functional Deafmutism. (L'audi-mutité rebelle, d'origine émotionnelle.) M. Briand and J. Philippe.—p. 145.
47 *Uremic Origin of Nervous Complications in Typhoid. (Fièvre typhoïde ataxoadynamique et urémie cérébrale.) G. Jouve-Balmelle.—p. 149.
48 Injury of the Eyes from Gases. (Lésions oculaires consécutives à l'action des gaz lacrymogènes.) P. Gremeaux.—p. 157.
49 Jointed Litter for the Trenches. (Brancard à bras articulés pour le transport des blessés dans les tranchées.) G. Lefrou.—p. 159.
50 Cardboard Temporary Prothesis for the Leg. (Le pilon provisoire à l'hôpital danois.) E.-A. Tscherning.—p. 160.

44. **Incipient Gas Gangrene.**—Sénéchal reproduces seven microscopic fields taken from a case in which gas gangrene developed under his eyes. The focus of the inoculation is in the interfascicular cellular tissue of the muscle. Hence cleaning out with the bistoury the injured muscle tissues inoculated with the germ wards off gas gangrene. Even if it does develop, this early mechanical clearing out of the wound improves the general condition so that amputation gives better chances for survival.

46. **Reeducation of Emotional Deafmutism.**—Briand and Philippe report a case in detail to show the various steps in the reeducation of men who had lost the power of speech under emotional stress. They begin with rhythmic exercises in breathing, then in blowing out the light of a match, or a candle, then in blowing soap bubbles. The next step is to whistle, first one note, leading up slowly to whistling some very simple familiar tune. Then the vowels in turn, expatiating amply on the progress realized, but leaving actual speech to be casually rearoused spontaneously. In short, they emphasize, treatment must be insidious rather than with force.

47. **Uremic Complications in Typhoid.**—Balmelle reviews his eighteen months of experience in the typhoid ward of the Marseilles military hospital. Among the 600 typhoid patients, 14 per cent. had been supposedly effectually vaccinated and the typhoid averaged no milder in these than in the 86 per cent. who had not been vaccinated. Study of the blood showed an unusually high urea content in all the patients with extreme prostration, delirium and other nervous manifestations. All the patients with only slight and transient rise of the urea content of the blood soon threw off their nervous symptoms or they did not develop any. A number of curves are given to illustrate the importance of this uremia as the cause of the nervous complications in typhoid. He found also in two pneumonia patients 1.11 gm. urea to the liter of blood in one case and 1.48 in the other.

When he recognized this uremia in his typhoid patients, measures to combat it were at once instituted and prompt improvement followed. Before this, the mortality had been 23 per cent. among the 106 patients with typhoid of this "ataxo-adynamic type" as he calls it. When his assumption of uremia as the causal factor was confirmed by the laboratory, and treatment based thereon applied, the mortality since has been only 12 per cent. among seventy-four patients of this group, presenting, that is, from 0.6 to 4.6 gm. urea to the liter of blood. The uremia is evidently secondary to injury of the kidneys from the typhoid toxin. He applied the classic treatment for uremia, water internally and repeated venesection; as the urea content of the blood declined, the nervous phenomena improved to correspond. Sluggish pupil reactions and myosis may prove a warning sign. He noticed further that the uremia sometimes displayed a tendency to lower the temperature. The slow regular decline might mislead one to assume improvement if it were not for the coincident aggravation of all the other symptoms.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 3, XXXVII, No. 71, pp. 1105-1120

51 *Lumbar Puncture of the Fetus During Podalic Extraction as Aid to Safe Delivery. (Puntura lombare nel feto, durante l'estrazione podalica nell'interesse della vita del feto stesso.) R. Costa.—p. 1109.
52 Compulsory Insurance Against Sickness. (Le assicurazioni obbligatorie contro le malattie.) E. Villa.—p. 1119.

51. **Lumbar Puncture of Fetus to Facilitate Delivery.**—Costa had long debated the possibility of relieving by lumbar puncture the pressure in the skull during feet-first delivery with contracted pelvis. He hoped with this to ward off intracranial hemorrhage with difficult delivery. In a recent case, a woman at term with conjugate of only 7.4 cm. in a totally contracted pelvis was being prepared for cesarean section when, to the surprise of all, the head presented and the child was delivered spontaneously and almost without effort. The explanation was found in spina bifida in the lumbar region, a myelomeningocele, through which cerebrospinal fluid had been squeezed out during the compression of the head as it emerged. The diameters of the child's head had been reduced from 8.8 to 7.4 cm. and 9.2 to 7.4 cm., the diameter at the base of the skull being 7.5 cm. The child showed no signs of asphyxia or symptoms from pressure on the brain, but died before the end of the week from the constant oozing of the fluid. No signs of intracranial hemorrhage or fracture could be discovered at necropsy.

After considerable experimental work on infant cadavers, showing the feasibility of lumbar puncture, he applied it in a case of podalic extraction with central placenta praevia. After combined version he slowly dragged the feet down until the anus presented and the tip of the spine could be forced into view. Lumbar puncture was then done, the softness and thinness of the tissues rendering it remarkably easy. No cerebrospinal fluid could be aspirated, only 0.25 c.c. of a reddish fluid escaped, but as the head entered the inlet, the fluid gushed from the needle hole, but it stopped at once as soon as the head emerged. The mother and child left the maternity a week later in the best condition. The os was unusually rigid in this case, and Costa is convinced that the lumbar puncture warded off serious complications for the infant. In his experiments on infant cadavers he found that the diameter of the head could easily be reduced by 0.5 cm. by lumbar puncture. He does not wait for further experience before calling attention to its possible advantages in certain rare cases.

Policlinico, Rome

September 3, XXIII, No. 36, pp. 1067-1094

53 Specific Precipitin Reaction in the Cerebrospinal Fluid in Meningitis. G. Sampietro.—p. 1067.
54 Experiences at Rome Hospital for the Wounded. (I feriti curati nell'ospedale di riserva al Policlinico nel reparto del prof. A. Alessandri, dall'agosto 1915 all'aprile 1916.) V. Grossi.—p. 1076. To be continued.

Grèce Médicale, Athens

XVIII, No. 5-6, pp. 9-12

55 *Radiotherapy of Inoperable Cancer of the Breast. Chilaiditi.—p. 9.
56 Fatal Hemorrhage from Eroded Artery in Duodenal Ulcer. Missirloglou.—p. 10.

55. **Radiotherapy of Mammary Cancer.**—In Chilaiditi's case the cancer had developed rapidly in the sixth month of a pregnancy. The tumor had infiltrated the breast, which was hard, as also the enlarged lymph glands in the axilla and supraclavicular and subclavicular regions, with other small nodules in the skin, and there was great emaciation. The findings in the mediastinum were also suspicious. The tumor retrogressed completely under intensive cross-fire exposure to the Roentgen rays. Three series of treatments were given, the last following after the birth of the healthy child. During the five months since the beginning of treatment there has been no sign of recurrence, all traces of the tumor had definitely subsided by the fourth week after the second series of exposures. To obtain the total dose of 600 H, after filtering through 4 mm. aluminum plus 5 mm. leather, the production of 4,000 H was necessary.

Semana Medica, Buenos Aires

XXIII, No. 24, pp. 653-676

57 Present Status of Carcinoma of the Esophagus. C. P. Mayer.—p. 653.

No. 28, pp. 25-52

58 *Foreign Body in the Ear of a Child. (Contribucion al estudio de los cuerpos extraños del oido en el niño.) A. S. Lagomarsino.—p. 32.
59 *The Blood Picture in Parturients. (Hematologia en obstetricia.) T. A. Chamorro.—p. 33.

No. 29, pp. 53-80

60 *Deratization with Small Portable Apparatus. (El nuevo aparato raticida tipo "Parque Sanitario.") F. Otero.—p. 53.
61 *Hematology of Twenty-One Multiparae at Term. (Hematologia en obstetricia.) T. A. Chamorro.—p. 57.

58. **Foreign Body in the Ear of a Child.**—Lagomarsino cites some cases on record in which a bead or even a sharp edged foreign body had remained in the ear for years without appreciable injury. His extensive experience has confirmed anew and repeatedly that the injury from a foreign body is almost invariably due to hasty and ill advised attempts to extract it, before the physician sees the case.

59. See abstract 61.

60. **Gas Rat-Killing Apparatus.**—An illustrated description is given of the small apparatus that has been devised by Penna, chief of the public health service, to kill rats in their holes. It looks like a syringe, a cartridge containing the mixture that produces the gases fitting into the syringe-like body almost like a piston, while the long tip of the syringe is run far down into the hole. The earth is stamped down around it and wherever any smoke can be seen escaping, the earth is stamped down to hold in the gases. A handle parallel to the body of the apparatus permits it to be handled when hot. The mixture found most powerfully asphyxiating is made of 38.52 gm. potassium nitrate (KNO_3); 6.67 gm. vegetable charcoal; 8.10 gm. sulphur; 17.98 gm. white arsenic, and 8.73 gm. tar (*alquitran*). The whole forms 80 gm. of a mixture which, as it burns, generates the gas $SO_2+As_2O_3+CO$. The health service has 200 of these little apparatus ready, with 75,000 of the cartridges. One is usually enough but several may be required for long, winding holes. Rats in cages die when the jet of escaping gas is turned on them even in the open air.

61. **The Blood Picture in the Pregnant and in Parturients.**—Chamorro relates that in his study of 106 specimens of blood from nearly this number of pregnant or parturient women, the red blood corpuscles showed little change from ordinary conditions. The leukocytes showed the most change, both in numbers and quality. The numbers were above normal during pregnancy in general, and grew still higher during delivery, slowly returning to normal afterward. The increase is mostly in the polynuclears. This leukocytosis may persist for three weeks after delivery, and may be regarded as a favorable sign. It is more pronounced in primiparae, the polynucleosis in multiparae. Protracted delivery with much pain leads to disappearance of the eosinophils. His report has been published serially, with tabulated details.

Russkiy Vrach, Petrograd

XV, No. 28, pp. 649-672

62 Influence of Asphyxiating Gas, Phosgen, on Animal Organism. (O vlianii phosgena na organizni zhivotnikh.) B. I. Slovtzoff.—p. 649.
63 Leukocyte Picture in Guinea-Pigs only Slightly and Briefly Modified by Removal of Thymus. (Beztsvietnia krovyania tieltsa pri udalenii vilochkovoi zhelezi.) A. E. Selinoff.—p. 652.
64 *Dietetic Treatment of Gastric Hyperacidity. P. I. D. Sushtshevskaia.—p. 656. Concluded in No. 29.—p. 679.
65 Enucleation of the Eyeball with Transplantation of Fat and Muscle Tissue; Two Cases. (Udalenie glaznogo yabloka s peresadkoi zhira i glaznikh muishts.) V. N. Preobrazhenski.—p. 660.

64. **Dietetic Treatment of Chronic Gastric Hyperacidity.**—The other half of this article was reviewed in these columns on page 1122. The extremely encouraging results obtained by simple dietetic restrictions are described in detail. Four men from 27 to 62 years old and two women of 24 and 48 had long suffered from severe pains an hour or two after eating, with other disturbances from hyperacidity. A gradual clinical cure was realized by allowing them exclusively whites of eggs and butter. In a typical case in a man of 30, the Ewald test breakfast showed total acidity of 75 and free hydrochloric acid 45 at the commencement of the course. One white of egg in the morning and 20 gm. butter in the evening were all that was allowed at first. The amounts were increased until by the eighth day he was getting eight

whites in the morning and 160 gm. butter in the evening, and these amounts were continued for four days. At the twelfth day, the test breakfast showed only 40 and 16 for the acidity figures. Four whites and 50 gm. butter were then made the daily ration, supplemented by 500 gm. potatoes in fluid form and the patient regained what he had lost in weight. The potato soup was then given twice a day, and the patient was discharged from treatment the twentieth day materially benefited. The charts of each case are given, showing the improvement from thus resting the stomach, making as little demands on it as possible, and soothing it. The acidity ran up again when anything else, even skimmed milk, was allowed until the secretory function had been permanently stabilized.

The writer quotes Boas' statement that no authentic case is on record in which hyperacidity was permanently reduced by dieting alone, and says he is mistaken. In Meyer's negative research in this line, milk was given. But milk has a decided tendency to increase the acidity, and hence his tests are not conclusive. On the diet reported here, whites of eggs and cream butter, all without salt and without water, given separately, morning and evening, the subjective improvement was remarkable, the relief from pain and the absence of complaints of thirst. The output of urine was much reduced on this diet, and the patients lost some in weight and did not feel quite so strong as usual, but when they changed to the carbohydrate-fat diet they soon regained what they had lost and surpassed their former weight. One patient, after the secreting function had been stabilized, while still on the carbohydrate-fat diet, was tested with an acid-stimulating meal, two glasses of milk, nearly a pound of white bread and a cutlet, but no disturbances followed suggesting hyperacidity.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 2, II, No. 10, pp. 805-900

66 *Medical Education. IV. (Nadere beschouwingen over de beteekenis en inrichting van het praeclinische onderwijs: Het wetenschappelijk peil van de colleges en het nut der practica.) G. van Rijnberk.—p. 805.
67 Practical Importance for Delivery of the Connection Between the Amnion and the Chorion. (De verbinding tusschen het amnion en het chorion en haar praktische beteekenis bij de baring.) G. C. Nijhoff.—p. 808.
68 Study of the Spinal Nerve Segmental Zones in the Cat. (De bouw en overdekking der rompdermatomen bij de kat.) S. de Boer.—p. 817.
69 Fibrin as an Element in Coagulation of Blood. (Nog eens over fibrine en het wezen der bloedstolling.) E. Hekma.—p. 831.
70 *Treatment of Epidemic Cerebrospinal Meningitis. C. J. H. T. Plat.—p. 848.
71 Treatment of Inflammatory Processes in the Orbit. (Aanwijzingen voor de behandeling der oogkasontsteking.) F. H. Quix.—p. 854.
72 Endonasal Treatment of Frontal Sinusitis. (Endonasale behandeling bij aandoeningen der voorhoofdsholten.) A. de Kleyn.—p. 855.
73 Paroxysmal Hemoglobinuria; Two Cases. J. Lankhout.—p. 856.

66. **Medical Education.**—Van Rijnberk is professor of physiology at the University of Amsterdam and in this, his fourth discussion of this subject, he comments on the views of Lyon and of Barker on medical education, as published in The Journal, Feb. 26, 1916, pp. 629 and 631. He has been translating them for the readers of the *Tijdschrift*, of which he is editor, and remarks that it delights him beyond measure to find that his own ideas—which seemed too utopian to be ever realized—are being advanced and even surpassed by instructors in America, "that land of the utilitarian and the practical." He says "My predecessor used to say that he adapted his instruction so that the stupidest member of the class could follow it, knowing that the best could always get something out of it. But I think this is the wrong principle. The teaching should be adapted to the best minds in the class. This stimulates them all to strive for the highest and best." . . . " In physiology, especially, it is impossible to draw a dividing line between the theoretical and the practical. Knowledge of the behavior of the frog heart is of the utmost importance for the future physician, although he knows that the frog is a cold-blooded animal and that conditions are by no means the same in the frog and in man; also the reflexes in the cat's tail, although this knowledge cannot be applied directly to the tail-less *genus homo*. The best way to teach a science is to teach it as if one were specializing in this branch of science alone, and not be deterred by any dissatisfaction on the part of the pupils as to whether they can ever utilize later what they are studying. But for this the teacher must give only the general outlines, the fundamentals, omitting the finer details unless necessary to elucidate some point.

"Above all," he continues, "the practical courses should train in dexterity in the use of the hands. It should be demanded first and foremost of a physician that he should be handy. During the preclinical courses in particular he should be given opportunities to train his fingers in fine work. And nothing calls for better work in this line than making a preparation of a nerve with its ramifications, or a histologic preparation, a chemical analysis or a physiologic experiment. Such exercises serve another purpose also in that they show where the student has got an incomplete or incorrect grasp of a subject," . . . "Is it not deplorable," he adds "that it is possible for a medical student to obtain his degree without ever having put through, himself, a series of simple fundamental experiments and observations in any branch of the science?" . . . "Another argument in favor of the scientific in medical teaching is that it affords the opportunity to wake a slumbering love of science and stimulate the student to develop this unsuspected latent talent, and fit himself to be the leader and teacher of the morrow, carrying forward the torch of science when it would drop from others' hands. In short," he emphasizes, "we must constantly bear in mind that first-class professors and scientific training mean first-class professors and first-class physicians in the future."

70. **Epidemic Cerebrospinal Meningitis.**—Plat states that although this disease is extremely rare in the Netherlands, yet last year he had twenty-five cases in his service at 's-Gravenhage, mostly in soldiers. The disease was of a very severe type but the mortality for the total number was 50 per cent. He emphasizes that the outcome depends on getting the antiserum into the meninges in time, and he had the physician summoned by telephone the moment any one was brought in with symptoms suggesting meningitis. The physician hastened to the bedside at once, day or night, and lumbar puncture was done without a moment's delay. If the fluid looked suspicious or the clinical symptoms were decisive, the antiserum was injected at once. If not, he waited for bacteriologic findings from the fluid. When the fluid was under very low pressure—only one drop at a time escaping at four or five seconds' interval—it often took an hour or longer to withdraw the desired amount, but the benefit always justified the waiting; the idea of hastening the escape of fluid by aspiration he regards as too dangerous to consider for a moment.

Hospitalstidende, Copenhagen

August 30, LIX, No. 35, pp. 845-868

74 *Embolic or Thrombotic Obstruction of Mesenteric Vessels; Four Cases. (4 Tilfælde af Tarminfarkt.) A. Berntsen.—p. 845.

September 6, No. 36, pp. 869-892

75 *Prurigo Nodularis; Two Cases. N. Nander.—p. 869.

74. **Infarction of the Intestines.**—Berntsen compares the necropsy findings with the clinical course in cases of obstruction of a mesenteric artery or mesenteric vein in four men from 24 to 72 years old. In one case there had been contusion of the abdomen three weeks before. In another there was a history of abdominal pains at times for years and recent pulmonary trouble. Only the microscope revealed phlebitis and thrombosis in the small mesenteric veins. In the younger man the thrombosis was secondary to incarcerated inguinal hernia which had been reducible for fifteen years. The prognosis is bad, but operative treatment is always indicated. The onset of trouble may resemble that of ileus. With embolism it is sudden and stormy, with thrombosis more insidious. Bloody diarrhea is almost the only differentiating symptom; this may occur with invagination, but the latter is encountered almost exclusively in children. There is bloody diarrhea in only a small proportion of cases of intestinal infarction.

75. **Nodular Prurigo.**—The two patients whose cases are described were working men of 24 and 41. The affection began in the younger man seven months before, with intense itching on the feet and hands, and later of other parts of the body except the trunk. As he scratched the itching regions, bunches developed in the skin, and the slightest touch starts the nodules and bunches to itching. The young man seems to be normal otherwise except for the lymphangitis and ulcerating nodules that have been scratched and infected. The microscopic diagnosis of an excised tumor confirmed the assumption of a neurodermatitis. This also proved to be the trouble in the second case. This man of 41 had been under treatment for exophthalmic goiter about a year after the skin affection developed. In both cases the nodules retrogressed under salicylated salves and other local measures, and prevention of scratching, with bromid and valerian internally. Nander knows of only thirty-two similar cases on record. A nervous predisposition was manifest in most cases, but warm weather seems to attenuate the tendency to the affection.

Hygiea, Stockholm

LXXVIII, No. 16, pp. 1185-1278

76 *Fate of Patients with Cancers Deemed Inoperable. (En efterundersökning av på Serafimerlasarettets kirurgiska avdelning under åren 1907-1914 vårdade fall av "cancer ventriculi inoperabilis.") A. Troell.—p. 1185.
77 *Parinaud's Conjunctivitis. (Några ord med anledning av ett fall av "conjunctivitis Parinaud.") K. Stålberg.—p. 1209.
78 The Borderline Between Teratology and Tumors. (Från gränsgebitet mellan missbildning och svulst.) C. Heijl.—p. 1215.

76. **What Becomes of Patients with "Inoperable Cancer"?**—Troell has traced to date all the patients with gastric cancers deemed inoperable at the Serafimer hospital at Stockholm, between 1907 and 1914. In 137 cases a palliative gastro-enterostomy was done, and merely an exploratory laparotomy in 134, while no intervention of any kind was attempted in 30. Among the 70 gastro-enterostomy cases traced to date, death followed in from one to thirty-five months in all but 3, but these 3 patients are still living after intervals of from six to eight years, and also 2 of the exploratory laparotomy cases, although the interval since has been over six years. The most surprising finding, however, was that 3 patients in the group of 30 unoperated cases are still living from over four to eight years since to date although conditions had been found apparently so grave that even a palliative operation had not been attempted. These 9 surviving cases are analyzed. The trouble was evidently an ulcer instead of a cancer in most. Symptoms at times since have indicated this. But the patients have been clinically healthy most of the time, and the stomach shows nothing pathologic now in the one case examined with roentgenoscopy. In another case, as also in a more recent one, pernicious anemia had been mistaken for gastric cancer. In one case the trouble proved to be abdominal tuberculosis or a syphilitic affection, to which the patient finally succumbed. In connection with this case Troell relates a recent case in which a man of 54 with stomach symptoms had a tumor which could be felt beneath the left costal arch. It was assumed to be an inoperable gastric cancer. Ascites developed and supposed metastases were palpated in the abdomen. The man was very thin but did not seem to have cancer cachexia, and a positive Wassermann reaction cleared up the diagnosis. The other gastro-enterostomy patients survived from one to thirty-five months. This average survival of seven and a half months after gastro-enterostomy is surpassed by the average survival of fifteen to twenty months in the 183 resection cases in Troell's service, 1888-1914. The primary mortality with resection was only 22 and 19 per cent., while it was 17 per cent. in the gastro-enterostomy cases. This surprisingly high mortality from this makeshift operation of gastro-enterostomy is another argument in favor of resection instead of gastro-enterostomy, even when the cancer is close to the limits of operability.

77. **Parinaud's Conjunctivitis.**—Stålberg reviews the literature on this affection and reports a case in a girl of 17. A tuberculous origin seemed probable, especially as erythema nodosum developed later. Probably various germs may induce this clinical picture. No treatment seems to do much good, but in future he intends to give Finsen radiotherapy a trial.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXVII, No. 9, pp. 1125-1252

79 *Treatment of Disease in Uterine Adnexa. (Om betændelser i uteri adnexa.) T. Hesselberg.—p. 1125.
80 Social Service in American Hospitals. (Socialt arbeide ved amerikanske hospitaler.) K. Motzfeldt.—p. 1160.
81 *Cancer in Norway Institutions. (Hvor mange av Norges kræftpatienter dør paa anstalt?) M. Søegaard.—p. 1169.
82 The Chemistry of Colloids and Immunology. M. von Krogh (Argentina).—p. 1177.

79. **Disease in the Uterine Adnexa.**—Hesselberg refers to pathologic processes of all kinds in the tubes and ovaries, the peritoneum of the small pelvis and the connective tissue around the uterus. It is often difficult to decide whether puerperal infection or gonorrhea was the primary cause. Other causes may be lack of cleanliness during the menstrual period, infection from preventive measures, or appendicitis. Pain is the main symptom, and it may occur with comparatively insignificant adhesions or cicatricial changes. A slightly retracted sacro-uterine ligament may cause severe pain, which is liable to be labeled neurasthenic. With an acute process, a relatively low pulse speaks for a subperitoneal parametritic process while a rapid pulse locates the process in the peritoneum as a rule. He discusses whether to operate or not, citing numerous authorities and analyzing his own experience in 59 cases. Patients with salpingo-oophoritic tumors or parametritic infiltration were kept in bed not only through the febrile stage and as long as there were pains but until there was no further retrogression of the tumors. The women were thus kept in the clinic for forty-five days on an average, the range being from three to eighty-seven days. Moist heat is applied until the temperature is normal and hot air after this from electric light bulbs, heating to 70 C., from half an hour to one hour daily. Adhesions were treated with massage unless they were so firm that a laparotomy was required for them. Parametritic adhesions are massaged with both hands, for several minutes at a time, and this is repeated a few times a week or oftener according to the sensitiveness of the patient. The uterus is grasped with the hand from without and worked to and fro between this hand and the fingers in the vagina while applying direct massage besides.

The results of these measures are regarded as highly satisfactory, but Hesselberg warns that massage does not remove a kink or obstruction preventing conception, as a rule. Adhesions holding the uterus in pronounced retrofixation may be broken up by massage, but the subjective disturbances are liable to return, compelling artificial fixation of the uterus later, so that a laparotomy at once is advisable with extreme retroflexion. He tried to correct conditions through an opening in the vagina in two cases, but could not obtain adequate access and the disturbances returned. Sixteen pages are devoted to tabulation of the details in the fifty-nine cases. The longest course required was in a case of criminal abortion with bilateral tube and ovary tumors. The genital findings were apparently normal when the young woman was dismissed after eighty days of bed rest and local electric light baths.

81. **Cancer Patients in Norway's Institutions.**—Søegaard makes a plea for more beds for cases of inoperable cancer in the various public and private institutions. He has compiled from all the public and private hospitals, asylums and other institutions the number of inmates dying in them from cancer during 1911. The total is only 289, while the mortality from cancer that year is known to have been 2,292. Only one eighth of incurable cancers thus get institutional care, while the figures for England show that one fourth have it there.

Ugeskrift for Læger, Copenhagen

August 24, LXXVIII, No. 34, pp. 1443-1488

83 Confirmation of Etiologic Importance of Bordet-Gengou Bacillus in Whooping Cough. (Fortsatte Undersøgelser over Kighoste.) I. Chievitz and A. H. Meyer.—p. 1443.
84 Cystic Dilatation of Lower End of Ureter in Woman. (Om cystisk Dilatation af Ureters vesikale Del.) S. Prior.—p. 1457.

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FERTILITY AND STERILITY

A HISTOLOGIC STUDY OF THE SPERMATOZOA, THE OVARIES, AND THE UTERINE AND VAGINAL SECRETIONS IN THEIR RELATION TO THIS QUESTION *

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No fact is more evident in practice than that the differential diagnosis of the cause of sterility in a given "mating" demands prolonged and accurate study to determine which of the many factors concerned[1] is at fault in the given case. Increasing experience has, moreover, made it evident that the rough clinical methods which I have hitherto used were inadequate for the accurate establishment of such a diagnosis, and has led me to undertake during the last year a somewhat extensive search for more exact methods. The results obtained are already far too voluminous for presentation in any single paper, more especially under the time limitations imposed at this meeting.

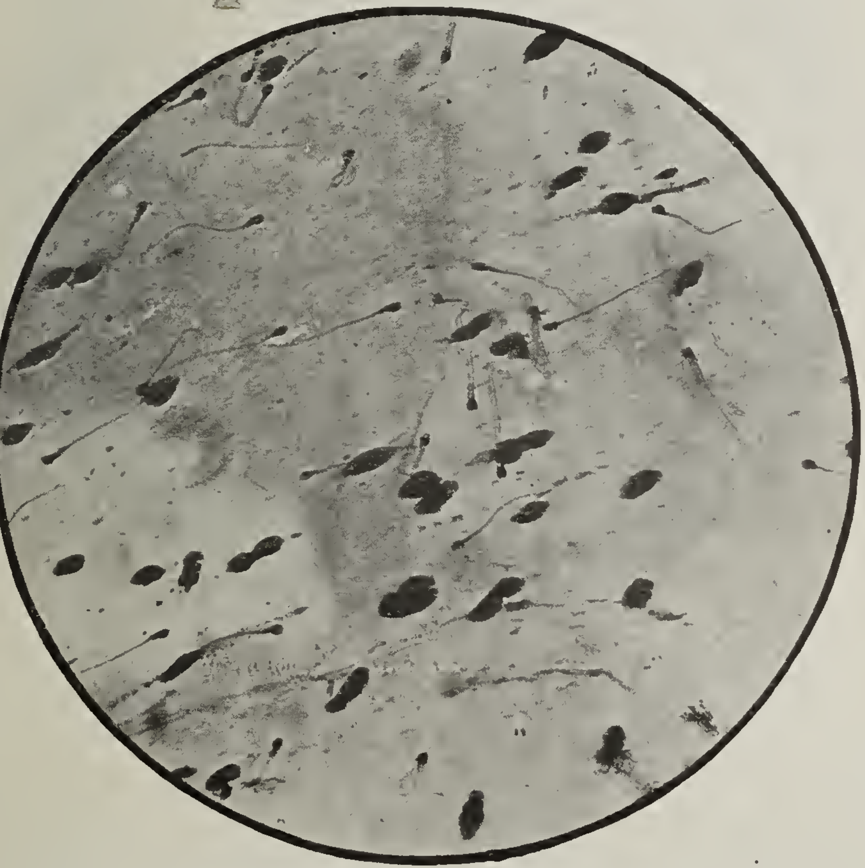

Fig. 2.—Cervical field, showing high occurrence of spermatozoa, following coitus; × 680.

The subjects which I mean to take up here in brief abstract are, first, the determination of the original vitality of the spermatozoa deposited by a given male; second, the conditions which permit or prevent effective ovulation; third, the value of microscopic study of both the cellular and bacterial contents of the secretions of the female genitals; and fourth, the microscopic determination of the influence of an individual secretion on the corresponding set of spermatozoa. Many of the points made will be shown in photomicrographs.

The first subject to be taken up is the determination of the fertility of the male who is concerned in the given mating by observation of his spermatozoa.

It has been a general impression among the profession that if even a few motile spermatozoa are found in a specimen of semen, fertility may be expected; but a practical familiarity with the processes of impregnation as observed microscopically makes it at once apparent that the numerical improbability of impregnation under such circumstances is far greater than has been supposed.

Normally even the extremely small quantity of the contents of the vaginal pool which can be seen in a single field under the microscope contains an almost uncountable number of spermatozoa[2] (Fig. 1). A single field from the cervix seldom contains more than twenty or thirty of them (Fig. 2); and in the secretions from the fundus of the uterus the discovery of a single active spermatozoon after searching several slides must be regarded as a normally high occurrence;[3] even then the spermatozoon has not reached its end.

My own studies have gone perhaps further than this, tending to show that in estimating the fertility of a given male we must judge not only of the numerical frequency of the spermatozoa and of the percentage of motility present, but must further study carefully their vitality, both as it is determined by duration observations and, still more importantly, by the quality of the motility present.

All the normal motions appear to be consecutive phases. Initial motion, i. e., motion as seen in fresh semen under favorable conditions, consists of a lashing of the after part of the tail from side to side which is so rapid as to constitute vibration. It produces rapid forward motion in a practically straight line, the head, middle piece and forward portion of the tail maintaining their position in the line of motion with practically no swaying from side to side. The action of the flagellum is so rapid that it is quite impossible to follow its individual movements. Spermatozoa swimming in this manner always head against a current and usually cross the field of observation[4] in about five seconds in the absence of currents or obstacles. This type of motion will be described throughout the paper as "progressive vibratile" motion. Progressive vibratile motion is normally succeeded after a variable length of time by what I regard as the second phase of normal motion.

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* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[2] The total number of spermatozoa in a single ejaculation has been estimated by Lade at over 200,000,000.

[4] Under a ⅓ objective and a ½ inch eyepiece.

The second normal motion differs from the first not only in its character but in markedly reduced speed. The tail movement alters to a long slow stroke from side to side and almost the whole length of the tail partakes in the stroke. This is, moreover, accompanied by swaying of the head and middle piece through an arc which is always considerable and may even equal 90 degrees. The general outline of the spermatozoa, from being practically straight with almost nondetectable sharp, quick, small arc vibration of the aftertail, has become an S in outline (Fig. 2), with large, slow, plainly perceptible undulations traveling gradually backward throughout the length of the spermatozoon. Speed has been lost and direction seems to be more specifically determined by the surroundings. Individuals at this stage show a pronounced choice of direction, and go up to objects in the medium, from which they later make off as though the movement were determined by tactile reaction to some extent. This type of motion has therefore been named "undulatory tactile" [5] in contradistinction to "progressive vibratile."

The third type of normal motion succeeds the second and consists in a tendency on the part of the spermatozoon to push itself against or into any small masses of cells, or sometimes other materials, which it may find in the neighborhood, bunting itself into any small cove that can be found, and maintaining a slight burrowing motion by a lashing tail movement of the vibratile type not unlike the movements of the caudal fin of a fish. The movement of the flagellum in this third type is unlike the second type in that it is vibratile rather than lashing, but is slower than the vibratile motion of the first type and less limited to the afterpart of the tail. These spermatozoa are apparently not caught in the débris or unable to move off. From time to time they back out of such a cove, and seek another mooring place.

This "stationary bunting" motion is less universal than the other two. Many individual spermatozoa fail to attain it. It seems probable that only the most vigorous individuals ever reach this stage. It has not been encountered in unmixed semen or in any artificial mediums. It has been observed only when the spermatozoon is in the secretions of the female genital tract. It is most frequent when the spermatozoon is in contact with a nest of epithelial cells.

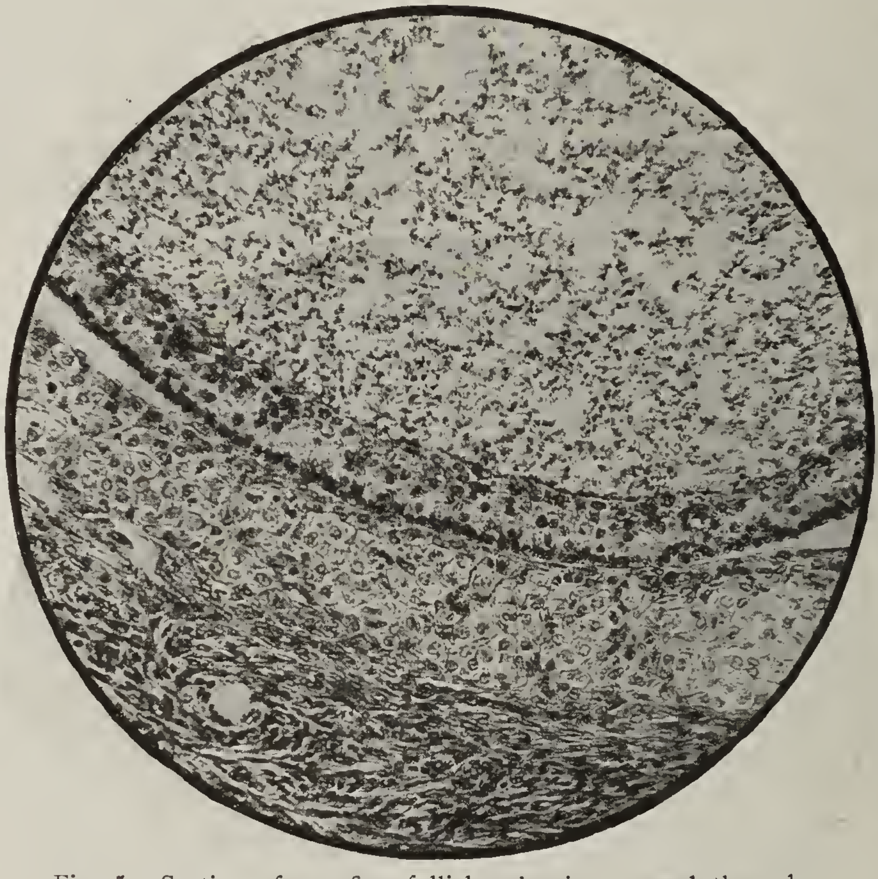

Fig. 5.—Section of graafian follicle, showing normal three layers of the follicle wall, without separation of wandering cells from the membrana granulosa; × 150.

The clinical value of this study of the types of motion in spermatozoa lies in the fact that it has developed a comparatively rapid method of estimation of vitality.

The three types of normal motion are not only distinctive but are always consecutive, i. e., the second follows the first after a period which is apparently determined both by initial vitality and by the favorable or unfavorable character of the medium, while the third has been observed to occur only in individuals which have already developed the second. They apparently constitute a normal cycle.

This cycle is open to the theoretical explanation that these types of motion are directly adapted to the function of the spermatozoon; thus, the progressive vibratile motion which is characteristic of the earliest period of its existence appears especially suitable for its prolonged journey through the cervix and uterus to the fundus and tube. This is supported by the fact that during this motion it always heads directly against any existing current, and that during this stage of its journey it must under natural conditions be continuously exposed to the faint outward ciliary currents of the mucous membrane of these passages.

The undulatory tactile motion which succeeds the progressive vibratile would then be well adapted to the later stage in which the spermatozoon has reached the tube, where its success in conjugation is dependent on its finding the ovum rather than on further progress.

The stationary bunting type of motion is that which would be demanded by the passage of the spermatozoon through the egg membrane which has been so often observed in the lower animals.

This very plausible explanation is, however, necessarily theoretical and must probably always remain so, as the conditions which surround the specimen on the field of the microscope vary in so many respects from those in which it accomplishes conjugation in the course of nature; but the practical importance of the study of types of motion is not affected by their explanation.

In the research work the vitality of the spermatozoon has been determined for each specimen first by notation of the number of hours during which motility persists in the unmixed semen, second, of the number of hours in which motility persists in the natural mediums (the several secretions of the female genital tract), and, third, in various artificial mediums. Comparison of these results has seemed to give an accurate establishment of the vitality of the semen, but the process involves a great amount of labor and is too cumbrous for general use.

The observations made have shown conclusively that in fresh specimens of semen which subsequently show prolonged vitality, nearly all the motion seen is of the progressive vibratile type when the slide is first placed under the microscope.[7] Under the thoroughly abnormal conditions incident to observation (e. g., exposure to light, variations of temperature, etc.), many individuals lose their motility while the rest are still in this stage, but those which die early are straight and drift unattached after death, and the motion seen remains predominatingly progressive vibratile. In such semen the first undulatory tactile motion appears late and even after this motion becomes general it is maintained for many hours, after which specimens which are in admixture with the natural mediums tend to maintain the stationary bunting motion for several hours.

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[5] It is probable that the less familiar word "tactic" would more exactly express the motion, which is very probably due to chemical rather than physical perception.

In specimens which have later proved to show poor vitality, there has usually been on the other hand a somewhat low percentage of motility at the start, i. e., the number of motionless specimens has been large. In such semen some instances of undulatory tactile motion may be present at the first observation and a fairly general assumption of this motion occurs early, while even in the natural mediums, the stationary bunting form is frequently very rare or nonexistent.

Estimation of the vitality of the spermatozoa by the character of their motion requires less frequent observation and can be accomplished in a much smaller number of hours than is required for duration of motion tests and the submission of a specimen to several different mediums. It appears to be thoroughly reliable and is no more cumbrous than most of the laboratory tests on which we have grown to rely as aids to clinical diagnosis.[8] In estimating the initial vitality of the spermatozoa by this method, the abnormal types of motion may be disregarded.

When these observations on types of motion are taken in connection with the very definite results obtained by the enormous numbers of observations on quadrupeds which have been reported from the breeding laboratories, it becomes evident that the ordinary, cursory examination of a drop of semen which is usually considered sufficient for clinical purposes is in fact entirely inadequate for the determination of positive fertility in the male.

CONDITIONS NECESSARY TO EFFECTIVE OVULATION

Fertility is always the result of conjugation between a spermatozoon and an ovum. Sterility from deficient ovulation is not only one of the most important and complete forms of sterility, but is of all others that which has long seemed most mysterious and beyond our diagnostic powers. It has been so because we have heretofore had no knowledge of the conditions in the ovary which prevent ovulation. It becomes comprehensible as soon as we have an anatomic conception of the distinctive characteristics of the sterile ovary.

Most of the previously published work on the histology of the human ovary is purely anatomic, and loses value for the study of function because the clinical history of the organs studied is for the most part unknown.

The description of the nonovulating ovary which is now to be set forth will perhaps be most comprehensible if it is preceded by a contrasting description of the normal ovary, and both descriptions must embrace both the gross and histologic characteristics of the organ.

In this necessarily brief and provisional presentation it will be impossible to enter on the full histologic argument, and only those points which are of especial clinical significance will be mentioned now.

At the start emphasis must be laid on the basic fact that the human female is a uniparous animal, and her ovaries, like those of other animals which normally bear but one at a birth, normally contain, at one time, but one fully mature[9] follicle, and in consequence of this single occurrence of the mature follicle but one recent and active corpus. The multifollicular and multicorporal condition which is characteristic of pluriparous animals is not normal in the human female.

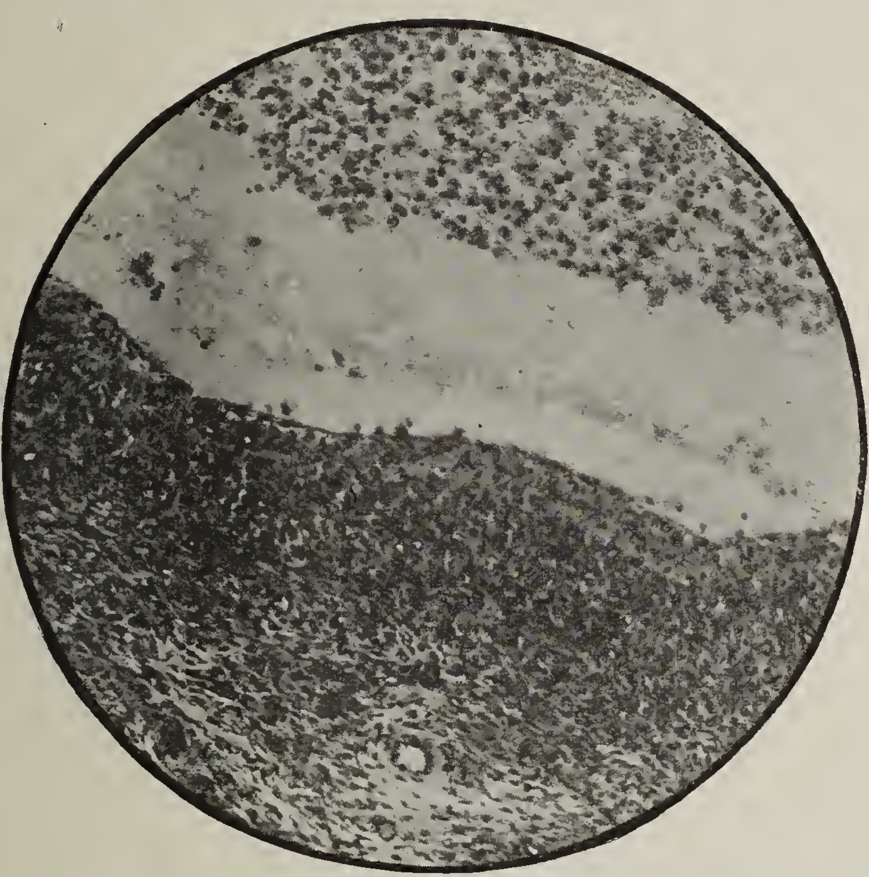

Fig. 8.—Section of graafian follicle, showing follicular wall in which the membrana granulosa has disintegrated into wandering cells; × 150. The thecal layers undulate slightly, suggesting the earliest stage of infolding of the theca to form luteal structures.

The ovaries of a fertile woman are, then, characteristically, organs of uniform outline which show not more than one thin-walled and projecting follicle[10] or corpus. They have throughout a characteristic soft and elastic feel when taken between the fingers, except when a single mature follicle or active corpus distends one portion of an ovary and yields its characteristic tactile sensation at that point.

In contrast, the ovaries of sterile women usually show on gross examination the presence of numerous thin-walled projecting follicles, or of numerous small imperfect looking corpora, or both. They are of lobulated outline, and on tactile examination between the fingers are tense and resistant in feel over the whole or at all events the greater part of the organ.

These facts have long been clinically familiar to me as the result of a large number of recorded observations made in the course of operative work on fertile and sterile women, respectively. The histologic explanation of them which I have now to offer is the result of recent work.

My studies of serial sections of nineteen ovaries from fertile[11] and sterile women, or of portions of them as removed at operations, have led to a recognition of histologic differentiations of type which correspond fairly closely with the differences in gross conditions.

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[9] A mature follicle is not only of large size but also protrudes above the surface of the ovary and is visibly thin walled on its external surface.

[10] This is probably not always true of those periods in the life of a fertile woman in which ovulation is inhibited, namely, pregnancy, the puerperal state, lactation and perhaps some pathologic conditions.

[11] The number of sections from fertile women has naturally been limited but has, I think, been sufficient.

Three types of mature follicles and two types of corpora are differentiated with ease, and the distribution of these types in the ovary is of much functional importance.

For purposes of primary classification these types of follicles and corpora will be here designated as the A, B and C follicles and A and B corpora, and will now be described.

The normal follicles, which will be designated as A follicles, show in completeness three important layers, the external theca, the internal theca and the membrana granulosa, in one point of which latter is developed in these follicles the discus proligerus which contains the ovum.

The presence of the normal discus and ovum is of course the essential characteristic of the normal and functionating follicle (Fig. 4).

In a mature A follicle the membrana granulosa is present as a continuous lining in the whole follicle. Such an A follicle normally enlarges, and undergoes progressive protrusion from the surface of the ovary until it reaches rupture, when the ovum and at least a part of the discus proligerus are discharged, and the formation of the normal corpus begins.

The second type of follicle, which will be designated as the B follicle, shows a different structural organization. In a typical B follicle the two layers of the theca are present and complete, but the membrana granulosa is no longer continuous. In fact, the distinguishing characteristic of the mature follicle is that, although it is superficial, protruding from the surface of the ovary, and thin walled like the normal mature A follicle, its membrana granulosa is no longer continuous but is found to be in varying stages of disintegration[12] (Figs. 3-6).

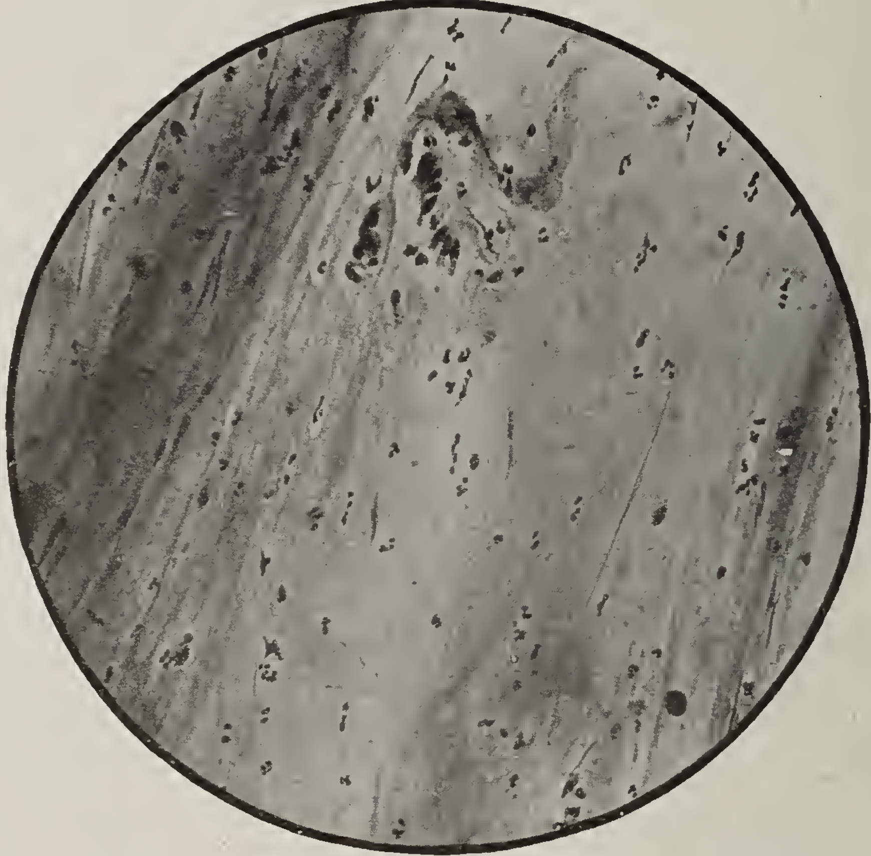

Fig. 16.—Field from cervical smear, showing customary distribution of leukocytes, mucus, and occasional cervical epithelial cells; × 150.

The process of disintegration seen in these B follicles may or may not be identical with that seen in the small deeply seated atretic follicles so often described. This point is not here entered on, but is reserved for future discussion. This B follicle is apparently functionally imperfect. Its multiple presence at the surface of the ovary is highly characteristic of the ovaries of sterile women. I have not yet seen these superficial and apparently mature B follicles in the ovary of a woman with a fertile clinical history. There is abundant clinical evidence that when once formed they are usually long persistent.

The type of follicle which has been designated as the C follicle is not important to the purpose of this paper, and may here be dismissed with the statement that these follicles are usually hemorrhagic, differ essentially in the histology of the internal and external theca and are at present regarded as incipient cystomas.

The subsequent history of the B follicles apparently imitates to some extent that of the normal A follicles.

Sections now under study make it probable that they sometimes rupture, and there are some indications that they also sometimes disappear by absorption.

Whether the corpora which result from these follicles are induced by actual rupture or begin without rupture on the complete disintegration of the membrana granulosa is not yet established. The absence of the granulosa layer either through discharge of the follicle or through its histologic disintegration into the follicular fluid appears, however, to be constant in the multiple corpora found in ovaries which contain multiple mature B follicles (Figs. 13 and 14).

Since these corpora do not always contain typical lutein cells, some histologists may prefer to speak of them as pseudocorpora; but there is clinical evidence that they are of much functional importance.

These B corpora are usually smaller than those derived from the A follicle, their development is less full and typical, and as the membrana granulosa of the follicles which form them has disappeared, they are necessarily entirely thecal in their composition.

The conditions which govern the production of the B follicles are not yet adequately determined and will require further study. Both from the gross characteristics of the ovaries which contain them and from their distribution in the sections it seems probable that conditions of hypertension in the ovary have a causative relation to their occurrence. Certain phases of Clark's work on the internal circulatory conditions in the ovary are of interest in this connection.

Pressure conditions may well explain the atretic degeneration which is so commonly seen in immature follicles deep in the stroma. Slides in my collection afford some reason for the belief that when several young follicles undergo development too near each other, the occurrence of such a degeneration is nature's method of disposing of the superfluous follicle, and is followed by absorption; but when such a follicle or follicles is found in a normal ovary, the atretic degeneration has always occurred at an early stage in their development, i. e., they are small, occasional in distribution and set deep in the stroma. Figure 15 shows well the typical distribution of young follicles in a normal ovary. One follicle has begun development and will outstrip the others. When, exceptionally, two neighboring young follicles undergo development simultaneously, their enlargement progresses until each begins to crowd the other. One or both then undergo degeneration while still but partly mature. This process is not followed by the development of a corpus. On the other hand, the numerous, large, superficial B follicles which characterize the ovaries of sterile women are always accompanied by B corpora also, and such ovaries have not shown a mature A follicle or A corpus.

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[12] During disintegration the cells of the membrana granulosa may be seen in the process of separating from it as single cells which wander off into the follicular contents and there apparently disappear individually. All stages of the reduction of the membrana granulosa from a layer several cells deep to a single celled layer and in cases to its entire disappearance have been found. The discus is the last epithelial structure to undergo this process. The destruction of the discus probably destroys the ovum. Conclusive evidence on this point is so far lacking, but primary changes in the ovum which suggest its depleting vitality have been observed (Figs. 9 to 12).

Classification of the nineteen ovaries examined, by the clinical histories of the women who carried them, shows that those which were characterized by the multiple occurrence of superficial (B) follicles and (B) corpora all belong to sterile women, while the few ovaries containing normal (A) follicles or (A) corpora which have yet been seen have all been carried by fertile[13] women.

The clinical value of these observations on the ovary evidently depends on the light which they may throw on the choice of therapeutic measures to influence the disappearance of the abnormal condition in nonovulating ovaries as well as on any increased possibility of diagnosing the existence of these conditions in a concrete case to which they may lead.

Several previous publications[14] have detailed clinical evidence that conservative operations on the ovaries of sterile women, designed to relieve the undue tension which is characteristic of them, are frequently followed by pregnancy in due course. These histologic observations have, however, proved very illuminating when studied in connection with the variations in the operative procedures which were described in those papers and their comparative results. Later clinical experience has also shown the great importance of careful adaptation of operative methods to the conditions of the individual case. The elaboration of this subject must, however, be reserved for a future paper.

In my earlier work the diagnosis of ovarian infertility was largely made by exclusion after investigating the other factors in sterility, and finally determined only by inspection of the ovaries after an exploratory abdominal incision. Of late years the possibility of making an accurate diagnosis of the conditions which determine nonovulation in clinical work, and in advance of operation has occupied much of my thought, more especially the possibility of differential diagnosis between the ovaries in which undue tension is produced by (B) follicles and those in which it is produced by persistent corpora of either of the two types. I had hoped to be ready to present some discussion of this question in connection with this paper, but lack of time for the extended analysis of cases necessary has prevented it. It will demand also more extended space than would be possible here. It may be said, however, that in favorable cases, by the use of the rectovagino-abdominal examination under anesthesia, and by a careful comparison of the results obtained with the symptomatology, a fair clinical guess of the condition of the ovary can often be made in advance of operation. The majority of failures in diagnosis will consist in failing to find evidence of a nonovulating condition which in fact exists. Definite evidence of its presence, so obtained, is usually trustworthy.

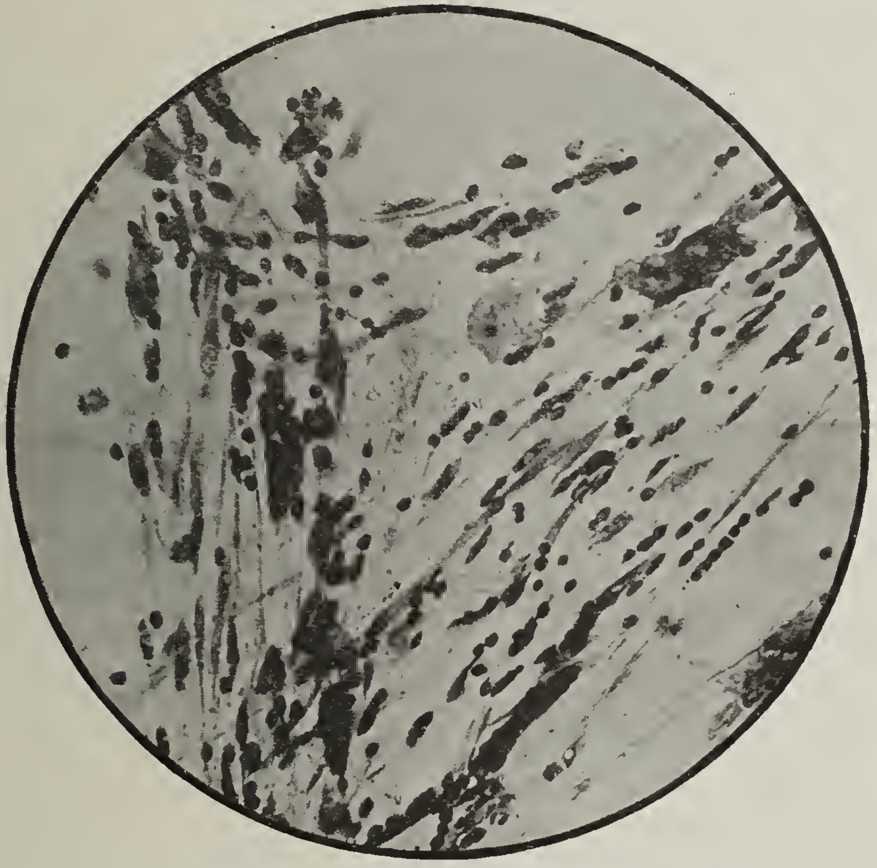
Fig. 17.—Field from cervical smear, showing high leukocyte content in the cervix, and mucous threads; × 340.

CHARACTER OF THE SECRETIONS OF THE FEMALE GENITAL TRACT

For the sake of clearness I shall first describe the gross appearance and cellular content of the secretions of the uterine body, of the cervix and of the vagina, after which I shall speak of the bacterial flora of the vagina separately.

In studying these secretions the chemical reaction, the cell content, and the bacterial content have been particularly watched, the latter two requiring the use of stained smears, of which over a thousand slides have been studied.

The secretion of the uterine body is clear and limpid and is normally free from both bacteria and detectable mucus. The technical difficulties in the way of obtaining it without contamination from the secretions of the cervix and in quantity sufficient for observation are very great and must make any clinical statements about it somewhat cautious in form. It is probably more favorable to the life of the spermatozoon than either of the lower secretions. In the few specimens which have been obtained in fair quantity entirely free from trauma (absence of red blood corpuscles), and apparently free from cervical contamination, the secretion has been thin, clear, and almost free from cellular content of any kind.

The cervical secretion is, on gross examination, normally alkaline, clear and limpid, but is mixed with quantities of normally clear but tenacious mucus which is the product of the cervical glands. It is also normally bacteria free.

Its cellular content (Fig. 16) consists of detached uterine and cervical cells, leukocytes, and occasionally cells whose appearance suggests their descent from the extreme upper part of the genital tract. It shows a marked and most important cyclical variation in correspondence with the period of the catamenial month; indeed, the precatamenial or postcatamenial origin of a given slide can be very accurately predicated from the character of its cellular content without reference to the clinical history. The greatly increased flow of cervical mucus which appears to characterize the postcoital period also modifies the cervical content extensively. The variations in the leukocyte content of the cervical secretion are of especial clinical interest. Without pretending to enter here into details, it may be said that in many sterile women the cervical leukocytosis (Fig. 17) is very like the vaginal leukocytosis in vaginitis. The leukocytes are often of very varied types and are distributed mainly, if not entirely, along or in the substance of the mucous threads. This condition probably represents a mild inflammatory state in the glands of the cervical mucous membrane.

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[13] One presumably fertile woman with such an ovary was in the puerperal state, and in amenorrhea, and consequently at the time probably temporarily sterile.

[14] Reynolds, Edward: The Ultimate Results of the Conservative Surgery of the Ovaries, Surg., Gynec. and Obst., March, 1912, p. 255; The Theory and Practice of the Treatment of Sterility in Women, The Journal A. M. A., Jan. 11, 1913, p. 93; Further Points on the Sterility of Women, ibid., Oct. 11, 1913, p. 1363; Prognosis of Sterility, ibid., Oct. 2, 1915, p. 1151.

The upper vagina is destitute of secretory glands. The fluids which are found within it are made up mainly of the uterine secretions which escape into it. These are probably usually increased to a greater or less extent by osmotic transudation of serum through its walls. They are also greatly modified by the products of bacterial activity which are always present in the vagina. The vaginal secretion is normally somewhat acid and is normally moderately unfavorable to the spermatozoa. Its gross physical characteristics are largely determined by the character of the bacteria which the individual vagina contains.

The cell content of the vagina necessarily contains that of the cervix and in addition vaginal epithelium. The character of the vaginal epithelium as seen in these secretions varies markedly in correspondence with the age and social condition of the patient.

The cell content of both secretions is of marked importance to the estimation of their favorable or unfavorable influence on the spermatozoa, but the variations in the character of the bacterial flora of the vagina are even more important.

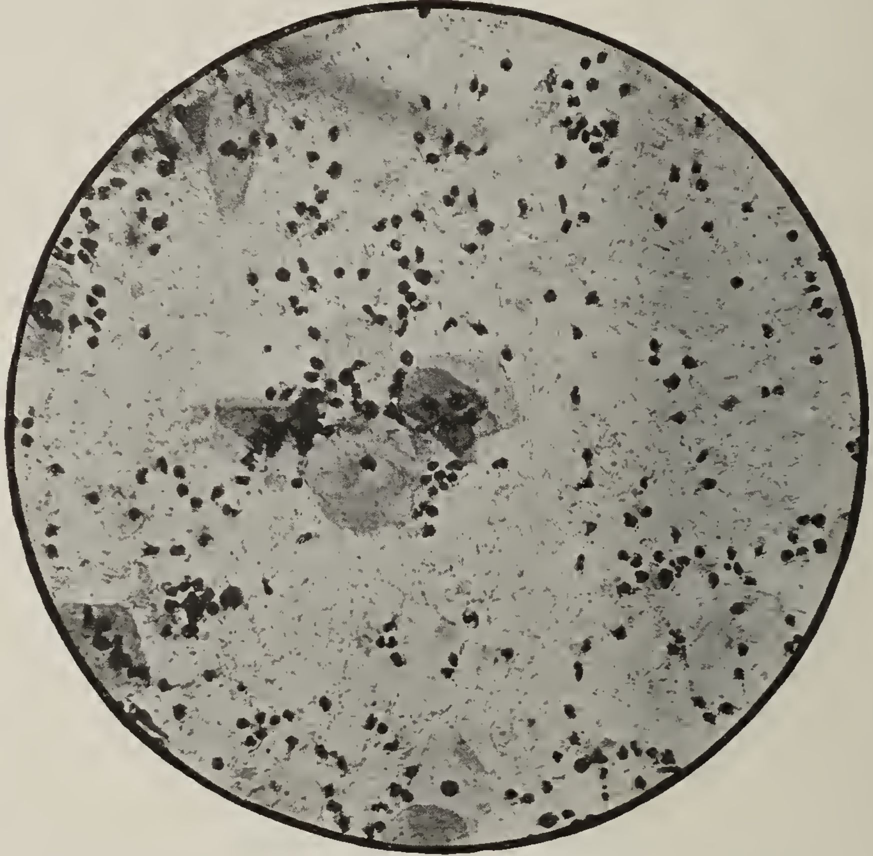

Fig. 18.—Field from vaginal smear, showing vaginal epithelial cells and high but temporary distribution of leukocytes; × 340.

SOME PHASES OF THE BACTERIOLOGY OF THE VAGINA

My studies of this have included observations on virgins, widows, fertile married women, sterile married women, and pregnant and puerperal women.

The cultural analysis of so complicated a flora as characterizes the vaginal contents is extremely difficult and tedious, and the number of cases studied in this way is not as yet large enough for report. The study of stained smears has, however, resulted in a rough classification of considerable interest and, I think, value.

The flora of the virgins and fertile women so far studied have been coccoid and have usually consisted mainly of one form of coccus, homogeneous[15] (Fig. 21).

One fourth of the sterile women had a coccoid flora, but these were all cases of short standing and of apparently promising outlook. Further clinical analysis of these cases may show that they were instances in which the sterility was not of secretional form, but lack of time has so far prevented this analysis. The other three fourths of the sterile cases had bacillary flora usually containing one dominant form of bacilli (homogeneous).

The bacilli in these sterile cases were ordinarily rather low in occurrence and somewhat distinctive in appearance. Moreover, they presented a very characteristic distribution of attachment or superposition on the vaginal epithelial cells which is less marked among the other bacillary flora (Fig. 22).

All the pregnant and puerperal women had bacillary flora, but these showed always the presence of several forms in approximately equal numbers.

The general similarity between the flora of established sterility, on the one hand, and those of pregnancy and the puerperal state, on the other, seems interesting in view of the probable nonovulating condition of the ovaries during pregnancy, and the puerperal state, and in a large proportion of all sterile cases.

An entirely unexpected and most curious feature of the bacterial content is the extreme distinctiveness and considerable permanence which is usually characteristic of flora of individual women. The bacterial content varies extremely in different cases, and yet remains so constant in each individual case, in occurrence, type and persistence, that the smears of a case under study can practically be recognized by its flora, and can be grouped with other cases of similar content. This constancy of the individual flora is especially astonishing when we consider the liability of the vagina of a married woman to the introduction of varying forms. Great variations and occasional complete changes would have been expected, *a priori*. Such alterations have not been observed.[16] The vaginal flora bears no relation to the flora of the penis in any one of the several cases in which smears from both members of the mating have been observed.

There is every indication that in spite of the external relations of the vagina, the variations in its flora are not determined by the introduction of bacteria from without (except in the occasional infections by pathogenic forms) but by the secretory conditions of the upper genital tract, which apparently determine the types of bacteria that can obtain a foothold temporarily or establish themselves permanently. In other words, the character of the individual flora is probably determined by the environmental conditions of the individual secretions which form its habitat.[17]

IMPORTANCE OF MICROSCOPIC CONDITIONS IN EXPLAINING THE HOSTILITY OF A GIVEN SECRETION TO THE LIFE OF THE SPERMATOZOA[18]

The reactions of the spermatozoa to the vaginal and cervical secretions are quite different and must be considered separately. The vaginal secretion is normally acid, bacteria laden, and varyingly hostile to the spermatozoa even when admixed with the alkaline semen. Although the vaginal hostility is evidently in the main in rough correspondence with the degree of acidity present, our admixture observations show somewhat conclusively that this hostility is in fact the result of the bacterial conditions which belong with the highly acid secretions,[19] in short, that it is enzymatic rather than merely the result of the acid reaction alone.[20]

The cervical secretion is normally bacteria free and therefore physiologically favorable to the spermatozoa. It is, however, often mechanically hostile to them, and this hostility may be of great practical importance. It is always present in some degree; cervical mucus is always present, and from its adhesive characteristics can always be seen to enmesh and render motionless many spermatozoa. When, however, it is present in unduly large quantity, or in undue adhesiveness, it may well decrease the number of effective spermatozoa to a degree sufficient to render impregnation unlikely or impossible.

When the cervical leukocytosis is high, the mucus always entangles the spermatozoa with great facility, and from microscopic evidence it has become evident that this condition may be quite sufficient to prevent pregnancy in cases which are not only free from symptomatology but present comparatively slight gross evidences of any alteration of the cervical secretion.

Vaginal hostility is mainly enzymatic and of bacterial origin. Cervical hostility is mainly mechanical and of inflammatory origin.

Either or both of these secretions may and frequently do present conditions which absolutely prevent fertility through their destruction of the spermatozoa and which are yet so far external to the physiology of the woman as to excite no ill health, to produce no symptoms other than persistent sterility.

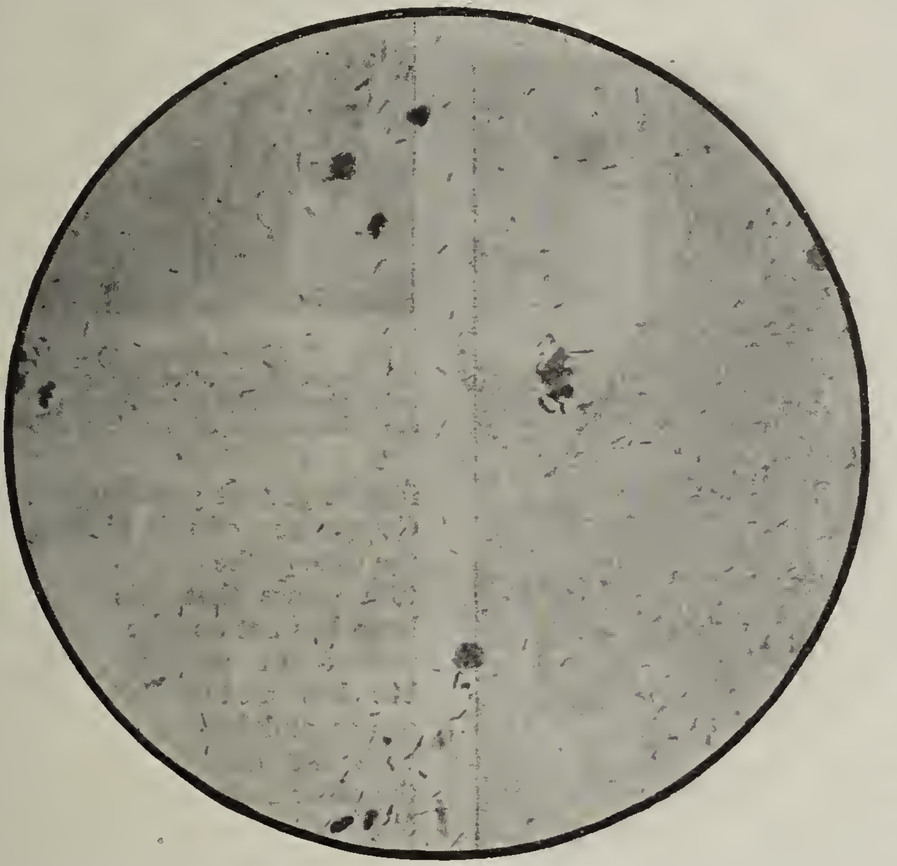

Fig. 20.—Field from hyperacid vagina in which the epithelial cells have disintegrated, leaving the nuclei in free distribution; × 680.

The microscopic study of the secretions is of so much practical value that the after-treatment of cases at a distance can sometimes be effectively guided through the study of smears sent by mail.

Fertility is dependent primarily on the discharge of effective spermatozoa on the one side and the due release of a normal ovum on the other; but the best of spermatozoa and ova are useless to fertility unless the conditions in the female generative tract are such as to permit their conjugation. A fundamental principle of the subject of sterility which has, moreover, attracted too little attention is that alterations in these primary factors which are quite sufficient to produce permanent sterility may often fail to affect the health of either partner.

Our treatment of the ill health of women has been rendered successful by our painfully acquired knowledge of the pathology on which that ill health is dependent; if we are to treat sterility successfully we must proceed to acquire a similar knowledge of the disturbed physiology which produces it.

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ABSTRACT OF DISCUSSION

Dr. Emil Novak, Baltimore: Of the many factors which may be concerned in the causation of sterility, I shall discuss only one, the part played by histologic alterations in the ovary. The value of Dr. Reynolds' classification of graafian follicles into various groups is greatly lessened by his failure to recognize that certain of the types described by him are not normally maturing follicles at all, but that they represent follicles undergoing atresia folliculi. The female ovary at birth contains something like 70,000 primitive follicles, of which number only one a month, or less than 400 during the reproductive life of the woman, ever go on to full maturity and ovulation. Many more than this, however, after developing up to a certain point, are inhibited, the ovum dying and the granulosa becoming thinner and finally disappearing. Within certain limits this process is physiologic, although, as in the so-called fibrocystic ovary, it may become so exaggerated as to be pathologic. The atretic follicle does not, of course, go on to rupture, and hence should not be grouped with the normally developing graafian follicle. The corpus luteum is developed after rupture of the latter type of follicle, and never, as Dr. Reynolds states, from the atretic follicle.

Dr. E. Gustav Zinke, Cincinnati: There is no one of experience who has not observed, painfully at times, the manner in which some of these unfortunate women are treated by their sometimes stupid or malicious husbands. It is often a cause of refined cruelty on the part of husbands who know themselves to be at fault. One fact must be remembered, however, and that is that three events are necessary to establish a pregnancy. These are: a healthy womb, the presence of a healthy ovum, and healthy spermatozoa. When these are present pregnancy invariably takes place. I agree with Dr. Reynolds that the majority of women are unjustly blamed for the nonoccurrence of pregnancy and that probably more than half of the cases of sterility in women should be charged to the other side of the house.

Loss of Life from War and from Disease.—At Austerlitz, for example, the French lost 14 per cent., the Russians about 30 per cent., and the Austrians the enormous proportion of 44 per cent. of the men engaged. At Waterloo the French lost about 36 per cent. and the English and Prussians about 31 per cent. Taking a score or more of the more important and unusually bloody battles of the last three centuries, the losses on both sides together of dead and wounded run from 20 to 35 per cent. In many bloody battles the losses of a single side have gone up to 50 per cent. These are of course the higher figures. At Magenta the French lost 7 per cent. and the Austrians 8 per cent.; at Lützen the French lost about 13 per cent., and the Prussians and Russians 14 per cent. At Antietam one man out of every five engaged was killed or wounded. In fourteen months the English army under Wellington in the Peninsula lost 4 per cent. by gunfire, but it lost 12 per cent. from disease.—V. L. Kellogg.

EXPERIMENTALLY TRANSPLANTED AND TRANSPOSED WHOLE METATARSAL BONES

W. L. BROWN, M.D.
AND
C. P. BROWN, M.D.
EL PASO, TEXAS

Since the appearance of Gill's article[1] in 1915 on the transplanting of entire bones with their joint surfaces, the results of those experiments have been widely quoted, comparisons being made with other experiments wherein only parts of bones had been transplanted. The results have also been extensively quoted as proof that it is not necessary for bone transplants to be in contact with living osteogenic tissue. On superficial observation, it would appear that they were transplants; but as a matter of fact, they were whole bones transposed.

We at once realized that there were two factors entering into those experiments which possibly had not been duly considered: (1) they were transpositions of whole bones, and (2) they remained in a position in which they had the same function to perform to which they had been accustomed. In 1913 we especially called attention to the importance of function to insure the permanency of bone transplants.[2] Since that time, the importance of this point has been brought more and more forcibly to our attention. Therefore we have repeated Gill's experiments, in part of the cases really transplanting the metatarsal bones, and in the other cases transposing one into the position formerly occupied by the other, as did Gill, making the first a true transplant into the soft tissues, in a position in which there was no function to perform.

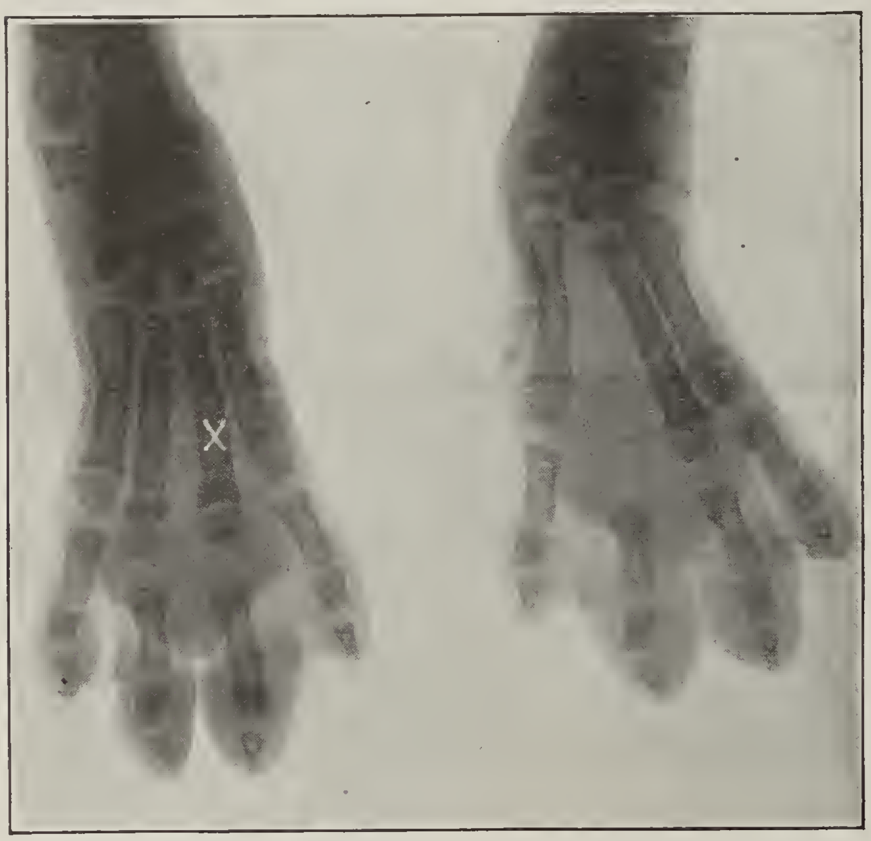

Fig. 1 (Experiment 1).—Right second metatarsal transposed in position formerly occupied by the left, immediately following operation.

Experiment 1.—In Dog 7, New Series, Jan. 21, 1916, black and white tan mongrel, weight 6 pounds, 10 weeks old, the second metatarsal bone was taken complete from each foot, including the periosteum and articular cartilages. The right was replanted into the space vacated by the left, and the left into the right thigh muscles. There was primary union.

A roentgenogram taken three months and twenty-six days later shows the bone transposed from the right to the left foot in perfect position and apparently normal in every way. Comparison of this picture with the roentgenogram taken at the time of the operation shows that this bone has not only remained in position, but has actually grown and kept pace with the growth of the other bones of the foot. On the other hand, the left metatarsal, which was transplanted free into the thigh muscles of the right side, has practically disappeared. This proves, we think, conclusively, that these transpositions should not be considered exactly in the same light as true transplanting into the tissues.

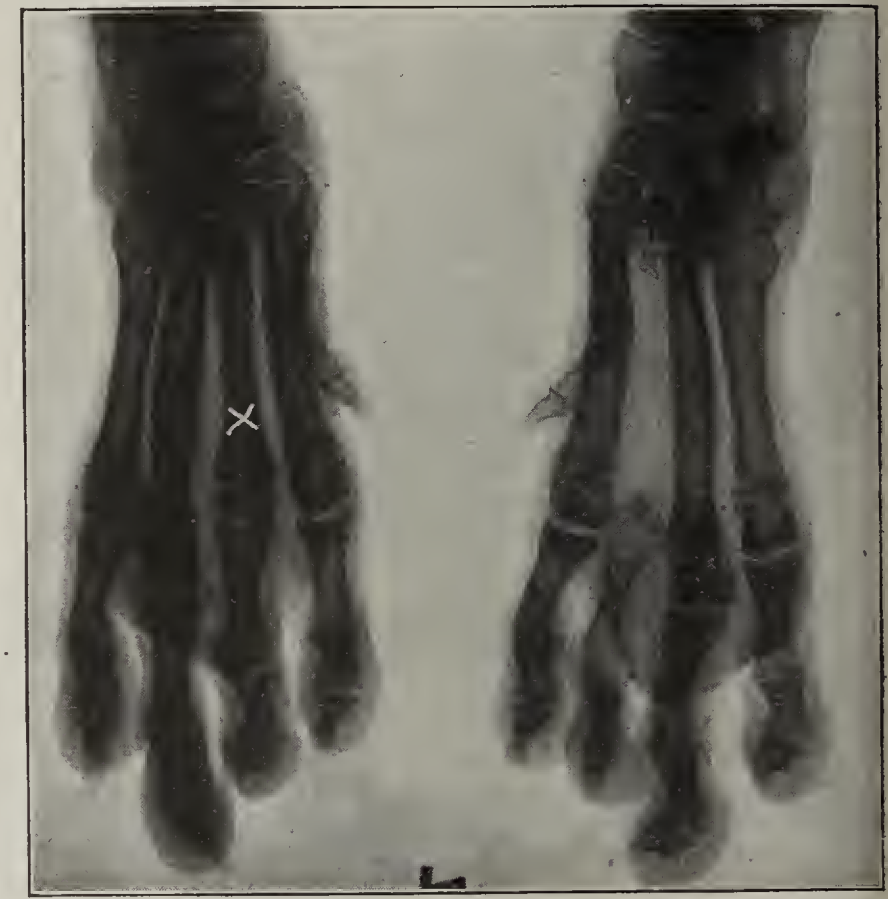

Fig. 2 (Experiment 1).—Roentgenogram taken three months and twenty-six days after transposition shown in Figure 1; bone has not only survived and performed its function, but has actually grown as the other bones of the foot have.

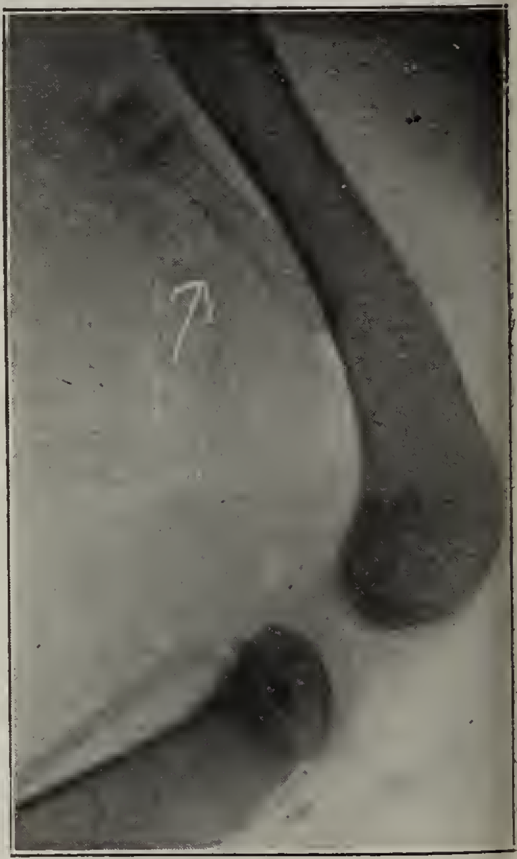

Fig. 3 (Experiment 1). — Left second metatarsal bone transplanted into thigh muscles, immediately following operation.

Experiment 2.—In Dog 10, New Series, Nov. 6, 1915, small mongrel, weight 10 pounds, 2 years old, the second metatarsal of the right forefoot was removed complete, including the articular cartilages and periosteum, and transplanted into the left thigh muscles. There was primary union. This dog died three months and one day later, and the roentgenogram shows that the transplanted metatarsal is rapidly undergoing absorption.

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[1] Gill: Transplanting of Entire Bones with Their Joint Surfaces, Ann. Surg., June, 1915.

[2] Brown, W. L., and Brown, C. P.: Surg., Gynec. and Obst., 1913, xvii, 681.

Experiment 3.—In Dog 9, New Series, Dec. 7, 1915, the second metatarsal was removed, including the periosteum and articular surfaces, and planted into the right loin, free into the muscles. There was primary union.

The roentgenogram taken five months and ten days later shows the transplant almost absorbed.

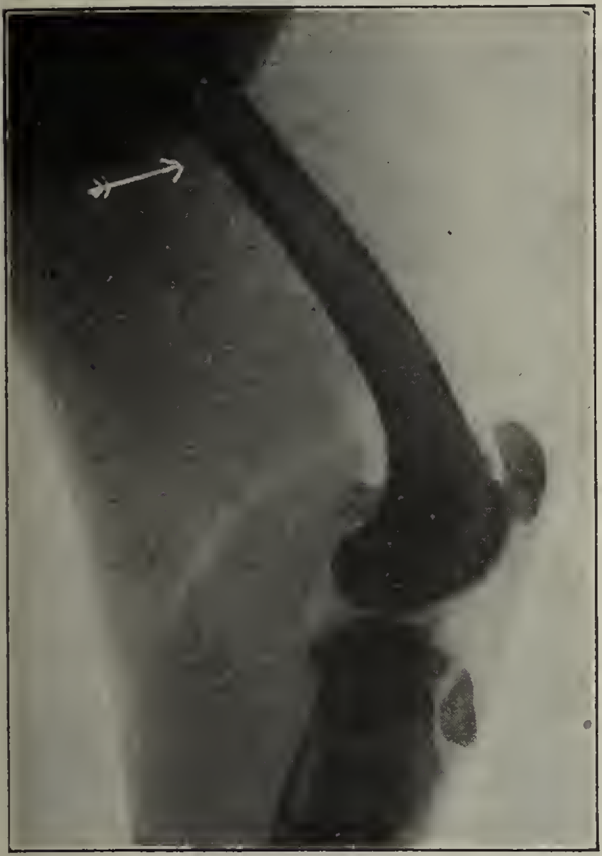

Fig. 4 (Experiment 1).—Same as Figure 3 three months and twenty-six days later; almost completely absorbed.

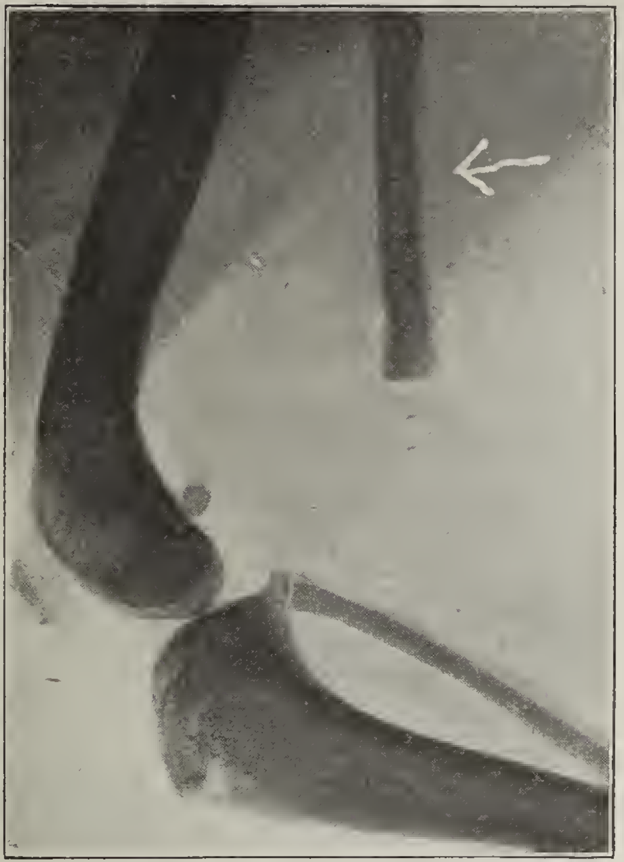

Fig. 5 (Experiment 2).—Second metatarsal right forefoot transplanted into the muscles of the thigh.

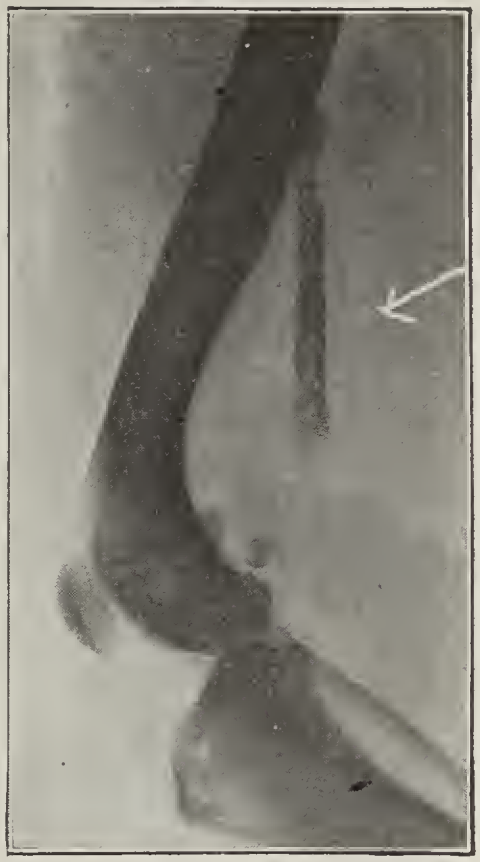

Fig. 6 (Experiment 2).—Same as Figure 5, three months and one day later; absorption well advanced.

While altogether six experiments were performed, the foregoing are sufficient to bring out the point we wish to emphasize.

TECHNIC

All the dogs' feet and sides for the transplants were prepared, after the dog was anesthetized with ether, by shaving and painting with full strength tincture of iodin.

Following the operation, all wounds on the feet were dressed with a liberal quantity of phenolated gauze and adhesive plaster.

The wounds of the thighs and backs were always dressed with collodion and cotton. There were no infections.

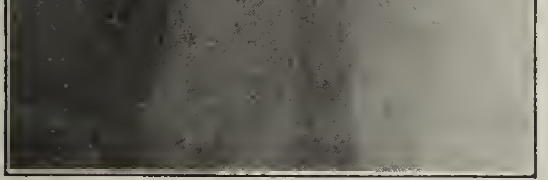

Fig. 7 (Experiment 3).—Second right metatarsal, including periosteum and articular surfaces, planted into right loin free in the muscles.

CONCLUSIONS

1. True transplantation of a part or whole bone into the tissue, where it has no function to perform, is a very different matter from transposing an entire bone into the bed of its fellow of the opposite side.

2. Whole metatarsal bones covered with periosteum, their articular ends included, and transposed into the position occupied by their fellow of the opposite side will live, functionate and grow, but when truly transplanted under like circumstances into the tissues, where they do not act as an integral part of the bony framework and have no function to perform, they are invariably absorbed, as are all other transplants under like circumstances, if sufficient time is allowed. Hence, the results of the two experiments are not comparable.

The General Practitioner an Investigator.—The time is approaching when, in the course of nature, I must fall out of the ranks, and before doing so I wish to look back on my medical career to see what light my experience may throw on medical science. The life of a general practitioner is not considered one that can help much in the advance of medicine; it is, indeed, regarded so lightly that no steps are ever taken to train one who intends to become a general practitioner in any branch that would enable him to undertake research work. You know well that if a man aspires to research work it is to the laboratories or to the hospital wards he is sent. As a result of my experience, I take a very different view, and assert with confidence that medicine will make but halting progress, while whole fields essential to the progress of medicine will remain unexplored, until the general practitioner takes his place as an investigator. The reason for this is that he has opportunities which no other worker possesses—opportunities which are necessary to the solution of problems essential to the advance of medicine. But before the part that the general practitioner alone can play is understood, we must look on the science of medicine, its teaching, and its pursuit with new light in our eyes.—Sir James Mackenzie.

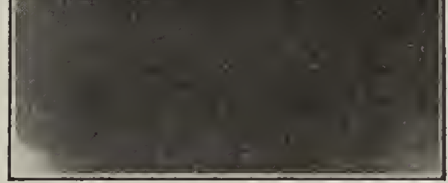

Fig. 8 (Experiment 3).—Same as Figure 7, five months and ten days later; only a flattened, thin, irregular piece of bone left.

THE ETIOLOGY OF EPIDEMIC POLIOMYELITIS

PRELIMINARY NOTE *

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After Landsteiner and Levaditi[1] and Flexner and Lewis[2] demonstrated independently that the causative agent of epidemic poliomyelitis could be passed through a bacterial filter, the disease was classed with those caused by a filterable, ultramicroscopic virus. The bacteria of ordinary size were no longer considered of etiologic importance, and when obtained were discarded as postmortem invaders or accidental contaminations. Wickman,[3] after reviewing the earlier experiments with streptococci, says, "The time has fully arrived when such investigations should be discarded from the literature of the disease."

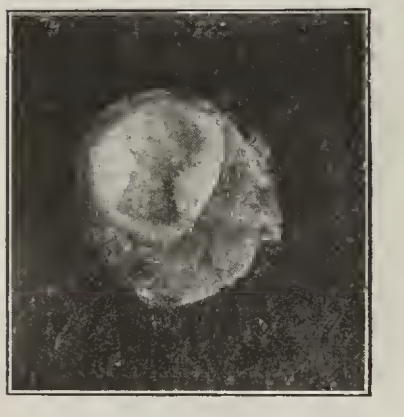

Fig. 1.—Cross section of Kaiserling specimen of left tonsil removed four hours postmortem in Case 758; acute poliomyelitis in child aged 15 months, × 2½. Part of the material in the abscess cavity, which lies against the capsule of tonsil, fell out during hardening.

In 1913, Flexner and Noguchi[4] cultivated and demonstrated microscopically a small filterable micro-organism with which they produced poliomyelitis in monkeys. They note that "the cultural conditions are those that apply more particularly to the bacteria," but do not attempt definitely to classify the micro-organism.

Rosenow[5] has shown by the use of special methods that the specific localizing power of bacteria is an important factor in the etiology of various diseases, including diseases of the nervous system. We felt, therefore, that a reinvestigation of the bacteriology of poliomyelitis by the newer methods was desirable. Accordingly we have made a bacteriologic study of throats, tonsils, blood, spinal fluid, the central nervous system and other tissues in cases of acute poliomyelitis in the present epidemic both in Rochester, Minn., and in New York City, with particular reference to the infecting power of the bacteria isolated. The methods employed were similar to those used by Rosenow and the methods used by Flexner and Noguchi in their studies of poliomyelitis.

A peculiar polymorphous streptococcus has been isolated, often in large numbers, from the throat, from the material expressed from tonsils, and from abscesses in tonsils[6] (Fig. 1) of a large series of cases of epidemic poliomyelitis. It has been obtained from the ventricular fluid after death, and from blood during life in one instance, but not from the spinal fluid. By emulsifying in a sterile air chamber a rather large amount of brain and cord obtained under sterile precautions, and inoculating ascites-dextrose broth, ascites-dextrose agar and ascites fluid containing sterile tissue with varying amounts of the emulsion, we have succeeded in isolating this peculiar streptococcus from brain and cord in each of twelve cases of poliomyelitis in New York City which came to necropsy, and also from the intervertebral ganglia and lymph nodes in some of these cases. Mathers[7] has already reported similar results from the brain and cord. The micro-organism has also been recovered in four instances from recently glycerinated pieces of brain and cord.

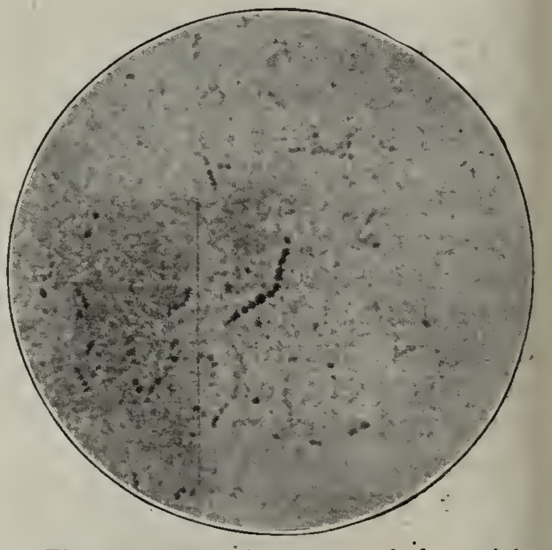

Fig. 2.—Photomicrograph of forty-eight-hour culture in ascites dextrose-tissue broth of Berkefeld N filtrate of emulsion of brain of Rabbit 1017, injected intravenously with pure culture of the streptococcus from poliomyelitis after two rabbit passages. Note the marked variation in size and shape of the organism, the chain of large diplococci and micrococci with a small diplococcus on one end, chains of medium and small diplococci and those of extremely small diplococci and the medium-sized single coccus forms. Gram stain, × 1,000.

The micro-organism which we have isolated in cases of human poliomyelitis produces on aerobic blood-agar plates fine, dry, nonadherent, slightly green colonies at times showing in forty-eight hours a narrow, hazy zone of hemolysis. On this medium, as well as in ascites-dextrose agar, the organisms are quite uniform in size and resemble pneumococci, but are usually smaller and free from demonstrable capsule. In tall tubes of ascites-dextrose broth with or without sterile tissue there is usually an early diffuse turbidity, or there may be a flocculent growth which collects along the side of the tube and gradually settles to the bottom. Early smears show short chains of diplococci resembling pneumococci, a smaller number of medium-sized cocci in pairs, and occasionally very small coccus forms. After the first week, the number of small forms is relatively greater, and they have largely become gram-negative. After about three weeks, large clubbed involution forms appear. In ascites plain broth with or without sterile tissue, growth is slower, being noted usually after about thirty-six hours. It tends to appear near the bottom of the tube and extends upward as a moderate turbidity. The organism has the same morphologic characteristics, but is about two-thirds the size of that grown in dextrose broth. Old cultures show clumps of very small coccus forms. In ascites fluid containing sterile tissue the growth appears as a slight haziness near the bottom of the tube on the fourth or fifth day when cultures are made of human or animal brain and cord. Transplants from other mediums grow out in one or two days, and show more marked early

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* From the laboratories of the Mayo Foundation and the New York Hospital.

[1] Landsteiner, K., and Levaditi, C.: La transmission de la paralysie infantile aux singes, Compt. rend. Soc. de biol., 1909, lxvii, 592.

[2] Flexner, Simon, and Lewis, P. A.: The Nature of the Virus of Epidemic Poliomyelitis, The Journal A. M. A., Dec. 18, 1909, p. 2095.

[3] Wickman, I.: Acute Poliomyelitis, Nervous and Mental Diseases Monograph Series 16, New York, 1913, p. 6.

[4] Flexner, Simon, and Noguchi, H.: Experiments on the Cultivation of the Micro-Organism Causing Epidemic Poliomyelitis, Jour. Exper. Med., 1913, xviii, 461.

[5] Rosenow, E. C.: Elective Localization of Streptococci, The Journal A. M. A., Nov. 13, 1915, p. 1687; Elective Localization of Bacteria in Diseases of the Nervous System, Aug. 26, 1916, p. 662.

[6] The importance of the constant finding of such abscesses in tonsils at necropsy in cases of poliomyelitis was emphasized in a discussion by Rosenow of Dr. Robert W. Lovett's paper, "The Management of Poliomyelitis," before the New York Academy of Medicine, Oct. 5, 1916.

[7] Mathers, George: Some Bacteriologic Observations on Epidemic Poliomyelitis, The Journal A. M. A., Sept. 30, 1916, p. 1019.

urbidity. In a very few instances the early smears ave shown the tiny globoid bodies described by Flexer and Noguchi in apparently pure culture, but usually here have also been a certain number of medium-sized iplococci in short chains, which Flexner and Noguchi nd others have considered contaminations. These arger forms tend to grow smaller, so that frequently t the end of twelve or fourteen days nothing but the iny globoid bodies, single, in pairs, chains and clumps, ould be found in the same tubes. These appear to be dentical with those described by Flexner and Noguchi. fter about three weeks the organisms become both arger and smaller; the small forms get beyond the imit of visibility, and nothing but rather large oval occi staining a pinkish tint with the Giemsa stain are een.

Transplants from one to another of these three iquid mediums disclose a marked tendency of the nicro-organism to change to the form characteristic of he medium in which it is planted. Thus, an apparntly pure culture of the very small globoid bodies in scites tissue fluid when transferred to ascites-dextrose issue broth grows out rapdly, often in twenty-four ours, into the characteristic olymorphous streptococcus. imilarly a transplant from roth to ascites fluid tends to row slowly smaller.

Cultures of Berkefeld N ltrates of emulsions of rain and cord of rabbits ead from paralysis followng intravenous injection vith suspensions of broth ultures showing only the arge forms have repeatedly rown out in this characterstic form in each of these hree culture mediums. Culures showing the small orms have been filtered, nd cultures of the filtrate ave grown, but no growth as been obtained from filrates of cultures of the ame strains showing only arge forms. The same emulsions filtered through lense porcelain candles have, with one exception, lways been sterile.

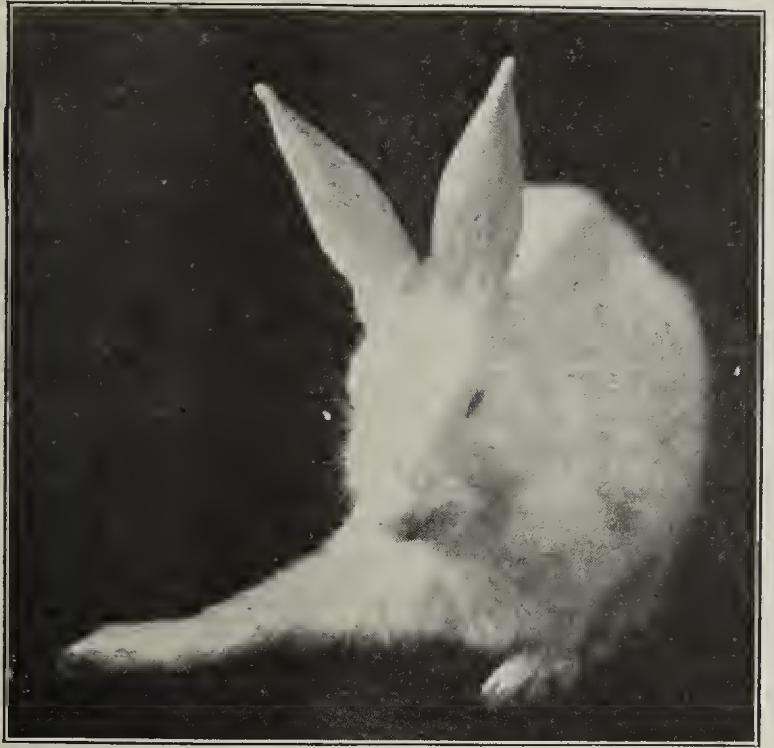
Fig. 3.—Rabbit 939, showing flaccid paralysis of right front leg, Aug. 11, 1916.

In all the liquid mediums during the early days of rowth, chains are often found in which there are ingle members of all sizes and shapes — large diploocci, large coccus forms, small diplococci and small occus forms. This has occurred in strains which have een fished successively several times from single coloies of shake and plate cultures, and in those from ltrates (Fig. 2).

The fermentative reactions of subcultures of a umber of these strains have been tested. Two thirds f them fermented inulin; the remainder did not.

Paralysis with lesions in the central nervous system as been produced in guinea-pigs, rabbits, dogs, cats nd monkeys by intravenous or intracerebral injection vith this peculiar streptococcus from practically all f fifty-two cases of acute poliomyelitis. It has been roduced by injecting the emulsions of pus expressed rom the tonsils, emulsions of extirpated tonsils, and mulsions of the brain. It has followed injection of the primary mixed culture containing chiefly this peculiar streptococcus, and by injection of the pure cultures from throats, from the material expressed from tonsils, and from the abscesses in tonsils removed from living patients and necropsy cases. It has been produced consistently also with the pure cultures obtained from the brain and cord. While on aerobic cultivation and in dextrose-containing mediums the organism soon loses the power of causing paralysis, paralysis has been produced with strains in the third culture generation from successive single colonies.

Young animals were more susceptible, but the older ones were not always immune. While those which received large doses of culture often showed paralysis within thirty-six hours, the incubation period was usually from three to five days. The early paralyses were usually accompanied by evidences of pain in the affected extremity, and the animals so affected were apt to die within twenty-four hours of the onset, as the process extended rapidly and caused respiratory failure. The onset of later paralyses, especially in rabbits, was sometimes preceded by a fine tremor or even definite twitching of the muscles which later became flaccid. These animals appeared generally well, and took food normally. In most cases the paralyses spread and death occurred within two or three days. A number of animals, however, showed slow but definite improvement and did not die. One guinea-pig had a ptosis, and one monkey a seventh nerve paralysis, as initial symptoms. In some the reaction began with evidence of meningeal irritation which went on to general spasticity, convulsions and rapid death.

At necropsy the paralyzed animals showed congestion of the vessels of the meninges, and hemorrhagic edema surrounding the dura of the cord, especially anteriorly and extending along the nerve roots and ganglia. A majority had dilatation and fine hemorrhages in the gray matter of the cord and brain. The lymph glands commonly showed hyperemia and at times hemorrhage and edema. Animals which had ataxia and tremor usually showed areas of hemorrhagic infiltration of the cerebellum. There was a noteworthy freedom of lesions in other organs. Microscopic sections have not yet been examined in sufficient numbers to warrant a definite report, but those examined (from rabbits, guinea-pigs and monkeys) showed small hemorrhages, degeneration of nerve cells, some round-cell infiltration and neurophagocytosis.

The organism has been isolated in pure culture and often in large numbers from the nervous tissue in numerous animals injected with cultures when blood and other tissues were sterile or contained the organism in smaller numbers. It has been demonstrated microscopically in and adjacent to the lesions in the brain and cord. In animals in which paralysis occurred early and which died soon after injections of large doses, the large forms only have thus far been found, while in those which died after a long period of incubation, both large and small forms have been demonstrated.

We have isolated the same organism from brain and cord of paralyzed monkeys injected intracerebrally with fresh emulsions of brain and cord from human poliomyelitis (fresh human virus), with glycerinated human virus and glycerinated monkey virus.[8]

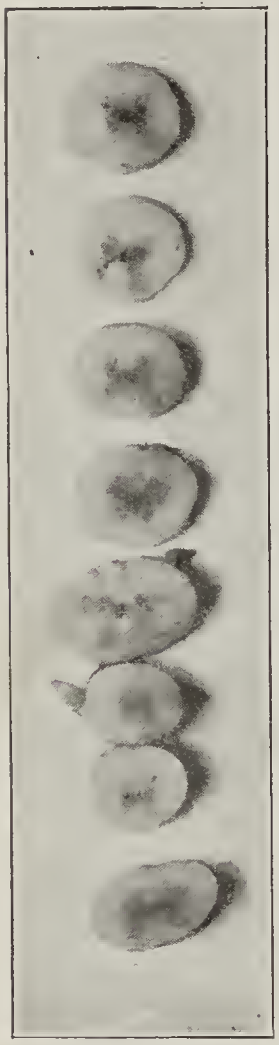

Fig. 4.—Rabbit 939, sections of Kaiserling specimen of cord, × 2. From above downward, Sections 1, 2, 3, 4 and 5 are cervical cord; Sections 6 and 7 dorsal cord; Section 8 lumbar cord. Note hemorrhages in gray matter, chiefly in anterior horns.

ILLUSTRATIVE EXPERIMENTS

Case 686.—S. A., boy, aged 5 years, complained of stiff neck, July 18. July 20, he had a temperature of 102. When seen with Dr. Sheldon in the Mayo Clinic, July 21, there was weakness of the left shoulder and arm, and flaccid paralysis of the left deltoid, triceps and scapular muscles. The left grip was weaker than the right; the fingers moved slowly, and there was evidence of extensor weakness. No reflexes could be obtained in the left arm.

From the left tonsil there was expressed a soft greenish plug, about 1.5 by 2.5 mm., and from both tonsils a rather large amount of liquid pus was obtained.

The material expressed from the tonsils was emulsified in 2 c.c. of salt solution, and cultures and animal injections were made. One series of rabbits and guinea-pigs was injected immediately with the emulsion of the tonsil pus, and another series, July 22, with the cultures.

Eighteen-hour cultures of the tonsil pus gave the following results:

1. Blood agar plate showed enormous numbers of very fine, dry, green-producing streptococcus colonies, some of which were surrounded by a narrow zone of hazy hemolysis, and a few colonies of staphylococcus and *Micrococcus catarrhalis.*

2. Ascites-dextrose broth (tubes and bottles) showed apparently pure cultures of streptococci in short and medium long chains and in pairs. Some of the diplococci were large and lanceolate in shape, resembling pneumococci, and others were small and more coccus-like. Both large and small forms were found in the same chain.

In all, injections were made into thirteen animals—seven rabbits, five guinea-pigs and one dog. Of these, the dog and all but one of each of the rabbits and guinea-pigs showed either evidence of paralysis during life or lesions of the brain and cord after death. The following three protocols illustrate the results obtained:

Rabbit 930.—Weight, 690 gm. July 21, injection of 0.5 c.c. of sodium chlorid emulsion of tonsil pus 686, the organisms of which appeared on blood agar plates as fine, green-producing streptococci, slightly hemolytic streptococci, staphylococci and *Micrococcus catarrhalis,* were made into the cerebrum. The animal was found dead eighteen hours later. Necropsy revealed lesions of skeletal and heart muscles but no external abnormality of brain or cord. Cultures of the blood were sterile. Ascites-dextrose broth and blood agar plate cultures of the spinal cord showed pure cultures of streptococci, appearing as fine, dry, green colonies on the plate. In sections of the brain and cord after hardening, seven small hemorrhages were found in the gray matter of the cord and two larger hemorrhages in the anterior portion of the medulla. Microscopically, these areas showed hemorrhage, slight round-cell infiltration and diplococci and streptococci in the vicinity of the hemorrhagic areas.

Rabbit 936.—Weight, 1,040 gm. Injected intravenously, July 24, with a growth from 30 c.c. of ascites-dextrose broth suspended in 2 c.c. sodium chlorid solution of the spinal cord of Rabbit 930. Blood agar plates of the culture injected showed fine, dry, green-producing streptococcus colonies in pure culture. The rabbit was found dead the next morning. Necropsy showed no focal lesions. Ascites-dextrose broth culture of blood gave an apparently pure culture of streptococci in pairs and short chains. Blood agar plate of blood showed a pure culture of very small, dry, green-producing streptococcus colonies, a few of which were surrounded by a narrow, hazy zone of hemolysis.

Rabbit 939.—Weight, 1,160 gm. Injected intravenously, July 26, with 5 c.c. of an ascites-dextrose broth culture of the blood of Rabbit 936. The animal seemed perfectly well up to August 11, sixteen days after the injection, when at 11 a. m. it showed flaccid paralysis of the right front leg, which lay stretched out and could not be brought under the body (Fig. 3). Otherwise he seemed well, and took food normally. At 3 p. m. the left front leg was also weak, and he was unable to lift the thorax from the floor. At 4 p. m. respiration became shallow, irregular and labored; there was evidence of meningeal and cerebral involvement (retraction of head and convulsions). Death occurred at 5 p. m. Necropsy showed no gross lesions. August 12, the spinal cord and fluid incubated over night showed diplococci, short chains and clumps of streptococci. The individual organisms in chains showed marked difference in size, varying from approximately one fourth that of a pneumococcus to the full size of a pneumococcus. Cross sections of the cord after fixation in Kaiserling I for twenty-four hours showed diffuse hyperemia of the gray matter throughout, and areas of hemorrhage in the gray matter which were most marked in the cervical region (Fig. 4). Microscopic sections of all portions of the cord showed many small and medium-sized areas of hemorrhage in the gray matter, especially in the anterior horns. Moderate round-cell infiltration was noted throughout the gray matter. The ganglion cells, particularly of the anterior horns in the cervical region, showed marked degeneration and neurophagocytosis. In the intervertebral ganglia, there was degeneration and phagocytosis of the ganglion cells, and moderate lymphocytic infiltration. Gram stains of sections of the cord showed rather small gram-positive diplococci, single and in short chains. In several areas of hemorrhage showing deposit of blood pigment, there were found large numbers of cocci, some in pairs and chains, showing marked variation in size (Fig. 5).

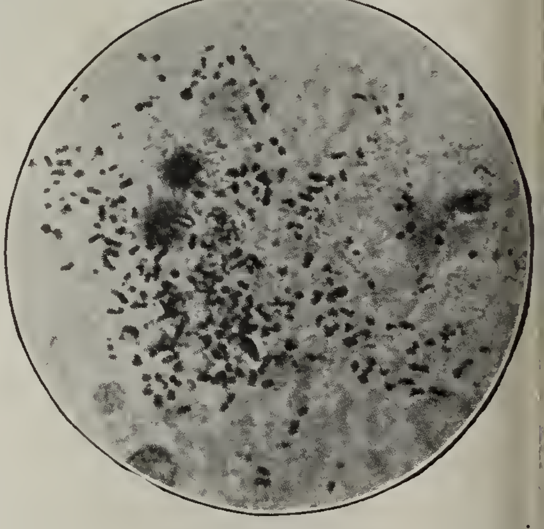

Fig. 5.—Photomicrograph of streptococcic forms in area of hemorrhage in the posterior horn of cervical cord of Rabbit 939. Note the marked variation in size of the organisms, large and small diplococci scattered throughout the field, and exceedingly small forms in the short chains to the lef of the center. The dark, irregular areas to the left are deposits of blood pigment Gram-Weigert; × 1,000.

Case 714.—Monkey 12 (*Macacus rhesus*) was injected intravenously, September 9, with suspensions in salt solution of the growth from 30 c.c. of ascites dextrose and 30 c.c. of plain broth, mixed, obtained from the brain of Rabbit 1017 in pure culture. This organism formed characteristic fine, dry, green colonies on blood agar plate and appeared as an ordinary-sized streptococcus in broth. The strain came from the emulsions of brain in a case of poliomyelitis in which the necropsy was held, August 24, and had passed in pure culture of large forms through three rabbits in succession. Each rabbit had shown marked flaccid paralysis after from iree to seven days with gross and microscopic lesions quite milar to those described above for Rabbit 939.

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[8] Kindly sent us by Dr. G. W. McCoy of the U. S. Public Health Service, Washington, D. C.

September 11, the left arm was weak; slight wrist drop and oor grip. The animal took food normally and seemed well.

September 12, condition of arm was stationary, or perhaps nproved a little. The animal was injected intravenously ith the growth from 30 c.c. of the same culture, which in ie. meantime had been in the ice box, and showed the same rowth in subculture on plate and in broth.

September 14, both arms were weak. The animal was ritable and excited.

September 15, the animal was quiet and inclined to lie own; it got on its haunches with great difficulty.

September 16, complete wrist drop was shown on left, accid paralysis of left triceps and deltoid, weakness of back iuscles, and coarse tremor of right triceps and extensors of iighs. The animal ate well if food was put where he could each it with his head. This condition went on to complete accid paralysis of all muscles of extremities and body; espiration became irregular, labored and entirely diaphrag-iatic. Marked cyanosis. At 7:30 p. m., the animal was lmost dead; he was chloroformed, and examined at necropsy t once.

Cross sections of the cord showed hyperemia of the gray iatter with areas of hemorrhagic infiltration, more marked i anterior horns and about the central canal. There were o other gross lesions. Cultures of the brain and cord ave the usual polymorphous streptococcus in pure culture i almost every tube. Mi-roscopic sections of the ord (Fig. 6) showed nu-ierous hemorrhages in the ray matter, with degenera-ion of the ganglion cells of he anterior horns. There as moderate infiltration ith lymphocytes, and neu-onophagia. Diplococci vere demonstrated in the issues.

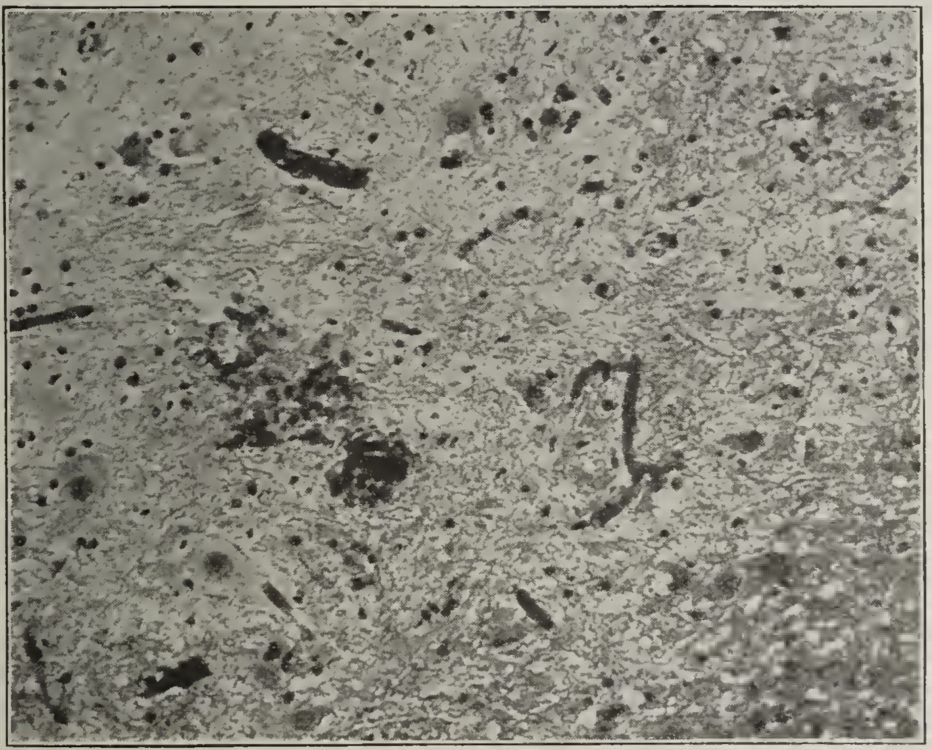

Fig. 6.—Photomicrograph of cross section of anterior horn of cervical cord of Monkey 12. Note the marked dilatation of vessels, the hemorrhage, the degeneration of ganglion cells, and round-cell infiltration with neuronophagia. Hemotoxylin and eosin; × 140.

SUMMARY

We have isolated a eculiar streptococcus rom throats, tonsils, abcesses in tonsils and rom the central nervous ystem in cases of polio-iyelitis. Paralysis has een produced in ani-ials of various species y intravenous and in-racerebral injection of ultures of this organ-sm, and lesions of the ray matter of their nervous system have been dem-nstrated. From the nervous system of these animals he streptococcus has been isolated in pure culture, hile their other tissues were sterile; it is remarkably olymorphous, and appears to grow large or small ccording to the medium in which it is grown, even fter passage through a Berkefeld filter.

Using the organism in its large form, paralysis has een consistently produced in animals known to be isusceptible to inoculation with material from epi-emic poliomyelitis as heretofore practiced. After aralysis had been produced in a series of three rab-its, the strain caused characteristic paralysis and esions of poliomyelitis in monkeys.

The exact relation of our results to the facts already stablished as to the etiology of poliomyelitis cannot et be definitely stated. It appears to us that the mall, filterable organism which has been generally accepted as the cause of poliomyelitis may be the form which this streptococcus tends to take under anaerobic conditions in the central nervous system and in suitable culture mediums, while the larger and more typically streptococcic forms, which investigators have considered contaminations, may be the identical organism grown larger under suitable conditions.

The Mayo Foundation — Peter Bent Brigham Hospital — New York Hospital.

We are indebted to Drs. W. H. Park, Anna Williams and H. L. Abramson of the New York department of health for part of the necropsy material.

EXPERIMENTAL STUDIES IN THE ETIOLOGY OF ACUTE EPIDEMIC POLIOMYELITIS *

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AND
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For several years it has appeared that the etiology of acute epidemic poliomyelitis has been successfully cleared up by the work of Landsteiner and Popper[1] and by that of Flexner[2] and his co-workers, Lewis, Noguchi and others. Landsteiner and Popper in 1908 first succeeded in transferring the disease to various species of monkeys by intraperitoneal inoculation of human poliomyelitic brain and cord. They were able to produce a disease in the monkey which in its clinical, pathologic and histologic features was quite similar to acute poliomyelitis in man. According to these workers, mice, rats, guinea-pigs, dogs, cats, goats, sheep and horses proved refractile to the disease.

Many conflicting statements occur in the literature as to whether or not the virus of poliomyelitis can be transmitted to the rabbit. Krause and Meinicke assert that they have produced the disease in seven generations of rabbits, and more recently Rosenau and Havens[3] have successfully passed the virus of the disease through eight generations of young rabbits.

Flexner and Noguchi have been able to obtain the filterable virus in pure culture, employing the anaerobic ascitic fluid culture medium, to which a sterile piece of rabbit's kidney is added.

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* From the Pathological Laboratory of the Cook County Hospital, Chicago.

* The experimental studies of the authors have been very materially aided by a special grant made by President Peter Reinberg and the members of the Board of Commissioners of Cook County, Ill., and by a special appropriation of the Health Department of the City of Chicago.

[1] Landsteiner and Popper: Uebertragung der Poliomyelitis acuta auf Affen, Ztschr. f. Immunitätsforsch., 1909.

[2] Flexner and Noguchi: Jour. Exper. Med., 1913, xviii, 461.

[3] Rosenau and Havens: Jour. Exper. Med., April, 1916.

SOURCE OF MATERIAL

During the recent epidemic of poliomyelitis, nearly all cases of the disease in Chicago were isolated in a special ward in the Cook County Hospital. There has been a relatively large number of fatal cases, indicating that the infecting micro-organism is of unusually high virulence. Necropsies have been performed on a considerable number of these fatal cases, and the brain, spinal cord, tonsils, mesenteric lymph glands, and body fluids have been removed under sterile precautions very shortly after death and while the bodies were still warm. Cultures were made immediately from the brain and spinal cord in various mediums. The central nervous tissues were then preserved in 50 per cent. sterile glycerin for future use.

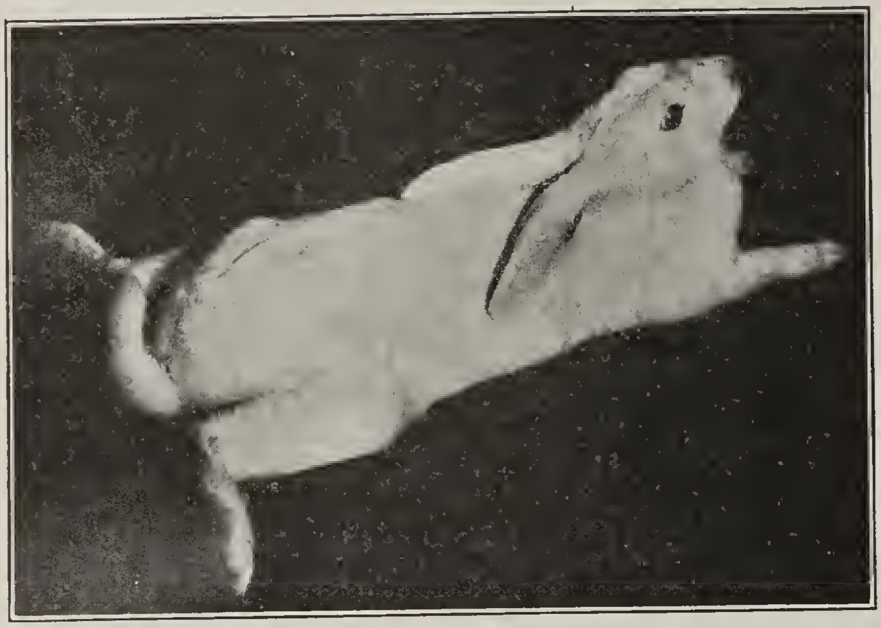

Fig. 1.—Complete flaccid paralysis produced seventy-two hours after the injection of 1 c.c. of an aerobic culture from a human poliomyelitic brain. Intraperitoneal injection.

RESULTS OF CULTIVATION

From cultures of the brain and cord in nine different cases examined a gram-positive micrococcus was obtained in pure culture. In one case the *B. subtilis* was present as a contamination. Aerobic and anaerobic cultures were regularly made from small pieces of the human brain and spinal cord inoculated into sterile ascites fluid, ascites dextrose broth, and ascites fluid to which a small piece of sterile rabbit's kidney was added. The cultures were placed in the incubator at 35 C. (95 F.) for from one to ten days.

In the aerobic cultures, bacterial growth usually appeared at the end of twenty-four hours as a fine granular grayish precipitate along the side of the test tube, rapidly settling to the bottom of the tube to form a heavy white sediment. In anaerobic cultures made according to the method of Flexner and Noguchi, bacterial growth is slow. Usually after four or five days — often as long as seven — a scanty growth first manifests itself as an opalescence arising around the tissue fragments in the bottom of the test tube and gradually ascending upward in the medium. Later a fine granular precipitate forms which falls to the bottom of the culture tube.

Morphologically the micro-organism, when grown aerobically, is a gram-positive micrococcus arranged in pairs and tetrads chiefly, but also appearing in short chains of from three to five. It presents essentially a diplococcus arrangement. In anaerobic cultures and in the human ascitic fluid mediums to which a sterile piece of rabbit's kidney is added, growth is scanty and the organism appears in a much smaller form; at the end of two or three days it has been repeatedly observed as a very minute micrococcus and barely visible under the oil immersion lens. It stains by Gram's method and appears in pairs, short chains of from three to five, and in small clumps. After from five to seven days' growth under anaerobic conditions, it often closely approximates in size an early twenty-four hour growth of the micrococcus grown aerobically.

On blood agar plates the organism appears at the end of forty-eight hours as a pin point colony surrounded by a narrow zone of hemolysis and often exhibiting a slight greenish color. When a growth has once been obtained, subcultures grow rather luxuriantly on the usual cultural mediums. It ferments the saccharids with the exception of inulin and raffinose. Gelatin is liquefied at room temperature. The thermal death point of the micro-organism has been found to be an exposure of 55 C. (131 F.) for thirty minutes. It stains with varying intensity with the anilin dyes.

From the cerebrospinal fluid obtained by lumbar puncture from patients suffering from acute poliomyelitis, the same gram-positive diplococcus arranged in pairs and short chains has been isolated in pure culture in eight out of nine cases after cultivation aerobically on ascites dextrose broth to which a fragment of sterile rabbit's kidney has been added. Moreover, it has been possible in several instances to isolate from the crypts of the tonsils and from the tonsils and mesenteric lymph glands secured at necropsy an organism presenting the morphologic characteristics described above which, when injected into animals intraperitoneally, has produced both the clinical and microscopic changes which characterize acute poliomyelitis.

That the micro-organism resists glycerinization has been proved in at least one instance. It has been possible to obtain a pure culture of the micrococcus fron the brain and cord in a human case of the disease afte a period of thirty-five days' preservation in steril 50 per cent. glycerin.

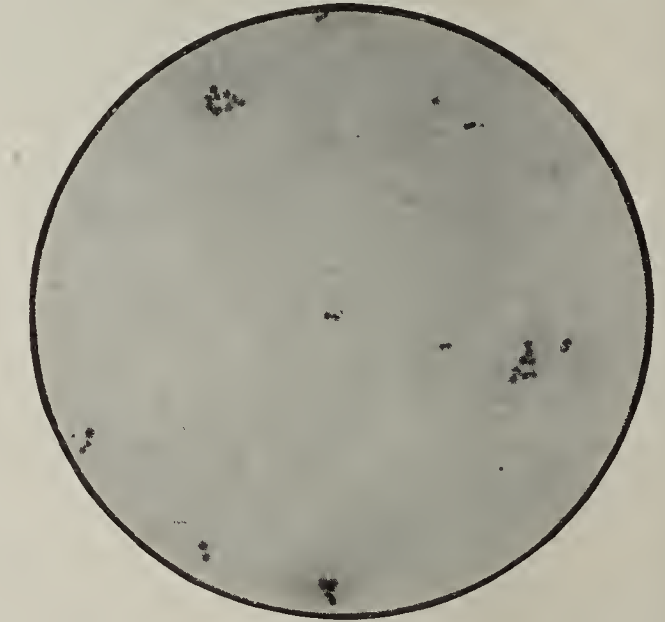

Fig. 2.—The micro-organism as it appears when grown for fron seven to ten days anaerobically.

ANIMAL INOCULATIONS

Thus far we have inoculated intraperitoneally, intra cerebrally, intravenously, and by nasal insufflation series of fifty rabbits. The cultures utilized for thes animal inoculations were obtained from the brain an pinal cord and the mesenteric lymph glands in fatal uman cases, and also from the tonsil crypts and in a ew instances from tonsil abscess pockets of patients ick with the disease. In a considerable number of he animals it has been possible to produce a most triking type of progressive flaccid paralysis involving oth hind limbs, the front legs, only one leg, or in hree cases all four legs. The animals rapidly emaciate nd usually die within from one to three days after he onset of a progressive paralysis. Others recover ntirely, and many are apparently not affected even by epeated injections. Examples of successful rabbit noculations follow:

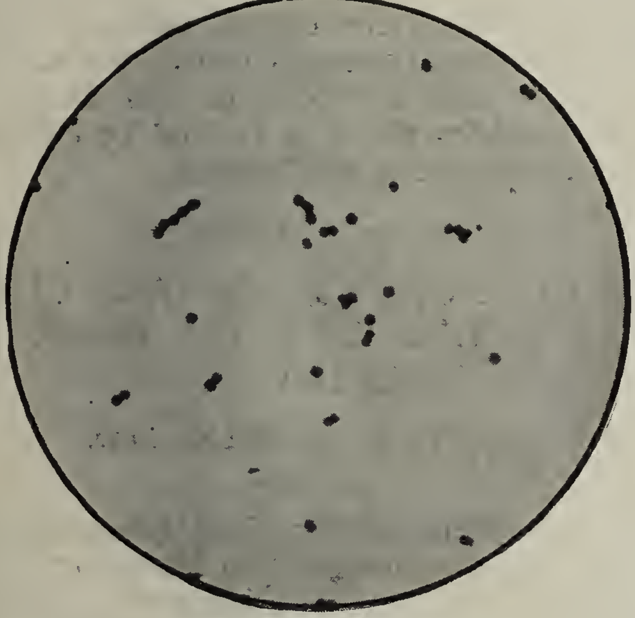

Fig. 3.—Usual arrangement of the micrococcus when cultured aerobially.

CASE 1 (P IV).—*History.*—Small white rabbit, blue cross n nose. Sept. 9, 1916, intraperitoneal injection of 1 c.c. of four day human culture from the medulla of fatal case A. Sept. 12, 1916, complete flaccid paralysis of both hind legs. nimal drags hind legs when it attempts to crawl along. 1 a. m., animal prostrate with head drawn back and rapid espirations. Death.

ecropsy.—Peritoneum smooth and glistening. No free uid. No gross changes in the abdominal or thoracic viscera. arked hyperemia of the pia-arachnoid membranes over the erebral cortex. Spinal cord hyperemic and edematous.

Microscopic Examination.—Serial sections through the umbar level of the spinal cord and the medulla reveal a arked degeneration of the motor ganglion cells. Marked atellitosis. Congestion of the vessels in cross section with cattered areas of punctate hemorrhages. Marked interstitial nfiltration of the gray matter. No perivascular infiltration.

Bacterial Stain.—Serial sections of the medulla stained with osin-methylene blue. A minute diplococcus also in occaional short chains visible in the gray matter of the cord.

Cultural Examination.—Cultures yield a pure growth of a ram-positive organism similar in all respects to the original icrococcus injected.

CASE 2 (P XXI).—*History.*—Small brown rabbit. Sept. 5, 1916, 12 p. m., intraperitoneal injection of 3 c.c. of culture f the tonsils of G.

September 17, animal is thin and emaciated. Active.

September 21, 8 a. m., rabbit has a marked flaccid paralysis f both front feet. Unable to move front legs; 9 a. m., omplete paralysis of the neck muscles and animal is unable raise its head. Death at 10 a. m.

ecropsy.—Marked hyperplasia of the spleen and mesenric lymph glands. Moderate hyperemia of the pia-arachnoid embranes over the cerebral cortex and about the brain tem.

Microscopic Examination.—Marked degeneration of the anglion cells in the cervical level of the cord. Also degenration seen in the medulla. Neuronophagia marked. unctate hemorrhages and an interstitial infiltration of the ray matter.

From a careful study of these rabbit inoculations it seems fair to conclude that the organism isolated in the cases of the disease can give rise to a flaccid paralysis in rabbits which resembles acute poliomyelitis clinically, but histologically differs from the human in that no perivascular infiltration is present and that the types of infiltrating cells are probably not lymphocytes.

Moreover, the organism is of low virulence for rabbits and guinea-pigs. The elective affinity of the organism for the brain and spinal cord of rabbits does not apparently increase by animal passage. The incubation period varies from thirty hours to fourteen days. The micro-organism shows no tendency to produce a meningitis or peritonitis in rabbits.

Thus far we have been able to produce a flaccid paralysis of both hind legs in young dogs by an intracerebral injection of a small dose of the micro-organism as isolated from human brains. The paralysis has been attended by a persistent diarrhea and marked emaciation in one dog. None of these animals has succumbed as yet.

Repeated injections of this micrococcus into guinea-pigs have thus far failed to produce any paralysis. In the monkey it has been possible to produce typical acute poliomyelitis even with relatively old cultures of the micro-organism. An example follows:

CASE 3 (M IV).—Sept. 28, 1916, small ringtailed monkey etherized and head and abdomen shaved and sterilized. Intraperitoneal injection of a mixture of five strains of the micro-organism isolated in aerobic cultures from the brains of five human patients, namely, Cases A, G1, B, W, and Du. Also 0.5 c.c. of foregoing mixed culture injected into the left frontal cerebral region after trephining the skull.

September 28, 6 p. m., animal has recovered from the anesthesia, and no postoperative paralysis is present.

September 30, 8 a. m., monkey very quiet and drowsy in the cage. Greenish yellow nasal discharge. Monkey is weak, and careful examination reveals a complete flaccid paralysis of the right upper arm and a marked spastic paralysis of the right hind leg. Palm of right front leg is cold. Involuntaries.

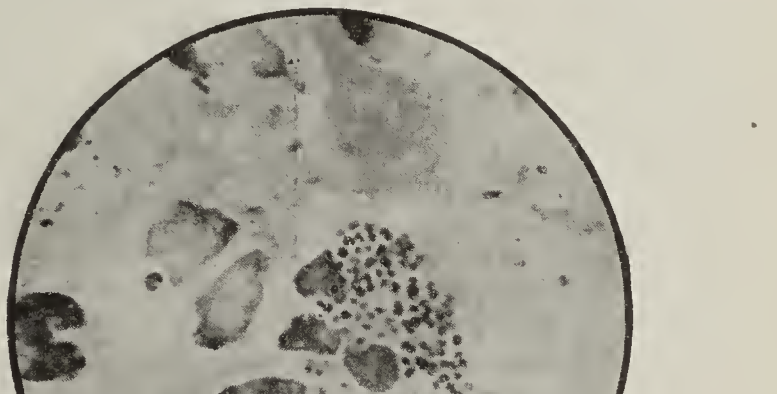

Fig. 4.—Contact smear made from the cerebrum of the monkey dying of acute poliomyelitis. Ingestion of the micrococcus by the leukocytes.

September 30, 6 p. m., monkey prostrate; death.

Necropsy.—Abdominal and thoracic viscera negative except for two small tuberculous ulcers of the distal ileum and several small conglomerate tubercles in the left lung. Marked hyperemia of the pia-arachnoid membranes over the cerebral cortex. Edema of the cord and minute visible hemorrhages in the substance of the cord. At the site of inoculation there is a small blood cyst. Contact smears from the surface of the cerebrum yield many minute diplococci, some ingested by the leukocytes.

Microscopic Examination.—Typical acute poliomyelitis. Marked degeneration of the ganglion cells with perivascular and interstitial lymphocytic infiltration of the gray matter of the cord and brain. Neuronophagia prominent in the intervertebral ganglia.

In 1905 Geirsvold,[4] in a preliminary communication, stated that he had successfully isolated from the cerebrospinal fluid in twelve acute cases of poliomyelitis a gram-positive coccus, occurring in pairs, short chains and tetrads. He stated that he was able to make cultures of this micro-organism on a variety of mediums and further that he was able to produce definite paralysis in white mice, rabbits and pigeons. No histologic report was made regarding the central nervous system of these paralyzed animals.

It is not at all improbable that the organism described by us is identical with the micro-organism isolated by Mathers[5] from the brain and spinal cord in acute fatal cases. This would seem the more probable since the brains and cords obtained at the postmortem examinations were in a number of instances divided equally between us for cultural study, although the work has been done independently by each of us.

Landsteiner and Popper, and, working independently, Flexner and Lewis determined that the virus of poliomyelitis passes through a Berkefeld filter. In at least two instances we have been able to pass an aerobic culture of poliomyelitic brain through a Berkefeld filter V, and by making a culture of the filtrate on dextrose ascites broth containing a sterile rabbit's kidney, we were able to obtain a pure culture of the micrococcus described above.

SUMMARY

1. We have obtained from the postmortem material in typical cases of poliomyelitis, from tissues of the central nervous system, tonsils and mesenteric glands, and from the cerebrospinal fluid obtained by lumbar puncture during life, a gram-positive micrococcus which grows well on dextrose ascites broth to which a sterile piece of rabbit's kidney has been added — but always better aerobically than anaerobically.

2. Cultures of this organism, when injected into monkeys, produced the typical clinical and pathologic picture of acute poliomyelitis. Definite flaccid paralysis has been produced in dogs and in many young rabbits. In rabbits, however, as others have pointed out before us, there is a variation in the microscopic picture, although many of the changes attendant on the disease in man and monkeys are present in the central nervous system of the rabbit following paralysis.

3. Anaerobic cultures in fluid mediums were passed through Berkefeld filters V, and inoculations of the filtrate into suitable mediums produced a growth of the larger form of the organism seen in aerobic cultures. This would seem to indicate that the organism under anaerobic conditions assumes a form so small that it may pass through the Berkefeld filter. The virus of rabies, as is well known, presents itself in a large form, the Negri bodies, and in the small punctiform granules which can evidently pass the filter. In considering the gram-positive coccus in its etiologic relation to acute poliomyelitis, we must remember that it may act as a carrier of a real ultramicroscopic invisible virus which, together with this micrococcus, might still be transferred in the cultures and passed along in the inoculations.

4. In tissues from the central nervous system of poliomyelitic material preserved in 50 per cent. sterile glycerin, this same micrococcus was alive after a period of thirty-five days, and could be cultivated in pure culture on suitable mediums.

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[4] Geirsvold, M.: Norsk Mag. f. Lægevidensk., 1905, iii, 1280.

[5] Mathers, George: Some Bacteriologic Observations on Epidemic Poliomyelitis, The Journal A. M. A., Sept. 30, 1916, p. 1019.

A NEW INSTRUMENT FOR THE CLINICAL MEASUREMENT OF DARK ADAPTATION *

HARRY S. GRADLE, M.D.
CHICAGO

The measurement of the dark adaptation of the eye has usually been confined to laboratory observers because of the time such an examination requires and because of the complexity of the instruments used. Consequently, valuable clinical information has frequently been overlooked. To simplify this examination, I devised an instrument for clinical use and adopted an empiric standard of dark adaptation units.

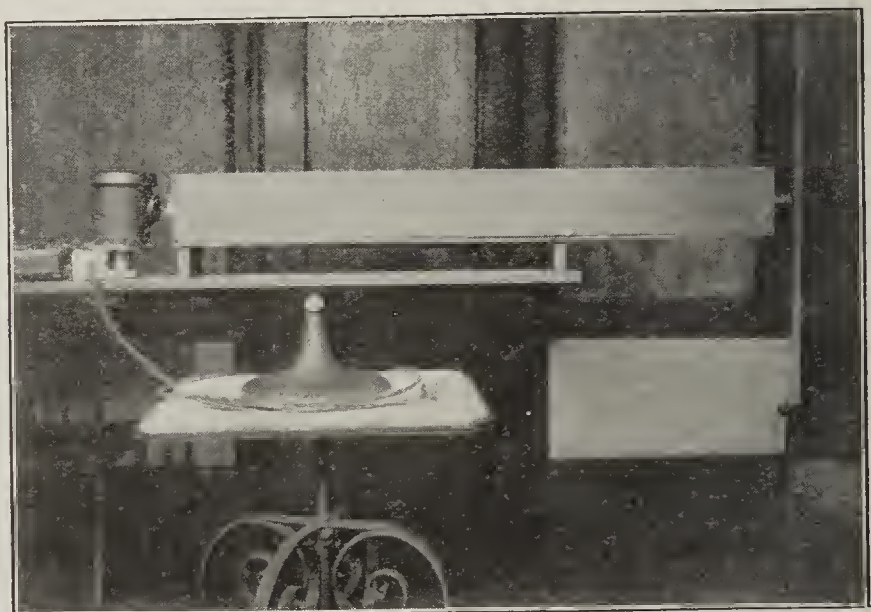

Fig. 1.—Instrument for clinical measurement of dark adaptation.

The instrument consists of a standard, on which is mounted a light-proof box, exactly 1 meter long and 12 cm. high and wide (Fig. 1). At one end is an open eye piece, so shaped as closely to approximate the orbital rim (Fig. 2 *A*). At the other end of the box is an iris diaphragm, *E*, whose diameter can be varied from 1 to 15 millimeters. Two and five-tenths cm. beyond this is another iris diaphragm, *F*, with an opening ranging from 10 to 25 mm. in diameter. This diaphragm is in a black chimney covering a 50 watt, 110 volt, carbon-filament lamp, that is controlled by the rheostat, *H*. In the exact center of the box is a steel plate, *B*, out of the middle of which is cut a cross, 4 cm. in size, with arms 4 mm. wide. Behind it is an opal glass plate, *C*, and at the end of the box, a ground glass plate, *D*, both for the purpose of diffusing the light.

For a clinical examination of dark adaptation, the patient i seated for five minutes in the dark room, which is illuminated by three 60 watt tungsten lamps. This is for the purpose o bringing all eyes to as near a uniform state of adaptation a possible. The lights are then turned out and the patient i seated before the instrument with the eye to be examine applied to the eye piece and the other eye closed. The iri diaphragm, *E*, is closed as far as possible, and the ligh diaphragm, *F*, set at a predetermined point, 10, 15, 20, or 2 mm. The rheostat is set at the least measurable resistance

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* Read before the Section on Ophthalmology at the Sixty-Sevent Annual Session of the American Medical Association, Detroit, Jun 1916.

The patient is instructed to exclaim as soon as the cross becomes visible. As nearly every one is more or less astigmatic, the complete cross will not come into view immediately, but one or the other arms will appear first and then be followed by the entire cross. The iris diaphragm is gradually opened until this point is reached. Notation is then made of the diameter of the iris diaphragm and the light diaphragm and of the number of ohms resistance introduced by the rheostat. The measurement is repeated every five minutes, the intensity of the illumination being gradually decreased by increasing the number of ohms resistance introduced.

TABLE 1.—DARK ADAPTATION UNITS AT 68 OHMS RESISTANCE

Iris	Light Diaphragms			
Diaphragm	25	20	15	10
15.0	187	226	302	453
14.5	190	234	313	469
14.0	194	242	324	486
13.5	201	250	336	505
13.0	208	261	349	524
12.5	217	273	363	546
12.0	226	283	378	567
11.5	238	296	394	592
11.0	247	309	410	618
10.5	260	325	431	649
10.0	272	340	453	680
9.5	287	350	478	718
9.0	303	378	504	756
8.5	321	401	535	803
8.0	340	425	567	850
7.5	365	446	610	911
7.0	397	486	654	972
6.5	325	527	704	1,051
6.0	453	567	755	1,131
5.5	611	625	803	1,250
5.0	569	680	906	1,360
4.5	604	765	1,019	1,530
4.0	680	850	1,133	1,700
3.5	915	974	1,322	1,983
3.0	950	1,139	1,511	2,266
2.5	1,105	1,417	1,866	2,833
2.0	1,360	1,700	2,222	3,400
1.5	2,040	2,550	3,383	5,100
1.0	2,720	3,400	4,544	6,800

TABLE 2.—DARK ADAPTATION UNITS AT 136 OHMS RESISTANCE

Iris	Light Diaphragms			
Diaphragm	25	20	15	10
15.0	363	453	604	906
14.5	375	469	625	938
14.0	388	486	647	971
13.5	408	504	672	1,008
13.0	419	523	697	1,046
12.5	431	545	726	1,089
12.0	453	567	755	1,133
11.5	474	592	789	1,184
11.0	495	617	824	1,236
10.5	519	648	865	1,298
10.0	544	680	906	1,360
9.5	574	717	956	1,435
9.0	604	755	1,007	1,511
8.5	642	802	1,070	1,618
8.0	680	850	1,133	1,725
7.5	728	910	1,214	1,833
7.0	777	971	1,295	1,942
6.5	842	1,052	1,403	2,104
6.0	907	1,133	1,511	2,266
5.5	992	1,245	1,662	2,543
5.0	1,077	1,360	1,813	2,720
4.5	1,198	1,530	2,039	3,060
4.0	1,360	1,700	2,266	3,400
3.5	1,587	1,983	2,644	3,966
3.0	1,814	2,266	3,022	4,533
2.5	2,267	2,611	3,777	5,666
2.0	2,720	2,956	4,533	6,880
1.5	4,080	4,878	6,799	10,200
1.0	5,440	6,800	9,066	13,600

The calculation of the dark adaptation units is empiric, and is dependent entirely on the construction of the instrument. The number of ohms resistance divided by the diameter of the iris diaphragm, *E*, multiplied by the diameter of the light diaphragm, *F*, gives an empiric standard. To simplify this computation, I compiled the tables for the various conditions (Tables 1-5).

I do not intend in this article to discuss the various phases of normal and abnormal dark adaptation, but shall merely present a composite normal curve of adaptation (Fig. 3). This begins between 1,200 and

TABLE 3.—DARK ADAPTATION UNITS AT 204 OHMS RESISTANCE

Iris	Light Diaphragms			
Diaphragm	25	20	15	10
15.0	544	680	906	1,360
14.5	563	704	939	1,408
14.0	582	729	972	1,457
13.5	604	757	1,009	1,513
13.0	627	786	1,046	1,569
12.5	653	818	1,089	1,634
12.0	680	850	1,133	1,700
11.5	710	888	1,184	1,777
11.0	741	927	1,236	1,854
10.5	778	973	1,298	1,947
10.0	816	1,020	1,360	2,040
9.5	861	1,076	1,435	2,153
9.0	906	1,133	1,511	2,266
8.5	963	1,204	1,605	2,408
8.0	1,020	1,275	1,700	2,550
7.5	1,092	1,365	1,821	2,732
7.0	1,165	1,456	1,943	2,914
6.5	1,262	1,578	2,004	3,157
6.0	1,360	1,700	2,266	3,400
5.5	1,496	1,870	2,493	3,740
5.0	1,632	2,040	2,720	4,080
4.5	1,836	2,295	3,060	4,590
4.0	2,040	2,550	3,400	5,100
3.5	2,380	2,975	3,967	5,950
3.0	2,720	3,400	4,534	6,800
2.5	3,400	3,750	8,377	8,500
2.0	4,080	5,100	6,800	10,200
1.5	6,120	7,650	10,200	15,300
1.0	8,160	10,200	13,600	10,400

TABLE 4.—DARK ADAPTATION UNITS AT 272 OHMS RESISTANCE

Iris	Light Diaphragms			
Diaphragm	25	20	15	10
15.0	725	906	1,208	1,813
14.5	751	940	1,241	1,877
14.0	777	971	1,295	1,942
13.5	806	1,008	1,345	2,017
13.0	836	1,046	1,395	2,092
12.5	871	1,089	1,453	2,179
12.0	906	1,133	1,546	2,266
11.5	947	1,184	1,616	2,369
11.0	989	1,236	1,648	2,472
10.5	1,038	1,298	1,730	2,596
10.0	1,088	1,360	1,813	2,720
9.5	1,140	1,435	1,914	2,871
9.0	1,203	1,511	2,015	3,022
8.5	1,284	1,605	2,140	3,212
8.0	1,360	1,700	2,266	3,402
7.5	1,457	1,821	2,428	3,642
7.0	1,554	1,942	2,590	3,885
6.5	1,673	2,104	2,806	4,209
6.0	1,813	2,266	3,022	4,533
5.5	1,994	2,493	3,324	4,986
5.0	2,176	2,720	3,627	5,440
4.5	2,448	3,060	4,080	6,120
4.0	2,720	3,400	4,534	6,800
3.5	3,173	3,966	5,789	7,933
3.0	3,626	4,533	6,045	9,066
2.5	4,533	5,666	7,559	11,333
2.0	5,440	6,800	9,073	13,600
1.5	8,160	10,200	13,601	20,400
1.0	10,880	13,600	18,130	27,200

TABLE 5.—DARK ADAPTATION UNITS AT 340 OHMS RESISTANCE

Iris	Light Diaphragms			
Diaphragm	25	20	15	10
15.0	918	1,133	1,511	2,266
14.5	944	1,173	1,562	2,347
14.0	971	1,214	1,614	2,428
13.5	1,005	1,260	1,678	2,521
13.0	1,040	1,307	1,743	2,625
12.5	1,086	1,361	1,815	2,719
12.0	1,133	1,416	1,888	2,833
11.5	1,187	1,480	1,974	2,961
11.0	1,241	1,544	2,060	3,090
10.5	1,300	1,622	2,163	3,245
10.0	1,360	1,700	2,266	3,400
9.5	1,435	1,794	2,392	3,588
9.0	1,511	1,888	2,519	3,777
8.5	1,605	1,996	2,676	4,013
8.0	1,700	2,124	2,833	4,250
7.5	1,821	2,276	3,035	4,553
7.0	1,942	2,428	3,238	4,857
6.5	2,104	2,630	3,507	5,261
6.0	2,266	2,833	3,777	5,666
5.5	2,533	3,116	4,155	6,233
5.0	2,800	3,400	4,533	6,800
4.5	3,100	3,825	5,099	7,650
4.0	3,400	4,250	5,666	8,500
3.5	3,966	4,958	6,610	10,916
3.0	4,533	5,666	7,555	11,333
2.5	5,666	7,083	9,444	14,166
2.0	6,800	8,500	11,333	17,000
1.5	10,200	12,750	16,999	25,500
1.0	13,600	17,000	22,666	34,000

1,500 units, and increases very rapidly for about half an hour. The increase then becomes more gradual, and after about two hours, maximum adaptation is attained. But only in exceptional cases is it necessary to carry out the measurement for this length of time, half an hour usually sufficing. A word of caution should be added. Measurements must not be made too near together, as the persistence of after-images will vitiate the results.

Despite the fact that I intend to reserve discussion of dark adaptation in various pathologic conditions for a future communication, I feel impelled to speak of the value of the measure of this function as the measure of the comparative density of a corneal scar. This is so self-explanatory that I will not go into details, but merely will present two charts representing such conditions. Figure 4 shows the curve of dark adaptation of a young man whose right cornea was rather densely scarred during the course of a severe iridocyclitis. The vision in that eye is merely finger counting at several feet. Figure 5 represents the dark adaptation of an older man shortly after a long and severe attack of herpes zoster corneae in the left eye, with a resultant vision of only 0.3.

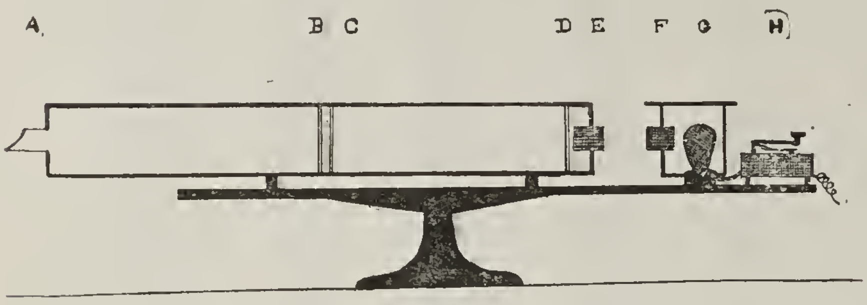

Fig. 2.—Sectional view of instrument.

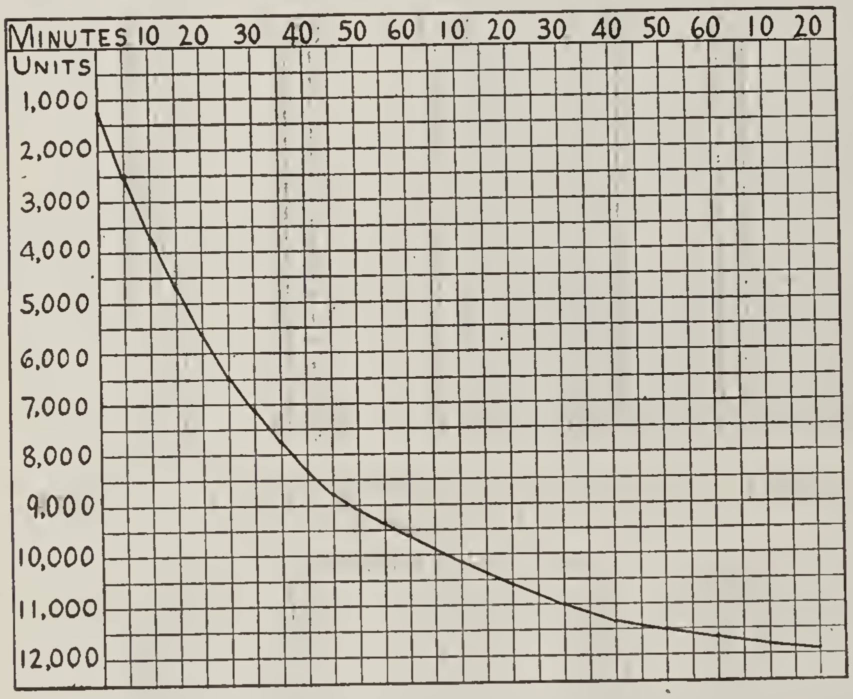

Fig. 3.—Composite normal curve of adaptation.

32 North State Street.

ABSTRACT OF DISCUSSION

Dr. Edward Augustus Willis, Indianapolis: Dr. Gradle's instrument may become of great value ultimately. It will require many changes, however, before it can be used to distinct clinical advantage. For some time I have been endeavoring to have an optical firm make an instrument with which I could measure light perception. As you know, for years we have been satisfied to measure in our patients the perception of the form, size and color of objects, but we have neglected tests of ability to perceive certain definite amounts of light. Therefore, the question of the perception of light and its value and importance in various diseases probably has not entered into the consideration of many men in their diagnosis and treatment of disease. Although this instrument seems to be an opening wedge in determining light tests, I believe from its mechanical arrangement that it is not absolutely adequate for the work intended, because, in the first place, with a rheostat of this sort, even with two iris diaphragms, it is necessary in going from one point of the rheostat to another to have a certain lapse in the amount of light available to the patient's eye. Further, instead of having one screen through which to allow the light to pass to give a definite image, there should be several screens, because if a person has one eye examined he will then anticipate the form and light perception through a known screen. Further, instead of having a definite form of light there should be a diffuse light. How that can be accomplished I am not prepared to say. But it seems to me that Dr. Gradle has suggested something of enormous importance, particularly in view of the fact that so much work now is being done with colored lenses, which of course has its foundation in the proper appreciation of light.

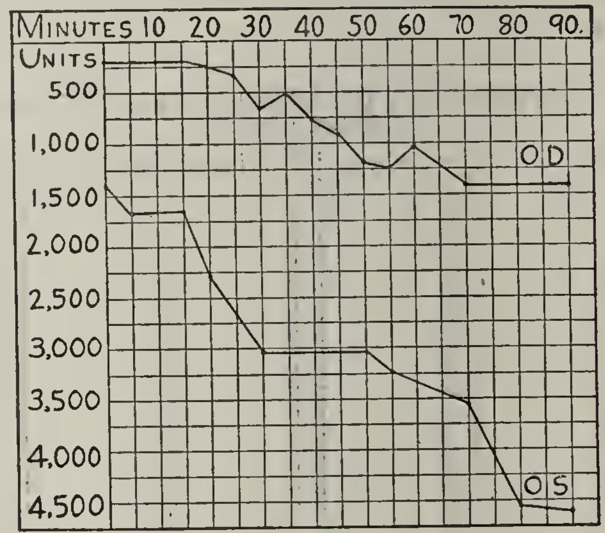

Fig. 4.—Curve of dark adaptation in W. H., a patient with macula corneae in right eye.

Dr. Walter B. Lancaster, Boston: Will Dr. Gradle tell us how he measures the strength of light in intensity?

Dr. H. S. Gradle: I do not endeavor to measure the intensity of light; all I do is to introduce a definite varying number of ohms of resistance into the circuit. The street current is fairly uniform and the deterioration of a 50 watt carbon lamp is minimized.

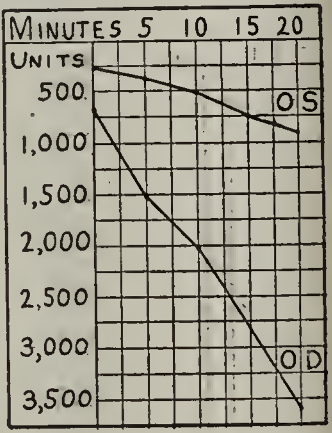

Fig. 5.—Curve of dark adaptation in D. J. E., a patient with macula corneae in left eye.

Dr. Walter B. Lancaster: Do you use the street current?

Dr. H. S. Gradle: Yes.

Increase in Street Accidents.—The National Highways Protective Association reports that during the month of September sixty-nine persons were killed on the streets of New York, thirty-six of whom were children under the age of 16 years. Automobiles caused the death of fifty-three persons, the largest number ever recorded during one month. Trolleys killed five and wagons eleven. On the streets and highways of New York State, during the same period, automobiles caused the death of forty-one persons and trolleys one. The report for the first nine months of the year shows that 543 persons have been killed by automobiles on the highways of the state, including New York, while during the same period of last year there were 476 fatalities due to this cause.

IMMUNE HUMAN SERUM IN THE TREATMENT OF ACUTE POLIOMYELITIS *

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The question of the treatment of acute poliomyelitis has acquired special interest during the past few months because of the prevalence of the disease in the United States. While the administration of serum of persons who have had the disease has been suggested, still the number of cases so treated is so few as to warrant a brief report of the results in fifteen cases.

It is held that poliomyelitis is infectious. The changes in the central nervous system and its appendages, as well as elsewhere, appear to be of microbic origin, and the resulting edema and hemorrhage produce pressure sufficient to cause paralysis. Whatever the underlying mechanism of the process may be, resort to a treatment based on the accepted principles of immunity appears worthy of trial, and such treatment seems to be available, since human immune serum has been found to contain principles capable both of neutralizing the so-called virus of poliomyelitis, and of furnishing protection for animals against inoculation of the virus.[1] The first use of immune human serum in acute poliomyelitis was reported by Netter, who employed it in thirty-two cases.[2] Recently Sophian[3] has reported four cases, and Alfaro and Hitce[4] one case, making in all thirty-seven cases. These observers seem favorably impressed with the method used, which consists in intraspinal injections of sterile immune human serum, in doses of from 2 to 13 c.c. daily, the total number of injections varying in individual cases.

TABLE 1.—AGE OF DONOR, AND PERIOD OF TIME ELAPSING BETWEEN THE RECOVERY FROM POLIOMYELITIS AND THE CONTRIBUTION OF SERUM

Serum	Age of Donor, Years	Time Since Recovery from Poliomyelitis	Amount of Serum Obtained, C.c.
A	29	3 weeks	300
B	36	32 years	125
O	24	2 weeks	100
D	17	2 weeks	100
E	44	39 years	100
F	7	2½ years	75
G	8	2 years	125
H	10	9 years	150
I	18	3 weeks	250
J	7	5½ years	100

In all my cases the blood was obtained by puncture of the median basilic vein, collected in sterile glass containers, the serum separated by clotting, and kept at 36 F. until used. Wassermann tests and a careful bacteriologic examination were made in the case of each serum before it was accepted as suitable for use. No preservative was used.

Ten donors contributed the serum used in these cases (Table 1). There are no experimental results which throw any satisfactory light upon the duration in serum such as used here of the properties that neutralize the virus of acute poliomyelitis. In this series it was noted that Serums B and E, obtained thirty-two and thirty-nine years, respectively, after recovery from poliomyelitis, seemed less active therapeutically than serums obtained earlier.

Netter and Sophian gave the serum by intraspinal injection, in doses of from 5 to 10 c.c., previously withdrawing an equal or greater amount of spinal fluid. In the cases here reported, three different methods have been used, singly and in combination: intraspinal injections of from 5 to 10 c.c.; intravenous injections of from 8 to 50 c.c., and intramuscular injections of from 6 to 30 c.c. Following the intravenous and intramuscular injections, from 10 to 15 c.c. of spinal fluid were withdrawn.

Table 2 gives the manner of injection in each case, the day of the disease, and the results.

TABLE 2.—METHOD AND TIME OF INJECTION, WITH RESULTS OF TREATMENT

Case	Age	Amount of Serum Injected, C.c.			Day of Disease	Result as to Life
		Intraspinally	Intravenously	Intramuscularly		
1	16 mo.	15	8	..	6	Recovery
2	4 yrs.	16	15	..	5	Death
3	18 yrs.	22	33	..	7, paralysis 1 day	Recovery
4*	3 yrs.	10	..	..	5	Recovery
5*	2 yrs.	15	..	..	9	Death
6*	2 yrs.	5	35	..	5	Death
7	2¾ yrs.	..	8	10	2	Recovery
8	6 yrs.	10	33	..	2	Recovery
9	7 yrs.	6	26	30	3, paralysis 1 day	Recovery
10	24 yrs.	..	70	..	4	Death
11*	3 mo.	..	..	15	5	Recovery
12	2½ yrs.	5	20	..	4	Recovery
13	7 yrs.	16	54	20	3, paralysis 1 day	Recovery
14*	3 yrs.	..	12	24	Paralysis 1 day	Recovery
15	14 yrs.	..	..	65	3, paralysis same day	Recovery

* These occurred in the Cook County Hospital and were treated at the request of the authorities of the hospital.

The object of the use of immune serum in acute poliomyelitis is the neutralization of the toxic or other causative agent by specific antibodies in the serum injected. Consequently the indications are to administer the serum in such a manner as to bring it into close and direct contact with the pathogenic agent. Heretofore the serum has been injected intraspinally, but, as the cerebrospinal fluid from acute poliomyelitis only infrequently transmits the disease in experiments on animals, a question arises as to the value of introducing therapeutic agents into the spinal canal. On the other hand, the lesions in the nervous system, essentially perivascular infiltrations as they are, would seem to call for intravenous injections. Further, the lesions in acute poliomyelitis are not confined to the nervous system, but involve also, frequently to a marked degree, various other internal organs, showing the systemic presence of the virus. For these reasons, intravenous injection alone, or in combination with intraspinal injection, appears to me to be the logical method of serum treatment. In the case of infants, in which it is difficult to introduce a needle into the vein, intramuscular injections may be substituted for intravenous.

Following the intravenous or intramuscular injections, a withdrawal of from 5 to 15 c.c. of cerebrospinal fluid is suggested, in order to reduce pressure and favor circulation in the central nervous system, as is done with good results in the intravenous treatment of cerebrospinal syphilis with neosalvarsan and salvarsan.

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* From the Memorial Institute for Infectious Diseases. Aided by a grant from the Fenger Memorial Fund.

[1] Flexner, Simon: A Note on the Serum Treatment of Poliomyelitis (Infantile Paralysis), The Journal A. M. A., Aug. 19, 1916, p. 583.

[2] Netter: Arch. de méd. d. enfants, 1916, xix, 1.

[3] Sophian, Abraham: Specific Treatment of Infantile Paralysis, The Journal A. M. A., Aug. 5, 1916, p. 426.

[4] Alfaro and Hitce: Semana méd., 1915, xxii, 211.

One cannot believe that a few cubic centimeters of immune serum contain any great concentration of antibodies for the virus of poliomyelitis, and it would seem rational, therefore, to employ as large doses of the serum as possible, especially in intravenous and intramuscular injections; obviously intraspinal injection must be limited to a few cubic centimeters.

In this series 50 c.c. was the largest dose; in most cases the dose was dependent on the quantity of serum on hand at the time. Still larger doses are advisable, and should be repeated daily in severe cases.

TABLE 3.—EFFECT OF INTRASPINAL INJECTIONS OF IMMUNE SERUM ON THE LEUKOCYTES OF THE SPINAL FLUID

Case	Cells per C.mm. in Spinal Fluid Before First Intraspinal Injection	Cells per C.mm. in Spinal Fluid 24 hrs. After First Intraspinal Injection	Cells per C.mm. in Spinal Fluid 24 hrs. After Second Intraspinal Injection	Cells per C.mm. in Spinal Fluid 24 hrs. After Third Intraspinal Injection
1	40	4,130	230	20
2	48	217	...	..
3	47	175	...	..
4	302	171	240	..
6	84	165	110	..
7	18	40	...	..
9	278	149	...	..
16	119	189	73	..
5	...	64	...	20

In the majority of cases, following the first intraspinal injection there results an increase in the number of leukocytes in the spinal fluid; usually with increase in the proportion of polymorphonuclear cells. The count of 4,130 in Case 1 contained 90 per cent. polymorphonuclears, whereas the blood at the same time contained only 55 per cent. polymorphonuclears. Use of the serum, by any of the methods employed, apparently had no immediate effect on the leukocyte of the blood, which dropped gradually to normal within a few days.

In three cases, following intravenous injection a fall in the cell content of the spinal fluid occurred, while in one case the number of cells was increased.

A brief account of two typical cases may serve to illustrate the results in general.

Case 1.—In a girl, aged 16 months, the symptoms appeared five days previous to the first injection. On entrance to the hospital there was paralysis of both arms and legs and paralysis of the external respiratory muscles; respirations were irregular, shallow and entirely diaphragmatic; dyspnea and cyanosis were present. The temperature was 103 F.

August 16, there were 15,700 leukocytes and 72 per cent. polymorphonuclears. The spinal fluid contained 40 leukocytes per cubic millimeter. Five c.c. convalescent serum were injected intraspinally.

August 17, there were 20,450 leukocytes and 55 per cent. polymorphonuclears. The spinal fluid contained 4,130 leukocytes per cubic millimeter, and 90 per cent. polymorphonuclears. Five c.c. convalescent serum were injected intraspinally, and 8 c.c. intravenously.

August 17, the spinal fluid contained 230 cells per cubic millimeter. Five c.c. convalescent serum were injected intraspinally.

August 19, the spinal fluid contained 20 cells per cubic millimeter.

August 20, the spinal fluid contained 3 cells per cubic millimeter.

On admission the prognosis seemed very bad, but following the second injection of serum there was marked general improvement ending in recovery.

Case 2.—In a boy, aged 18 years, the onset occurred August 16, with malaise, headache and fever. Paralysis was first noticed August 23 in the left leg and right arm. The patient was admitted August 24, semicomatose and delirious, with rigidity, tenderness and pain in the neck, bilateral flaccid paralysis of arms and legs, respirations superficial, acute retention of urine, and temperature 101.

August 24, there were 15,500 leukocytes and 74 per cent. polymorphonuclears. The spinal fluid contained 302 leukocytes per cubic millimeter, 92 per cent. being small lymphocytes. Five c.c. immune serum were injected intraspinally.

August 25, there were 13,350 leukocytes and 70 per cent. polymorphonuclears. The spinal fluid contained 171 leukocytes per cubic millimeter, 88 per cent. being small lymphocytes. Eight c.c. serum were injected intraspinally and 8 c.c. intravenously.

August 26, the patient's condition was much improved, the temperature normal; 12,250 leukocytes. The spinal fluid contained 240 leukocytes per cubic millimeter, 26 per cent. being polymorphonuclears. Nine c.c. serum were injected intraspinally.

August 27, the condition was much improved.

August 28, the condition was not so good. Twenty-five c.c. serum were injected intravenously; four hours later the patient appeared and felt much better. Recovery followed.

In none of the cases were ill effects noticed from the serum, or symptoms indicating the presence in the serum injected of lysin or agglutinin for the corpuscles of the recipient. Precautionary tests for these substances should be carried out as a safeguard to the recipient.

In the treatment of these cases, one was impressed with the marked improvement that followed within a few hours after injection of the serum, and particularly after intravenous injection; whether this result was due to specific antibodies in the injected serum or to the injection of so much serum only has not been determined. To me the results of the use of immune serum seem sufficiently favorable to warrant its use until more satisfactory measures are obtained.

Finally, in drawing conclusions as to the merits of the serum treatment in acute poliomyelitis, the possibility must not be overlooked that part at least of the improvement which occurs in patients receiving intraspinal injections, or in which spinal fluid has been withdrawn, may be due to the relief of increased intraspinal and intracerebral pressure.

SUMMARY

1. The administration of immune serum in acute poliomyelitis is based on recognized principles of immunity.

2. Because the lesions are not confined to the nervous system, and because the lesions therein consist essentially of perivascular infiltration, intravenous injection of serum appears to be a rational procedure, either alone or in combination with intraspinal injection.

3. Intravenous injections of serum should if possible consist of doses of from 50 to 100 c.c. or more daily.

4. Following intravenous or intramuscular injections of serum, spinal fluid should be withdrawn.

5. Intraspinal injection of serum usually produces an increase in the number of the leukocytes with increase in the proportion of polymorphonuclear cells in the spinal fluid.

6. No ill effects have followed the use of serum in this series, either by intravenous or intraspinal injection.

7. In all cases after intravenous injection, and to a less degree after intraspinal injection, a noticeable

mprovement usually occurred, which, unfortunately, however, in some cases was only transient.

8. Early administration of the serum is urged, necessitating therefore an early diagnosis of the disease; in severe cases late administration of the serum has produced little if any noticeable influence on the course.

A REPORT OF ONE HUNDRED CONSECUTIVE CASES OF FIBROMYOMATA UTERI SUBJECTED TO OPERATION *

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The criticism has frequently been made that a colected series of fibromyomata uteri do not furnish accurate information on the life history of these tumors. That position is well taken, as the conclusions drawn from such studies have greatly underestimated the danger of these tumors. A consecutive series studied carefully, histologically, will demonstrate that the malignancies in the uterus and the degenerations in the tumor are decidedly more frequent than is generally believed.

TABLE 1.—MALIGNANCY AND DEGENERATIVE CHANGES IN TUMOR IN THIRTY-ONE CASES

Calcareous infiltration	2
Carcinoma corporis uteri	7
Carcinoma cervicis uteri	2
Carcinoma of ovary with extension to uterus and sigmoid	1
Hyaline degeneration	11
Myxomatous degeneration	1
Necrosis	6
Sarcomatous	1
Total	31

The subject-matter of this paper is based on my first 100 consecutive cases of fibromyomata uteri subjected to operation. While the number is not sufficient from which to draw definite conclusions, the material shows some interesting facts which will be given for what they are worth. With the exception of one specimen removed in Canada and one which was lost before reaching the laboratory, all have been examined microscopically. Every specimen in which the pathologist reported a malignancy and every specimen which was clinically suspected of malignancy, was subjected to another microscopist. A better check on the pathologic diagnosis is the ultimate result, which will be given in another part of the paper.

A persistent effort has been made to obtain a recent report in every case, but in a few this has been impossible. In such cases, if the record showed six or more months after the operation that the patient was in good condition and free from all symptoms, it is considered a cure and is so recorded in this paper. The date of the last report is recorded in Table 4 under heading "Remarks and Results." "No Report" means that all trace of the patient was lost shortly after being discharged from the hospital. The recent reports were obtained by letters from the patients and in many cases by reports in person and from the family physicians, to whom I wish to express my deep appreciation for the prompt and satisfactory replies.

Malignancy in the pelvic organs, and degenerative changes in the tumor were found as shown in Table 1. These took place in thirty-one patients, which is double the percentage usually reported.

There were in all nine cases of carcinoma of the uterus, one case of carcinoma of the ovary with secondary involvement of the uterus, and one case of sarcoma, making 11 per cent. of the cases complicated by a malignancy of the pelvic organs. There was one patient who had a suspicious breast and a radical operation was performed a few days after the hysterectomy. Histologic examination showed the tumor to be a carcinoma. This tumor was no doubt an independent lesion. Nevertheless, it makes 12 per cent. of the patients who harbored a malignancy.

There were two or three specimens which one pathologist diagnosed early malignancies, while the other claimed they were cellular myomas. These have been recorded as benign tumors, but the patients will be kept under close observation. In Case 78 and Case 89 a malignancy was not suspected, the diagnosis being made in the laboratory.

The percentage of malignancies in this series is decidedly larger than usually reported, which shows the fallacy of drawing conclusions from a collected series. In 3,561 collected cases reported by the writer[1] in 1908 the condition was present in 4 per cent. In 337 cases operated on by Noble[2] malignancy was present in seventeen, or 5 per cent. In the last 100 cases he reported malignancy was found in 8 per cent. Bland-Sutton[3] states that malignancy in the corpus uteri will be found in over 10 per cent. of the cases in women past the age of 50 who submit to operation. In a series of 500 consecutive cases submitted to operation he found among sixty-three women of 50 years and upward eight, or 12.7 per cent., who had cancer of the corporal endometrium, as well as fibroids. Geist,[4] in a series of 250 cases of uterine and cervical myomas, found that twelve, or 4.8 per cent., showed sarcomatous changes. Winter[5] believes that if myomas are examined systematically sarcoma will be found in about 4 per cent. of all cases. Freund[6] in 500 myoma cases found carcinoma in the uterus or ovary in 6 per cent.; Kline[7] in 491 cases found malignancy in 7.7 per cent.; and Mackenrodt[8] in 418 cases found malignancy in 7.7 per cent.

It is well known that cancer is on the increase and surgeons are realizing more fully that all specimens should be examined microscopically, and as a result more laboratory work is being done. For these reasons we can expect to find malignancy associated with fibromyomata uteri in a larger percentage of cases as time goes on. The death rate from cancer in the United States registration area increased from 62.9 per 100,000 population in 1900 to 78.9 in 1913

In studying these degenerations it is important to know at what age they take place, as it has a decided

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Tracy, Stephen E.: Fibromyomata Uteri, a Study of the Degenerations, Complications and Associated Conditions of 3,561 Cases, Surg., Gynec. and Obst., 1908, vi, 246.

[2] Noble, Charles P.: Fibroid Tumors of the Uterus, Jour. Obst. and Gynec. Brit. Emp., 1906, x, 436.

[3] Bland-Sutton, Sir John: Fibroids of the Uterus; Their Pathology, Diagnosis and Treatment, London, 1913.

[4] Geist, Samuel H.: A Contribution to the Histogenesis of Sarcomatous Change in Uterine Fibromyomata, Am. Jour. Obst., 1913, lxviii, 1053.

[5] Winter, Georg: Die malignen und benignen Degenerationen der Uterusmyome, Ztschr. f. Geburtsh. u. Gynäk., 1906, lvii, 10.

[6] Freund: Quoted by Nordentoft, Panner and Kjaergaard; abst., The Journal A. M. A., Aug. 22, 1914, p. 714.

[7] Kline: Quoted by Nordentoft, Panner and Kjaergaard; abstr., The Journal A. M. A., Aug. 22, 1914, p. 714.

[8] Mackenrodt: Jour. Obst. and Gynec. Brit. Emp., 1914, xxvi, 219.

bearing on whether we do conservative or radical surgery. In this series, sixty-four patients were 40 years of age or upward. In a series of 714 cases, including my own and those taken from the reports of the Kensington Hospital for Women from 1893 to 1909, inclusive, and from the papers of Cullingworth[9] and Scharleib,[10] in which the age of the patient was given, the degenerations took place, divided into decennial periods, as in Table 2.

TABLE 2.—DEGENERATIONS ACCORDING TO AGE OF PATIENT IN 204 CASES OF FIBROMYOMATA UTERI

Nature of Degeneration	Under	30-40	40-50	56-60	60-70	70-80	Total
Myxomatous degeneration	...	6	5	..	..	..	11
Necrosis of tumor	2	19	25	8	3	..	57
Cystic degeneration	1	5	6	1	3	..	16
Sarcomatous	...	1	4	4	2	..	11
Edema of tumor	2	11	12	5	..	..	30
Carcinoma of corpus uteri	...	..	3	6	2	1	12
Calcareous infiltraton	...	1	2	3	4	..	10
Carcinoma cervicis uteri	...	2	3	1	..	..	6
Hyaline degeneration	3	7	24	3	..	..	37
Hyaline degeneration and necrosis	...	..	..	2	..	..	2
Hyaline degeneration and edema	...	..	1	..	..	..	1
Myxomatous degeneration and calcareous infiltration	...	..	1	..	..	..	1
Calcareous infiltration and necrosis	...	1	..	..	..	..	1
Fatty degeneration	...	..	1	..	..	..	1
Inflammation	...	1	..	..	..	..	1
Carcinoma	...	..	..	..	1	..	1
Necrotic carcinoma	...	..	1	..	..	..	1
Malignant change	...	..	1	..	..	..	1
Adenocarcinomatous change	...	1	..	..	..	..	1
Epithelial degeneration	...	..	..	..	1	..	1
Necrotic or sarcomatous degeneration	...	..	..	1	..	..	1
Calcareous infiltration, necrosis, adenocarcinoma corporis uteri	...	..	..	1	..	..	1
Total	8	55	89	35	16	1	204

The age at which the degeneration took place in the 714 cases, varied from 23 years to 72 years. Of 204 cases in which degeneration took place, 141, or 69 per cent., occurred after the age of 40. Of thirty-five cases of malignancy, thirty-one, or 88.57 per cent., took place in women of 40 years and upward. In this series of 100 cases degenerations took place in thirty-one. Of these, in twenty-six, or 84 per cent., the degeneration took place in women of 40 years or upward. In 11 cases of malignancy of the pelvic organs ten, or 90.9 per cent., occurred in women past the age of 40 years, another evidence of discrepancy in a collected series.

Abdominopelvic lesion associated with the fibromyomas were as is shown in Table 3.

TABLE 3.—ABDOMINOPELVIC LESIONS ASSOCIATED WITH FIBROMYOMA

Lesion	No. Cases
Appendicitis	30
Gestation	2
Gestation, ectopic	3
Cholelithiasis	1
Hernia, incisional	1
Hernia, inguinal	1
Hernia, umbilical	1
Hydrosalpinx	2
Ovarian cyst	4
Ovarian cyst, intraligamentous	3
Ovarian fibroma	1
Pyosalpinx	3
Prolapsus uteri	4
Retroversus uteri	2
Salpingitis	17
	75

In only nineteen of the 100 cases were there no associate lesions of the abdominal or pelvic organs and no change in the tumors or uterus. In fifty-six cases there were surgical lesions in the abdomen or pelvis in addition to the fibromyomas.

The thirty cases of appendicitis do not indicate that the appendixes were removed simply as a routine, but that they showed some clinical evidence of a pathologic character.

The two cases of gestation subjected to operation were deliberately performed. In one case the tumor caused the uterus to rotate to the extent that it caused severe pain, from which the patient demanded relief. In the other case the patient was seen in consultation at the fourth month of the first gestation. The pelvis was filled with fibromyomas, which did not rise as the uterus enlarged. The pregnancy was allowed to continue to nearly term, when a cesarean section was performed and the uterus removed.

Of the 100 patients, sixty-three were married, eleven were widowed and twenty-six were single. Of the seventy-four who were or had been married, fifty-four, or 72 per cent., had borne children.

The surgical procedures carried out in these cases consisted of supravaginal hysterectomies sixty-four; panabdominal hysterectomies twenty; vaginal hysterectomy one; abdominal myomectomies nine; vaginal myomectomies six. In every case of known malignancy, suspected malignancy and extensive laceration of the cervix, a panhysterectomy was done, unless there was some contraindication. Besides the operative procedures enumerated, several of the patients had plastic work at the time the tumors were removed. Case 72 had a plastic operation, a shortening of the round ligament and an appendicectomy in addition to the myomectomy.

The primary mortality was 2 per cent. Case 23, that of a pale, weak patient, did well the first four days, when her special nurse gave a bath on a winter's day with the windows wide open; she promptly developed a double pneumonia and died on the eighth day. In Case 66 the patient developed renal insufficiency and died fifty-two days after operation. She had recovered from the operation, but remained at the hospital for medical treatment; as she died in the institution the fatality is included in the series.

In reviewing the results of the cases subjected to hysterectomy one of the most important factors from the standpoint of the patient is the amount of suffering from the artificial menopause. The patients have been questioned closely on these symptoms and every effort has been made to classify them accurately. The degree of the menopausic symptoms have been divided into five classes as follows: no symptoms, very mild, mild, moderately severe, and marked.

Of the patients subjected to hysterectomy, in seventy-two the menstrual function was still active. Of these, in twelve one or both ovaries were allowed to remain; in six both ovaries; in four the right, in two the left; five are dead; seven cannot be traced, which leaves forty-eight traced patients who had both ovaries removed. Of these forty-eight cases, nine, or 18.7 per cent., had no menopausic symptoms; in eight, or 16.8 per cent., the symptoms were very mild; in twenty, or 41.6 per cent., the symptoms were mild; in 7, or 14.5 per cent., the symptoms were moderately severe; and in four, or 8.3 per cent., the symptoms were marked. In 77 per cent. of the cases the disturbance as a result of the artificial menopause varied from no symptoms to mild discomfort.

Of the twelve patients in whom one or both ovaries were allowed to remain, ten have been traced. In five,

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9. Cullingworth, C. J.: Jour. Obst. and Gynec. Brit. Emp., 1902, i, 3.
10. Scharleib, M.: Jour. Obst. and Gynec. Brit. Emp., 1902, ii, 323.

or 50 per cent., there were no menopausic symptoms; in two, or 20 per cent., the symptoms were very mild; in one, or 10 per cent., the symptoms were moderately severe; while in two, or 20 per cent., the symptoms were marked. These two patients were pronounced neurasthenics before the operation, and after the operation they complained greatly of the menopausic symptoms. Their physical condition is good and they have been cured of all symptoms caused by the tumors. They would no doubt have complained to the same extent had they gone through the natural menopause.

Of the patients in whom one or both ovaries were allowed to remain, 50 per cent. had no symptoms of the menopause, as compared with 18.7 per cent. of the women who had the ovaries removed. On the other hand, of the women who had the ovaries removed, the menopausic symptoms were absent or mild in 77 per cent., as compared with 70 per cent. in women who had one or both ovaries left in. When doing a hysterectomy in a patient whose menstrual function is active, if an ovary is perfectly normal it should probably be allowed to remain, but should be so placed and anchored that it cannot lie in the bottom of the pelvis and cause pain. On account of the liability of adhesions about and pressure by the sigmoid, I prefer to leave the right ovary. Unless an ovary is absolutely normal it should not be allowed to remain.

Several of the patients with menopausic symptoms were made comfortable by the administration of corpus luteum. Unfortunately, the records on the use of this product are not sufficiently complete to give figures or percentages.

In patients past the age of 40 years, I believe it makes but little difference whether the ovaries are allowed to remain or are removed, as the menopause will soon take place and the majority of women do not have any serious trouble.

In this series there has been no reason to regret that an ovary has been allowed to remain. In none of the traced cases has it been necessary to do a second operation for the removal of these organs.

In the series there were fifteen myomectomies, nine abdominal and six vaginal. Of these, eight of the patients were married, two were widowed and five were single.

Of the nine abdominal myomectomies, eight of the patients were of the child-bearing period. Of the nine patients, seven have been traced, while two could not be located. Of the seven heard from, six were of the child-bearing age; three of the six were either single or widowed. Of the three who were married, there has been one pregnancy, which terminated in a miscarriage. The family physician stated he believed the miscarriage had been induced. One of the single women has married since the operation, but has not conceived.[11]

Of the six vaginal myomectomies, five have been heard from. Two of these patients are past the child-bearing period. Of the three patients in whom gestation is possible, one is still single, and of the others there have been no pregnancies.

One patient on whom an abdominal myomectomy was performed continued to have metrorrhagia after the operation. She has been cured by Roentgen-ray treatment, one of the few indications for roentgenotherapy.

In Case 100, the patient came for the cure of a prolapse of the cervical stump with a complete eversion of the vagina, a cystocele and rectocele. She had had a supravaginal hysterectomy by another surgeon four or five years previously. A fibromyoma the size of a large walnut was removed from the posterior, upper right corner of the cervix and a plastic operation cured the prolapse and eversion.

In spite of every effort to trace these patients, eleven could not be located, which leaves eighty-nine patients accounted for. Of these, eleven are dead, the cause of death being as follows:

Miss C. (Case 5), died of acute mania one and one half years after the operation.

Mrs. McG. (Case 15), advanced carcinoma of the uterus, died of a recurrence in about three years.

Mrs. C. (Case 19), advanced sarcomatous degeneration, died of a recurrence in four months.

Mrs. M. (Case 22), carcinoma of corpus, died of uremia about two and one half years after operation. Family physician reported there was no evidence of a recurrence.

Mrs. M. (Case 23), died of a double pneumonia the eighth day after operation. Described under primary mortality.

Mrs. H. (Case 27), carcinoma of corpus, which had perforated the uterus and extended through the broad ligament to the side of the pelvis, died of recurrence in one year. She was prepared for operation about a year earlier, but lost her nerve and went home. She also lost her opportune time, as there was then no evidence of involvement beyond the uterus.

Mrs. C. (Case 34), a well developed carcinoma of cervix. Had a considerable recurrence when seen last at the end of a year (1911) and is considered long since dead.

Mrs. D. (Case 41), died of cardiovascular renal disease eight months after operation. This patient had a pronounced heart lesion and on this account had been refused operation at another hospital. She had long suffered with metrorrhagia and for two years preceding operation had been confined to bed most of the time. Her blood pressure was low and there was no evidence of renal degeneration. After operation she developed a phlebitis beginning at the base of the skull, extending down the neck and the left upper extremity. She recovered from this and enjoyed good health a few months, when the blood pressure began to mount, the urine contained albumin and casts, and there was bleeding from all the mucous membranes.

Mrs. S. (Case 64), malignant ovarian cyst with advanced secondary involvement of uterus, broad ligaments and sigmoid, died of recurrence in eleven months.

Mrs. B. (Case 66), carcinoma of corpus, died of uremia fifty-two days after operation. Described under primary mortality.

Mrs. Z. (Case 84), advanced carcinoma of corpus, which had extended through the uterine wall, had a recurrence, or what would be more accurate an extension of the process, and died suddenly five months after operation.

Of the eleven patients with malignancy, six have died of recurrence, one died of uremia fifty-two days after operation, another died of uremia with no evidence of recurrence two and one half years after operation. Three are alive and well: one (Case 44) four years and nine months after operation, one (Case 78) two years, and one (Case 89) seventeen months.

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[11] His patient came for examination since this paper was presented and is now (July 29, 1916) over five months' pregnant.

With the exception of Case 78 and Case 89, the malignancy was well advanced and in several cases it was a question if the result would be worth the effort. With the exception of Case 19, sarcomatous degeneration, in which the operation was probably of no use whatever, life was prolonged and the hemorrhage and offensive discharge were eliminated, which made the tragedy somewhat easier for the patient and the family.

Of the seventy-eight patients alive and traced, we have the following results: One patient, while cured of the pelvic lesions had an infection of the incision with a resulting hernia. One patient after a plastic operation, a myomectomy, an appendicectomy and a shortening of the round ligaments, continued to have metrorrhagia, which was controlled by Roentgen-ray treatment, and is not considered a surgical cure. The combination of treatments was ideal. There was no excuse for a hysterectomy, which would have controlled the bleeding, as the tumors were small and the patient comparatively young. On the other hand, the Roentgen rays would not have cured the lacerations, the displacement, or the chronic appendicitis. One patient is well except for so-called chronic rheumatism. One patient, a marked neurasthenic, has a cystitis and claims she is no better than when bedridden with a pelvis and lower abdomen filled with a fibromyoma and a bilateral femoral phlebitis from pressure. The remaining seventy-four are well and are enjoying good health. To these should be added, as cured of the pelvic trouble, the one who has rheumatism, making a total of seventy-five, or 96 per cent., cured. From the seventy-five, three who are now in good health, should be held under advisement, as they had a malignancy of the uterus associated with the fibromyomas.

In Case 68 the glycosuria disappeared a few weeks after operation.

The one thing that is worthy of especial emphasis in this series is the percentage of malignancies and with two exceptions they were well advanced cases. The only way we can hope to improve our results in fibromyomas complicated by a malignancy is to educate the profession and the public to the danger of these tumors. Fibromyomas are not innocent tumors which are cured by the menopause. On the contrary, they are progressive, insidious neoplasms, whose danger increases with advancing age of the patient; 87.5 per cent. of the malignancies and the degenerations in the tumors in this series were in women over 40 years old. Why any man, and especially a surgeon, will tell a woman past the age of 40 who has a fibromyoma with metrorrhagia not to worry, that she will be cured by the menopause, is beyond my comprehension. This may explain why some men have so few malignancies associated with their cases of fibromyomas. He who gives such advice is responsible if an incurable malignancy develops while the patient is serenely waiting a menopausic cure.

I trust there is no surgeon who will deny that there is an intimate relation between fibromyomas and carcinoma of the corpus. Any series of cases carefully studied will show that the vast majority of malignancies are in the corpus; while the majority of malignancies of the uterus which do not contain fibromyomas are in the cervix.

While time will not permit a discussion of other methods of treatment, I cannot refrain from asking my radiotherapy friends, who talk about the control of bleeding as being a cure, what they would hope to accomplish in the way of relieving these patients of their abdominal and pelvic symptoms by the Roentgen-ray treatment, when there were only nineteen patients who had neither a malignancy of the pelvic organs, a degeneration of the tumor or an associate abdominal or pelvic lesion. While I will concede there is a certain small percentage of cases, as outlined by the writer[12] in a paper before the state medical society in 1914 that should receive roentgenotherapy, I do maintain that with a few exceptions all fibromyomata uteri which produce symptoms should receive early surgical treatment.

OPERATIVE TREATMENT OF FIBROMYOMATOUS UTERINE TUMORS *

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General interest in the question of the treatment of myoma of the uterus has been rekindled by the enthusiastic claims of advocates of the Roentgen ray and radium treatments. Surgery has fought and won against the old ideas of the harmlessness of the majority of these uterine growths, showing that in many cases they take on activity after a period of quiescence, that they undergo malignant degeneration, that they may produce harmful pelvic and abdominal lesions, that they predispose to carcinoma of the uterus, that they produce a variety of harmful pressure effects and in short that any given series of women who are the subjects of these growths will in time show a large percentage who suffer from one or more of a great variety of complications that are more or less disabling or dangerous to life.

We have fought to a finish the idea that if a woman could be tided along to the menopause, it could be expected that the fibroids would then shrink and cease from troubling.

We have seen the Roentgen ray advocated and have noted some success in its employment for the control of the associated metrorrhagia of fibroid tumors of the uterus. We have had authenticated cases, not only of symptomatic improvement, but also of material diminution in size of tumors so treated. We all hoped for a time that an absolutely safe and specific remedial agency was in our possession. Now sufficient time has elapsed for us to conclude that many failures are to be expected with the Roentgen-ray treatment, that a certain amount of positive harm can come from it and that a vast amount of harm can result in this form of delay of radical treatment in cases where that alone offers any prospect of cure.

Now we are confronted by radium, for which more extended claims are made, and we are asked to believe that it will not only control the symptoms, but also cause a disappearance of the growth in many instances. It is therefore well to review our results with the operative treatment, in order that we may see whether the profession is justified in running after this new prophet, which to our mind is about to prove itself as false as those which have preceded.

It is obvious that a considerable time must elapse before the radium treatment can be stamped with the final verdict of history. A patient treated by radium, even though symptomatically improved, still has her fibroid, for I do not take seriously the claim that such tumors disappear under the influence of the radiations. I have operated on too many patients that have failed to be cured by radium to allow me to believe in such marvelous and specific efficacy. I am willing to grant that well-attested cases exist in which shrinkage of the growth has followed this form of treatment. I admit that a certain type of metrorrhagia can be controlled. I am not ignorant of the fact that more or less obscure relations exist between ovarian function and pelvic congestion, and therefore that in this way by influencing the blood supply of the uterus and its contained tumors it may be possible to check hemorrhage, arrest growth, and perhaps in a few favorable cases actually to reduce the size of this neoplasm.

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[12] Tracy, Stephen E.: Treatment of Fibromyomata Uteri; Whether Surgery or Radiotherapy, Pennsylvania Med. Jour., 1915, xviii, 353.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

I am willing to grant even that there is a certain direct effect of the rays on the tumors themselves, though unfortunately this is not a specific effect and therefore associated with similar changes in other tissues in which they are undesirable. In short, it cannot be denied, if anyone had the disposition to do so, that the sum total of the effects of both the Roentgen ray and radium on tumors of this group at times result in changes that are beneficial to certain patients. It is quite a difficult thing to say that these facts point to radiation as the treatment of choice or even to conclude that it is safe to try it first, before recommending the operative method. The majority of cases of appendicitis will recover from the attack under proper medical treatment, but that has not prevented the profession from taking the firm and uncompromising stand that appendicitis is a surgical disease, in which temporizing is to be condemned as unsafe. The Roentgen ray and radium have a pronounced influence over malignant growths, and if applied early enough doubtless will dissipate certain cases of carcinoma and sarcoma, but we nevertheless consider it malpractice to employ these measures in any case amenable to excision. The only difference in the failure of Roentgen rays and radium in the case of malignant disease and their failure in dealing with fibroids is in the fact that in the former case the inevitable fatalities at once drummed the treatment out of court, while in the latter the relatively benign character of the condition and the slow development of its morbidity and mortality from complications makes actual proof of the insufficiency of the treatment a matter of time and comparative statistics. Yet I maintain that it is not necessarv to wait for these slower processes if we use only what knowledge has already accumulated.

In my opinion we are now justified in asserting that both the Roentgen ray and radium have failed to demonstrate specific power over fibroid growths and therefore must be placed in the category of symptomatic forms of treatment which accomplish good results in occasional cases, like the use of corrosive plaster in epithelioma, but when used as a measure of general applicability, will do great harm in causing delay of the radical treatment and exciting false hopes of nonoperative cure that may deprive many of proper treatment. In all cases the treatment is expensive and often tedious. It does not safeguard against future trouble. There is no reason to believe that it can abolish the well-attested toxic effect of certain myomas on the heart and possibly other organs. Bearing in mind also the curious relationship between various radiations and malignant disease, one finds it is impossible to dismiss subsequent hazard of carcinoma or sarcoma in the pelvic tissues. Time only will settle this point and in any event the abnormal pelvic organs can be expected to show as time goes on a fair percentage of malignant conditions, whether or not they are the result of ray treatment or entirely independent of it. We can conclude that operation, by which the patient is rid completely and finally of the growth or growths and associated pathology, remains the ideal treatment. It is not time for the profession to take a stand and condemn the excessive zeal of those who would displace operation or relegate it to a last resort, and instead put radium in its proper place as a symptomatic treatment to be employed only when operation is contraindicated?

The great argument in the use of the Roentgen ray or radium is the absence of immediate mortality. But the question of mortality must be faced in any operation. There would be no operation of any kind if a chance of mortality were the predominant factor. If radium cannot fill the place of operations, and we have seen that this is the case, it is proper to assess the dangers of operation in order to determine whether they are prohibitive of ideal treatment.

In a previous series of 250 operations[1] my mortality figures amounted to 9.13 per cent., although the last operations proceeded with but three deaths (2.3 per cent.). In this series of 750 operative cases, covering a period of eleven years (from 1905 to 1915, inclusive), there were only thirteen deaths, reducing the mortality to 1.73 per cent.; and it gives me great satisfaction to be able to state that the last 100 of these operations passed off without a single fatality.

The results of radium would need to be marvelous, indeed, if it is to vie as a symptomatic treatment with an ideal curative treatment that shows so small a mortality.

Furthermore, it should be noted that a large number of these cases were such as could scarcely be undertaken with any hope of success by even the extreme radium enthusiast. Many possessed huge fibroids which had contracted extensive adhesions. Some were parasitic on the omentum or intestines. Numerous degenerative changes were present. Of the last 513 cases, 111 showed hyaline degeneration. In twenty-six it was either hemorrhagic, necrotic or calcareous or a combination of these. Carcinoma was associated in eight cases. Tuberculosis was noted in one case. Pyosalpinx was found fourteen times. In two cases tuberculous salpingitis was present. Ovarian cysts were found in forty-eight cases and intraligamentary cysts in seven. Of the ovarian cysts eight were dermoids. Two showed intracystic papillomas and in two early malignant changes were found. Sarcoma of the ovary was observed once. It will be noted that the percentage of associated malignant disease alone was larger than the percentage of mortality. What should we say of any form of treatment that tends toward delay?

Note, moreover, that these malignant conditions were actually present at the time of operation. In view of the admitted tendency for the development of malignant changes in such conditions with any treatment other than the operative, a further toll from cancer or sarcoma will be exacted at a later date. This is true entirely irrespective of the question as to whether the ray treatment actually predisposes toward malignant changes though several cases are already on record in which this seemed likely. Since all will admit that no one can diagnosticate these forms of malignancy early enough to cure more than a small percentage, is it not true that the effect of symptomatic treatment will be to raise the mortality from cancer and sarcoma, a step backward toward the dark ages?

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[1] Deaver, John B.: Am. Jour. Obst., 1905, lii, 858.

A considerable number of patients were operated on at the same time for other conditions, such as hernia, lacerations of the perineum, hemorrhoids, cholelithiasis, cholecystitis and appendicitis. The appendix was removed 513 times. About forty-eight were approximately normal, four showed acute suppuration. The remainder presented chronic interstitial or obliterative processes. The net gain in the correction of these conditions is an additional argument for operation.

The postoperative history was uneventful in the great majority of cases. A number of cases of pneumonia, pleurisy and phlebitis, ten in all, soon yielded to treatment and the recuperative powers and were followed by uneventful recovery. In fifteen instances the wound broke down, twice as a result of violent coughing. Ureterovaginal fistula and vesicovaginal fistula each occurred twice after panhysterectomy, requiring secondary operations. One patient developed both fecal and vesicovaginal fistula and two had fecal fistulas alone. One patient had postoperative parotitis. One patient, on the third day, began to vomit copiously, with signs of acute dilatation of the stomach, but was relieved by the stomach tube. Convalescence was prolonged in one case by cholecystitis, in another by a profuse purulent discharge and in a third by painful defecation. As a rule recovery was established in ten days to two weeks and the patients dismissed in good condition to continue their convalescence.

Operative deaths are in the majority of instances due to infection. In this series seven died of peritonitis. Paresis of the bowel, probably of toxic origin, was responsible for one death. Pneumonia, myocarditis, asthenia, cardiac failure and shock were given as the causes of the fatal termination in the remaining five cases.

Against this list of mortality and complications we cannot allow the advocates of radium to urge their procedure as possessing no mortality. Surgery is the only cure of malignant disease, and as mentioned above, the malignant degenerations found in this series actually exceeded the mortality percentage. Therefore any treatment other than operation should be credited with this mortality since it deprives the patient of his only hope of cure. Moreover, it is certain that these damaged organs if left in situ would inevitably in a large percentage of cases become the seat of malignant disease. The prevention of such changes by removal actually places a balance to the credit of operation, while it further condemns so-called conservative treatment.

Morbidity also will be a much more marked feature of any palliative treatment than it is of radical measures which remove the root of the troubles. Shall we not acknowledge frankly, therefore, that radium has failed as the treatment of choice for fibroids and associated conditions and return to the improvement of our most effective arm?

The operation of choice is supravaginal amputation of the uterus, because it is simpler and less liable to infection and other complications than removal of the entire uterus. An exception should be made when the cervix is distinctly abnormal by reason of lacerations, ulceration or inflammatory conditions. In this case the whole organ should be removed. Ovaries should always be left unless diseased. In younger women one ovary, or a portion of it, should be left, unless such marked inflammation or neoplastic changes are present as to make it dangerous to do so. In women beyond 40 more latitude in removal of the ovaries is justifiable, but they should never be needlessly sacrificed.

It is my practice to fix the round ligaments and the stump of the upper portion of the broad ligaments into the cut surface of the cervix, or, in the case of panhysterectomy, to the vagina on each side. This aids in restoring the support of the pelvic floor and distributes more equally the intra-abdominal pressure on the pelvic structures, causing less liability to bladder and rectal symptoms.

Myomectomy I rarely advise. Only occasionally does one see a case to which it is adapted. Myomas are usually multiple and when single are apt to be so large at the time of operation as to render hopeless any attempt to save a functionally sound uterus. Occasionally, in the case of young women, it is justifiable, but it is well to remember that it may be a more complicated and dangerous operation than removal of the uterus.

I must mention the service that will at times be rendered by the operation of hysterotomy. Occasionally it is impossible to distinguish between a pregnant uterus and one symmetrically enlarged by a myoma. In such cases an incision will promptly clear the diagnosis and prevent the error of either removing a normal pregnant uterus or leaving behind one which is merely the seat of a deceptive tumor. It is at times possible also by this method to expose a small bleeding mucous polyp or submucous myoma and save the uterus. Unsuspected malignant disease of the interior of the uterus also may be detected in this way and indicate a more radical procedure than would otherwise be carried out.

In conclusion let me say that the operation for the case of fibroid tumor of the uterus has been to me one of the most satisfactory in all surgery. If performed on operable patients at a timely season the mortality is exceedingly low, the results almost uniformly good. When cure is indicated symptomatic treatment has no place.

In the last 750 operations there were sixty-eight supravaginal amputations of the uterus without removal of the tubes and ovaries, 325 supravaginal amputations of the uterus with removal of both tubes and ovaries, and 145 supravaginal amputations with partial removal of the tubes and ovaries. There were ninety-nine complete abdominal hysterectomies, twenty vaginal hysterectomies, and ninety-three abdominal myomectomies.

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Sour Grass Soup and Ptomain Poisoning.—A recent investigation of several cases of illness occurring in the East Side of New York and thought to be due to ptomain poisoning were found to be due to sour grass soup. This soup is prepared from "qchav" or "szchav" leaves, commonly known as sour grass, a species of sorrel. It is rich in oxalic acid salts, an analysis in the chemical laboratory of the department of health showing as much as 2 grains of oxalic acid in an ounce of leaves, and double that in the stems. This investigation shows that sour grass soup is a popular dish on the East Side. Chemical analysis of the soup has shown about 10 grains of oxalic acid to a pint of soup.

RECENT PROGRESS IN THE TREATMENT OF UTERINE CANCER*

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The most worthy methods of treating uterine cancer are the radical abdominal operation of Wertheim, the extended vaginal operation of Schauta, Percy's operation for inoperable carcinoma, and radiotherapy with radium or Roentgen ray, or a combination of surgery and radiotherapy.

For a proper estimate of the value of these procedures it is highly essential that the statistical method or formula of Winter[1] be used, for in this manner only can a proper idea of each be determined. By this formula, which is based on the given number of patients observed, we determine the number or percentage who are alive five years after treatment. This is essential, because the operability, the primary mortality, permanent cures, and the absolute cures vary with each method.

There are two factors which contribute to the belief that cancer of the uterus may be cured by means other than surgical; first, the tendency of uterine cancer to remain localized in the pelvic cavity, metastasis being manifest only in the later stages of the disease; and second, the difference in malignancy or relative benignancy of certain types of uterine cancer. Thus we find that cancer of the fundus uteri (adenocarcinoma) is the least malignant of all cancers affecting that organ, and that cancer of the cervical canal or cervix proper (cylindric-cell carcinoma) is the most malignant. Cancer of the portio vaginalis (squamous-cell carcinoma) stands between the first two types in point of malignancy. It is for these reasons that the results attained from any form of treatment for cancer of the cervical canal are as a rule unfavorable. Cancer of the portio vaginalis and corpus carcinoma give a more favorable prognosis.

It is difficult or almost impossible to obtain accurate data regarding results from the various treatments in each of the above types of uterine cancer. As a rule cases are reported simply as cancer of the uterus, no distinction being made as to kind or type. When no such distinction is made, the reports always appear more favorable. Every surgeon of experience can recall cases of inoperable cervical cancer which he has thoroughly cauterized and curetted; and the patient remained free from recurrences, in some instances, for years. These are, as a rule, the relatively benign forms of squamous-cell carcinoma of the portio vaginalis, the type of uterine cervical cancer which helps to increase the number of cured patients after any form of treatment.

TABLE 1.—RADICAL ABDOMINAL OPERATIONS FOR CANCER OF THE CERVIX

By Whom Reported	Where Reported	No. of Patients Observed	Operability, per Cent.	No. of Operations	Primary Mortality	Cures after Five Years	Absolute Cures, per Cent.
Mayer, A. (Doederline Clinic)	Ueber das Uterus Karcinom und die Ergebnisse seiner Behandlung mit total Extirpation nach Wertheim, Monatschr. f. Geburtsh. u. Gynäk, 1911, xxxiii, 701	211	56	118	38	34	16.7
Bovee, I.W.	Statistics of Radical Operation for Cancer of Cervix Uteri, Am. Jour. Obst., 1912, v, 66, 380	.....	.....	36	9	7	.....
Noble, G. H.	(Atlanta)	.....	.....	38	1	13	.....
Kelly, H. A.	Bull. Johns Hopkins Hosp., 1913, xxiv, 372	188	.....	82	22	18	16.5
Faure, J. L. (Paris)	Traitement du cancer du col de l'utérus par l'hystérectomie abdominale, Bull. et mém. Soc. de chir. de Paris, 1913, xxxix, 1061	.....	.....	24	2	17	.....
Clark	The Radical Operation for Cancer of the Uterus, Surg., Gynec. and Obst., 1913, xvi, 255	.....	.....	36	3	4	.....
Waegeli	Le traitement opératoire du cancer utérin a la clinique gynécologique de l'Université de Genève, Rev. de gynéc., 1914, xxiii, 29	323	26.89	37	13	7	18.91
Wilson	The Results of Abdominal Operative Treatment of Cancer of the Uterus, Med. Press and Circular., 1914, xcviii, 302	98	22.5	32	9	10	10
Prochownick, L.	Behandlung und Statistik des Gebärmutterkrebses, Zentralbl. f. Gynäk., 1915, xxxix, 627	323	.....	123	25	16	.....
Peterson, R.	Tr. Am. Gynec. Soc., 1916	.....	.....	40	9	18	.....
Wertheim	International Congress of Medicine, London, 1913. Section 8, Obstetrics, p. 97	1,501	50	566 714	131 or 23.11% 119 16.6%	144 or 25.44% 186 53.3%	29
Combined		2,644	Average, 38.85	1,280	250 or 19.53%	330 or 25%	Aver. for 6 operators, 16.52

Although complete data for a computation of the relative value of each method of treatment cannot be had at this time, sufficient data are at hand to show the results of the surgical treatment, and to give us a fair estimate of the value of the others.

Regarding the radical operation as advocated by Wertheim, Ries, Werder, and others; the author[2] in 1911 published a collective abstract of the results obtained in 2,765 such operations. The figures for this operation at that time were an operability of 65.17 per cent., and a primary mortality of 19.94 per cent. The latest report obtainable from the clinic of Wertheim[3] in Vienna is that given by him at the International Congress in London, in 1913. In this report Wertheim gives his operability as 50 per cent., with a primary mortality of 16.6 per cent.; definite cures as regards the number of radical operations, 42.5 per cent.; definite cures as regards survivors of the radical operation, 53.3 per cent. The absolute cure of all uterine cancer patients observed, in all 1,501, was 20 per cent. On account of the European war, complete reports from all the continental clinics are not available.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Winter: Vorschläge zur Einigung über eine brauchbare Karzinomstatistic, Zentralbl. f. Gynäk., February, 1908, xxxii, 169; Ueber die Prinzipien der Carzinomstatistic, Zentralbl. f. Gynäk., 1902, xxvi, 81; Noch einmal die Carzinomstatistic, ibid., 545.

[2] Jacobson, J. H.: The Results Attained by the Radical Abdominal Operation for Carcinoma of the Uterus, THE JOURNAL A. M. A., Jan. 14, 1911, p. 96.

[3] Wertheim: International Congress of Medicine, London, 1913, Section 8, Obstetrics, p. 97.

In Table 1 is given a list of reports for the radical operation performed for cancer of the cervix by other operators than Wertheim, with Wertheim's results appended for comparison. Table 2 gives the results from the same operation, in cases in which the type of cancer is not stated. It will be noted that the most reliable figures are those pertaining to the number of operations performed, the primary mortality, and the permanent cures after five years. In all, there are 1,778 operations, with a primary mortality of 19.68 per cent., and permanent cures after five years of 23.46 per cent. Approximately one out of every four women operated on by the radical abdominal method will pass the five year limit.

The Schauta[4] extended vaginal operation seems to have its special indication, giving results in the hands of the most experienced which approximate those obtained from the radical abdominal operation. In this country the operation has never been extensively employed, although it is particularly indicated in obese women in whom the radical method is difficult.

TABLE 2.—TYPE OF UTERINE CANCER NOT CLASSIFIED

By Whom Reported	Where Reported	No. of Patients Observed	Operability, per Cent.	No. of Operations	Primary Mortality	Cures after Five Years	Absolute Cures, per Cent.
Cobb, Farrar	Boston Med. and Surg. Jour., 1913, clxxv, 85	420	36.1	55	12	7	.....
Taussig, F.	Am. Jour. Obst., 1912, lxvi, 596	...	30	60	18	14	.....
Cullen, T. S.	Am. Jour. Obst., 1912, lxvi, 596	...	.....	49	7	7	.....
Sampson, J. A.	The Radical Operation for Cervical Cancer, New York State Med. Jour., 116, xvi, 62	...	.....	25	5	4	.....
Busse, W. U. (Kroenig Clinic)	Dauerresultate bei dem Operation des Uteruskarcinoma nach den abdominalen methoden, Monatsch. f. Geburtsh., 1912, xxxv, 35	79	78.95	59	15	19	25.33
Peto, E.	Heilung des Gebärmutterkrebses mittels des Wertheimschen Operation, Virchows Arch. f. path. Anat., 1913, ccxviii, 470	...	63	100	14	10	10
Hoffmeier, M.	Zur Operation Behandlung die Carcinoma Colli Uteri, Ztschr. f. Geburtsh. u. Gynäk., 1911, lxix, 543	...	.....	90	18	32	.....
Bumm, E.	Ztschr. f. Krebsforschung, 1910, x, 105	100	60	60	12	24	.....
				498 1,280	101 or 20.3% 250	87 or 17.47% 330	
Table 1				1,778	351 or 19.68%	417 or 23.46%	

Thaler[5] recently reported the results from the Schauta clinic up to the year 1915; out of 1,305 patients observed, there were 654 operations, with permanent cures after five years of 133, or 17.4 per cent. The absolute cure of all cases observed was 10 per cent. Hofmeier[6] reports ninety-one such operations, with eleven deaths, and eighteen five-year cures; while Prochownick[7] in 200 operations had twenty-two deaths, and twenty-two five-year cures. The totals for these reports are 945 operations, with 173, or 18.31 per cent., alive after five years. The operability as given by Schauta[8] averages 58.1 per cent.

From an operative standpoint recurrences following surgical operations for cancer of the uterus have heretofore been considered hopeless, but Zweifel[9] from the Jena clinic in 1914 records twenty-three cases of operation for recurrence. Thirty-one operations were performed on twenty women. Of these patients 30 per cent. are alive and free from recurrence after seven and one-half years. On the basis of this study Zweifel advocates, and properly so, a clinical control of all patients operated on for cancer, especially during the first two years. The necessity for such supervision has been emphasized by Wertheim, and also by Percy in this country.

Regarding the operation of Percy[10] now so widely employed for the treatment of inoperable forms of cancer, the method has much to recommend it. The slow dissemination of a coagulating degree of heat through the carcinomatous mass is a new principle in the treatment of cancer. With no other known method can the fixed pelvic structures be so loosened, and mobilized. The tissues following the application of a low degree of heat are literally coagulated and dissolved. The method has an operability of 90 per cent., but so far nothing can be said of the primary mortality, the permanent cures or absolute cures. The primary mortality is estimated at 50 per cent., the permanent cures after five years cannot be spoken of at this time, as no one has thus far published a large enough series of cases to form any accurate estimate of the actual curability by this procedure.

It is highly probable that were this method used in earlier cases of cancer of the uterus, the results would be more favorable. In a consideration of cautery and heat operations, one must not forget that Mackenrodt[11] developed and used a method which he designated "igniextirpation," and after a wide experience with it he abandoned the method for the radical abdominal operation. The Percy operation when properly performed is the best means at our command for the treatment of inoperable or borderline cases of cancer of the uterus.

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4. Schauta: Die erweiterte vaginale total Extirpation des Uterus bei Kollumkarzinomen, Monograph, Joseph Safar, Vienna, 1908.
5. Thaler, H.: Zur erweiterten vaginalen Karzinomoperation, Zentralbl. f. Gynäk., 1915, xxxix, No. 41.
6. Hofmeier, M.: Zur Operativ-Behandlung die Carcinoma Colli Uteri, Ztschr. f. Geburtsh. u. Gynäk., 1911, lxix, 453.
7. Prochownick, L.: Behandlung und Statistik des Gebärmutterkrebses, Zentralbl. f. Gynäk., 1915, xxxix, 627.
8. Schauta: Monatschr. f. Geburtsh. u. Gynäk., 1912, xxxvi, 202; Die erweiterte vaginale operation bei Carzinoma Colli Uteri auf Grund zehnjahreger Erfahrung, ibid., 1911, xxxiii, 680.
9. Zweifel, Erwin: Dauere Folge nach Rezidivoperationem bei Uterus Carcinomen, Arch. f. Gynäk., 1914, cii, 411.
10. Percy, J. F.: Heat in the Treatment of Carcinoma of the Uterus, Surg., Gynec. and Obst., January, 1916, p. 77.
11. Mackenrodt: Ueber die Igniextirpation bei Scheidengebärmutterkrebs, Verhandl. d. Gesellsch. f. Geburtsh. u. Gynäk.; Ztschr. f. Geburtsh. u. Gynäk., 1896, xxxiv, 130.

The rapidly increasing literature on radiotherapy in the treatment of uterine cancer demonstrates that in radium and the Roentgen ray we now have powerful agents which have a favorable or curative influence on the disease. The recent articles by Boggs,[12] Case,[13] Miller,[14] Kelly and Burnam,[15] and von Franque[16] reveal the fact that a new era is at hand in the treatment of uterine cancer.

According to von Franque (1915) only three patients treated with radium have been reported who have remained free from recurrence after five years; one by Abbe of eight years, and one each by Abbe and Degrais, of six years. Of the patients with lasting cures for shorter periods mentioned by von Franque and others, the most favorable report is the recent one of Kelly and Burnam.[15] They report results in 347 patients treated by radium. They state that in early and good operable cases the use of radium combined with operation adds greatly to the ultimate cure. In twenty such cases there have been no recurrence. In 327 patients, all inoperable, 20 per cent. have been apparently cured, and in others the relief of symptoms was very marked. Bad results other than failure to cure have been reported by Bumm, Doderline and Schauta. Wertheim[17] states that out of eleven patients treated by radium, nine died from the treatment. Cases of rectal and bladder fistula resulting from its use have been reported.

The recent improvements in Roentgen-ray technic for treating cancer, that is, the Coolidge tube, adequate filters, the 9 to 10 inch spark gap, cross firing; or in other words, the ability to give larger doses of hard rays of greater penetrating power, will in all probability overshadow the former results from roentgenotherapy. Here again sufficient time must elapse before final results can be recorded.

It seems certain that the destruction of cancer cells by roentgenotherapy is an established fact. This has been proved histologically. Case[13] estimates from a review of the literature that in about 25 per cent. of the cases of uterine cancer, the temporary effect of Roentgen treatment has been satisfactory.

Von Seuffert[18] thinks that it is not definitely decided whether radium and mesothorium treatment should be given preference to Roentgen rays. The author weighs the advantages and disadvantages of each and comes to the conclusion that at present in the treatment of carcinoma of the uterus, Roentgen rays, radium and mesothorium are of about equal value. In certain cases the Roentgen rays are to be given preference, because the necessary amounts of radioactive substance for treatment without danger are at present unobtainable.

From the foregoing résumé of the methods of treatment of cancer of the uterus, it must be at once apparent that up to the present time our best results are obtained from surgical measures, more particularly the radical abdominal operation. Cautery methods and radiotherapy seem to be given a consideration in the treatment of this disease which is unfair to surgical methods of approved value.

Why cancer in one part of the body should be treated differently from the same disease in another part is difficult to comprehend, yet this seems to be the case in uterine cancer. The surgical removal of the diseased organ and the removal of the contiguous tissues together with the regional lymphatic glands are principles which are just as necessary in the cure of uterine cancer as in any other type of carcinoma.

It is therefore appropriate at this time to emphasize the necessity of giving those patients who present themselves in an operable stage the benefit of surgical treatment, a procedure which conforms to the recognized principles for the successful treatment of cancer. There is at the present time a tendency to deviate from this rule and to give preference to the methods of treatment which have not as yet given results justifying their universal application.

Combined methods of treatment, such as operation followed by the use of Roentgen ray or radium, seem most logical.

In 1908 the author,[19] in conjunction with H. W. Dachtler[20] of Toledo, Ohio, began to treat all patients systematically with the Roentgen ray after the radical abdominal operation of Wertheim had been performed. A technic for giving this treatment was devised whereby the patient was placed in an exaggerated lithotomy position, or in the knee chest position, so that the pelvis might be emptied of viscera which would have a tendency to obstruct the action of the rays. In this way irradiation was given per vagina, as well as through the abdomen, and all parts of the pelvic cavity where thoroughly treated by the Roentgen ray. These treatments were given as soon after the operation as was possible, and were continued over long periods of time. The advent of the Coolidge tube has greatly simplified this method of postoperative treatment.

The writer has performed typical Wertheim operations on twenty patients, among whom there have been five deaths. Thirteen of these patients have had systematic postoperative irradiation with the Roentgen ray. Three are alive and have been free from recurrence more than five years, two for three years, three for two years, and two for one year. We have had two cases which seem to demonstrate without question the value of postoperative Roentgen-ray treatment. The first case was a patient already reported by H. W. Dachtler,[20] operated on in September, 1907, by the abdominal method, for cancer of the vaginal portion of the cervix. In this case there was a carcinomatous infiltration into the right broad ligament which was not removed at operation. The patient was thoroughly treated by Roentgen ray after the operation and the mass in the broad ligament entirely disappeared. The patient is alive and well about nine years after the operation.

The second patient was operated on in August, 1913, for cancer of the body of the uterus with extension of the disease into the iliac and lumbar lymphatic glands. These glands were removed at operation and microscopic examination showed them to be malignant. The case was one which is generally conceded hopeless, as recurrence is always the rule. The postoperative Roentgen-ray treatments were most thoroughly applied both through the vagina and abdomen. This patient is now in good health three and one-half years after the operation.

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[12] Boggs, Russel H.: The Local Application of Radium Supplemented by Roentgen Therapy, Surg., Gynec. and Obst., 1916, xxii, 358.

[13] Case, James T.: The Roentgen Treatment of Uterine Carcinoma, Surg., Gynec. and Obst., April, 1916, p. 429.

[14] Miller, C. Jeff: Radium in The Treatment of Carcinoma of the Cervix Uteri, Surg., Gynec. and Obst., April, 1916, p. 437.

[15] Kelly, H. A., and Burnam, Curtis F.: Tr. Am. Gynec. Soc., 1916.

[16] Von Franque, Otto: Ueber die gegenwartigen Stand der Strahlen Behandlung des Gebärmutterkrebs, Ztschr. f. Geburtsh. u. Gynäk., 1915, lxxvii, 244.

[17] Wertheim: Quoted by von Franque.

[18] Von Seuffert, Evon: Present Status, Problems and Limitations of Radiant Treatment of Cancer, Strahlentherapie, 1914, iv, 740.

[19] Jacobson, J. H.: The Radical Abdominal Operation for Cancer of the Uterus, Ohio State Med. Jour., August, 1909, v, 451.

[20] Dachtler, H. W.: Preliminary Report on Postoperative Roentgen Irradiation Following the Radical Operation for Cancer of the Uterus, Am. Quart. Roentgenol., December, 1909.

SUMMARY

1. In early or operable cases of uterine cancer, the best results are obtained from the radical abdominal operation.
2. Owing to the difference in malignancy of uterine cancer, the type of cancer present should be determined whenever possible. Cancer of the vaginal portion and of the body of the uterus should be treated preferably by operation.
3. What shall be done with the borderline cases is to be determined by the operator's judgment, and his experience with the radical abdominal operation.
4. Until radium, Roentgen ray, or Percy's operation shall have proved their superiority to established methods of surgical treatment, their use should be restricted to the inoperable cases.
5. A combined form of treatment, that is, operation with radiotherapy, is a method of demonstrated value. Systematic irradiation with Roentgen ray or radium should follow every palliative or radical operation for uterine cancer.[21]

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. TRACY, DEAVER AND JACOBSON

Dr. J. H. Carstens, Detroit: I quite agree with Dr. Jacobson on general principles. There is only one thing I want to repeat, and that is to make an early diagnosis. Cancer has a beginning. It is so small that you cannot see it, but it finally gets as large as a pinhead, then as large as a bean, then as big as your head, and then any old woman can see and recognize it. What we want is the early diagnosis, and if there is anything that makes me disgusted, it is neglect to make a microscopic examination in every case of curetting or tear in order to get an early diagnosis. You may fail a hundred times, but once in a while you will make the diagnosis early.

So far as the other is concerned, I may be dull of comprehension when I hear my friends speak of the danger of contracting cancer by being exposed to the Roentgen rays. It is funny how the Roentgen ray can cure cancer in one case and in another case produce it. Electricity and these other forms of treatment for cancer may come and go, but surgery stays here forever. I agree with everything that has been said concerning operation for uterine fibroids. I agree with Dr. Deaver in everything he said. The only question is that fibroids do not kill immediately; you need not do the operation today or tomorrow, as in appendicitis. You can get the patient into good condition; you may give her time to consult relatives, and when everything is in good condition, then the time is propitious for successful operation. There is only one thing — and really it pained me after hearing Dr. Deaver's paper that he should talk again about hysterotomy. I have been able to diagnose pregnancy, and I do not have to cut into the uterus to find out whether a woman is pregnant. You can always make a diagnosis, but if the case is obscure you could easily make a roentgenogram and if the patient is pregnant, you may find the bones of the fetus.

Dr. Henry O. Marcy, Boston: In 1887 Apostoli was prominent because in Europe he had made a record. Mr. Keith of Edinburgh had then 70 cases of large fibroid tumors removed without a single death. He said, "Apostoli is teaching us a new faith; we shall cease to use the knife." What came of it? I asked Apostoli to operate for me in my hospital. I had seen much of the work of Drs. Kimball and Cutter sending a very powerful continuous electric current through the tumor by means of deep punctures in it with especial electrodes. This treatment proved disastrous. Although thus predicated I felt in the multiple evidence of the benefit of the Apostoli treatment I must be wrong. Therefore I purchased the expensive, troublesome apparatus and with the utmost care I recorded quite a thousand applications. Strange as it may seem, the patients all claimed to be much benefited, but I saw no improvement and abandoned its use. The experience of others corroborated my conclusions. The method fell into disuse and is now almost entirely forgotten. Electricity has been relegated into obscurity, and with most of us, into absolute forgetfulness. I can think it very probable that radium and the Roentgen ray will likewise be forgotten in their application to such growths. Deaver is a wise man; he knows a great deal that the obstetrician cannot teach him — and if you are in doubt as to pregnancy, make a roentgenogram and find out what is in the uterus. Dr. Carstens is very wise in giving this simple direction. Surgery is the only method worth discussing in this connection.

Dr. Henry Schmitz, Chicago: I subscribe to every statement made concerning the indications for surgical treatment of these conditions. I have done a great deal of clinical investigation with the Roentgen ray and radium. The question arises in my mind whether the attitude taken by Drs. Deaver and Jacobson is the correct one. I believe it is not going too far to say that their condemnation of these procedures has been entirely incorrect. Cancer is either operable or inoperable. When it is operable, it is, under all circumstances, a surgical disease. When it is advanced beyond the reach of surgery it becomes inoperable and then the Roentgen rays and the gamma rays of radium are indicated. Under these circumstances the rays will ameliorate the patient's condition better than any other therapeutic agent known. Radium is indicated in cancer of the uterus only when the condition is entirely inoperable. Many cases of inoperable cancer of the uterus become operable under radium treatment. The surgeon must then remove the uterus to give the patient the benefit of surgery. Not every case of myomatous uterus is operable. It is in the inoperable fibroid that Roentgen ray or radium rays are indicated. The result of the use of the rays is almost always a clinical cure. From my personal standpoint, then, if tumors of the uterus are operable, they must be subjected to surgery and in this I heartily agree with Drs. Deaver, Tracy and Jacobson. But when they have become inoperable, then the Percy heat method, the massive Roentgen ray or radium rays are the remedies to be recommended.

Dr. Florus Fremont Lawrence, Columbus, Ohio: I want to emphasize as strongly as I can everything Dr. Deaver said. A man who advises a woman with myoma, fibroma, or any other kind of neoplasm, "to let it alone, that it won't give her any trouble," ought to be handled very severely by his medical society, if not elsewhere. Any neoplasm may become malignant and many do. In one series of 100 cases of hysterectomy for fibroids done at my hands, we found that fourteen were undergoing sarcomatous or carcinomatous degeneration. In others it was as low as two per hundred, thus making an average of something more then five per hundred undergoing malignant change. At New Orleans I demonstrated my method of supravaginal hysterectomy for fibroids. The tumor is delivered through the abdominal incision. Then by placing rope about the base of the tumor the broad ligaments are clamped to the side of the stump. The peritoneal covering of the uterus is incised and pushed down before and behind. Then the tumor is removed by a V incision, the apex of V being down. One ligature on each side secures both ovarian and uterine vessels. Not a drop of blood has been lost from the patient, and only a slight venous bleeding from the tumor mass. When you have sutured over the stump you have reformed the convex pelvic roof instead of making a concave one, and a minimum amount of suturing is required. There is no loss of blood, no shock, and the patient is as free from all postoperative trouble as after a simple ovariotomy.

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[21] In addition to the references already given, the following will be found of interest:
Wiebel, W.: Die Klinische Stellung des Carcinoma Corporis Uteri, Arch. f. Gynäk., 1913, c, 135.
Peterson, R.: Primary and End Results of Fifty-One Radical Abdominal Operations for Cancer of the Uterus, Surg., Gynec. and Obst., 1916, xv, 135.
Von Franque: Ueber den gegenwartigen Stand der Strahlenbehandlung des Gebärmutterkrebses, Ztschr. f. Geburtsh. u. Gynäk., 1915, lxxvii, 244.
Von Ott: Die operativen Behandlungmethoden des Gebärmutterkrebses u. d. dabei erzeilten Resultate, Berl. klin. Wchnschr., 1913, L.
Taylor, Howard Canning: The Radical Operation for Carcinoma of the Uterus, Surg., Gynec. and Obst., January, 1916, p. 70.

Dr. Chester M. Echols, Milwaukee: In our enthusiasm to cut something out, especially if it be a tumor which might become malignant, I think we are apt to overlook the definite indications for myomectomy as opposed to hysterectomy or supravaginal amputation. I admit that the indications are not present in the majority of cases, but in young married women there should be left undisturbed the function of childbearing and of menstruation if at all possible. In my student days I was taught that myomectomy was more dangerous than hysterectomy because of the possibility of bleeding and other complications. My experience in a considerable number of myomectomies has convinced me that its indications are often overlooked. One case illustrates quite a class: Two and a half years ago the wife of a prominent physician in our city was desirous of having children. Because of the presence of multiple fibroids of moderate size she was advised to have a hysterectomy. I examined her and advised that she have a myomectomy done, which she did. She is now the happy mother of a three or four months old baby. It is interesting to note that careful examination shows that there has been no recurrence of tumors, not even to the size of a cherry. Hysterectomy can always be done as a last resort in case of recurrence of the tumors, and it is an operation practically devoid of danger.

Dr. J. A. Ruben, Pittsburgh: If the use of Roentgen rays and radium in the treatment of malignant diseases or tumors of the uterus can be considered malpractice, then the use of any new remedy, not universally accepted, must be considered malpractice. Regarding the old idea of Roentgen rays causing cancer, it may be said that the earlier roentgenologists who sacrificed their lives trying to develop something new that would relieve or cure disease did so in ignorance of the physical character of the force to which they exposed themselves and their patients. They did not know that the Roentgen rays and the rays of radium could be divided into soft, medium and hard rays. The soft rays have so little penetrating power that they can be stopped by a sheet of paper, and are mostly responsible for the burns of both patients and operators. On the other hand, the hard rays have such power of penetration that they may pass through armor plate; these cause little or no injury to normal tissues, even in very large doses. Of the pioneers, in this work, probably some will die of cancer—some have—but today we understand better what we are handling. With the use of the radiometer for measuring the Roentgen ray doses and with standardized technic (3 millimeter thickness of aluminum or lead as filter), even in the treatment of deep seated conditions, our patients suffer no harm. The operator also, with modern protection, standing behind a leaded wall, can feel perfectly safe. Finally, a number of gynecologists are now doing this work themselves, and under their own careful observation, can soon distinguish those cases unsuitable for radiotherapy, and in sincere honesty, advise a timely operation.

Dr. Stephen E. Tracy, Philadelphia: I do not believe that all fibromyomata uteri should be treated by surgery, nor do I believe all should be treated by roentgenotherapy. I question the sincerity of the man who claims he can cure all such tumors, except those removable by vaginal myomectomy, by roentgenotherapy. I agree with Dr. Schmitz that some cases should have roentgenotherapy. Dr. Pfahler will not treat a case of fibromyomata uteri unless referred to him by a surgeon; he wants to know what he is treating. In fibromyomata uteri associated with malignancy, I believe that early radical operation will give the best results. Formerly, Roentgen treatment for malignant disease in the female pelvic organs was practically useless. Now, roentgenologists claim that with a better technic, more powerful machines, and a competent operator, much may be accomplished in these cases. In view of these claims, it would seem that better results should be secured in cases of fibromyomata uteri associated with malignancy if the radical operation be followed by systematic Roentgen treatment by a competent operator, the same as is done in carcinoma of the breast and in other superficial malignancies. I have never seen a case of fibromyomata uteri in which I was afraid to operate, and my mortality does not indicate that I have been reckless. All my patients have been studied carefully, and in some cases it has taken weeks, and in a few even months to get the patient in a sufficiently good condition to undergo an operation with a reasonable hope of a satisfactory result. I agree with Dr. Carstens that material removed by the curet should be examined microscopically. Dr. Lawrence referred to his method of hysterectomy. This will no doubt work out well in some cases, but to use such a technic, it is necessary to have cases made to order. His technic cannot be carried out in large intraligamentous nodules, or in tumors associated with inflammatory lesions. I fully agree that the cervical stump should be sutured to the infundibulopelvic and round ligaments. This we always do, but with a different technic. Dr. Echols spoke of myomectomy. In the paper I stated that we should know the age at which the degenerations take place in these tumors in order to decide whether we should do conservative or radical surgery. In women under 40, if possible, a myomectomy should be done, after 40, as a general rule, on account of the changes in the uterus and tumor, a hysterectomy is the better operation.

BACTERIAL VACCINES IN TREATMENT OF PULMONARY TUBERCULOSIS

IMPRESSIONS AS TO CLINICAL VALUE *

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Although I have had opportunity to note the apparent effect of vaccine therapy, independently of tuberculin, in a large number of cases, I will submit merely a preliminary statement of general impressions derived from clinical observation.

Do bacterial vaccines exert an influence for good in pulmonary tuberculosis, and, if so, under what conditions and with what restrictions?

Are they capable of doing harm, and if so, what precautions should be observed in, and what are the special contraindications for their use?

My position, from the data thus far obtained, is that:

1. Vaccine therapy should by no means be permitted as a routine measure in the treatment of tuberculosis.
2. It has a legitimate place as a tentative procedure in a class of cases subject to certain modifying limitations.
3. Careful adjustment of dosage is vitally important.
4. The number of pulmonary invalids for whom vaccines are properly applicable is comparatively small.
5. The results obtained are very uncertain.
6. The proportion of those exhibiting improvement is disappointing.
7. The gain established in a few is sometimes impressive.
8. Vaccines not infrequently are shown to possess vast possibilities of injury.
9. Finally, the attitude of the profession should be one of the utmost conservatism.

It may be added parenthetically that the foregoing statements seem to be true, to a certain extent at least, of tuberculin therapy.

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Apropos of these rather definite opinions, attention should be called to the not infrequent delusion regarding the efficacy of this treatment, to the indiscriminate administration of vaccines for nearly all classes and conditions of pulmonary tuberculosis, and to the deplorable results occasionally noted from the abuse of an agent which, intelligently employed, may become at times of genuine value.

A single case may serve as an illustration of the careless empiricism displayed in the use of bacterial vaccines.

Case 1.—A woman, aged 32, came under my observation in June, 1915, presenting the history of a tuberculous infection seven years previously. Since that time she had visited various health resorts and sojourned in several sanatoriums, submitting to tuberculin medication for prolonged periods, as well as to the administration of bacterial vaccines, with subsequent unfavorable results. She came to Colorado two weeks after a rather severe hemorrhage, exhibiting loss of weight, very considerable elevation of temperature, dyspnea and occasional chills and night sweats. There were physical evidences of active tuberculous involvement in the right lung from the apex to the third rib and to the lower edge of the shoulder blade. There was also active involvement in the left lung. Tubercle bacilli were numerous in the sputum. For months the tendency had been that of a progressive decline. In the face of these clinical manifestations and physical signs, the patient was being given, at intervals of from one to three days, a stock vaccine containing six different micro-organisms. No culture had been taken of the sputum and hence no information had been obtained as to the nature of the infection, yet the patient was provided with an elaborate outfit and directed to have her physician or nurse administer the vaccine in accordance with instructions received.

As there was no clinical or bacteriologic basis affording the slightest justification for this treatment, it was promptly suspended, and the patient was committed to a systematic regimen in accordance with conservative methods. In ninety days the fever was under complete control and there were other evidences of marked clinical improvement, including a gain in weight of 15 pounds and a pronounced lessening in the activity of the tuberculous process.

The development of unfavorable symptoms following the use of bacterial vaccine should always demand its prompt discontinuance.

In this connection it is interesting to note a similar illustrative example of the misuse of tuberculin:

Case 2.—In May, 1915, a patient from one of the large Eastern cities presented a letter of introduction from an active practitioner who described the condition, reported the use of an autogenous vaccine and directed that at regular intervals 3.5 mg. of Koch's old tuberculin be given.

Examination of the chest disclosed the presence of an active and extensive tuberculous involvement in the left lung, moist râles being recognized from apex to base. The sputum was literally peppered with tubercle bacilli. It is almost unnecessary to state that the tuberculin was discontinued and the patient put in bed. The temperature has since been normal, he has gained 35 pounds in weight, the cough and expectoration have entirely disappeared, and physical examination reveals but an occasional semidry click just outside the left precordial region.

Can any one fail to recognize the relation of cause and effect in such instances as these?

It is possible that the popularity of bacterial vaccines as a conventional measure for pulmonary disease has not been as frequently observed by other clinicians in health resorts. In this event, my impression as to their widespread employment before resorting to climatic change must be regarded as one of the anomalies of my experience. While the detrimental effects of injudicious specific medication are not always so conspicuous as in the cases cited above, evidences of an unfavorable influence are not wanting in my own cases, as shown by occasional chills, elevation of temperature, increase of cough, malaise, or varying degrees of prostration. While these disturbing manifestations may of course be attributed to improper dosage and, therefore, are capable of later amelioration or suppression, a happy adjustment of size and frequency of injection is not always to be attained. In the absence of precise laboratory methods to control their use, the results of their administration, especially under present methods of preparation, inevitably become a matter of extreme uncertainty. As usually prepared, even by those well equipped for this work, there is no positive assurance that the micro-organisms constituting the vaccine are identical with those chiefly responsible for the infection and its consequences in the individual. Cultures taken on successive days with equal care do not always furnish the same results. The use of vaccines representing the isolation and incorporation of several varieties of micro-organisms is necessarily subject to still greater hazards. Notwithstanding accurate standardization, the clinician in such instances possesses no means by which to adjust separately the dosage of the several component ingredients. While a degree of immunity may thus be established for one infection, no corresponding influence is exerted on the others. It is entirely possible that, owing to modifying influences pertaining to the host and to important changes in the invaders incident to environment and adaptation, certain constituents of the vaccine may later become not only useless but actually harmful by prolonging the negative phase and lessening individual resistance.

It would appear that the use of several separate vaccines, each consisting of but one type of micro-organism, would only add to the confusion, because of the difficulty of such an interspersing of doses, in allowing opportunity for clinical deductions.

In these cases the work with the complement fixation test is of interest and worthy of commendation. It is perfectly conceivable that in some instances the information obtained by this means may be of the utmost value. This has been well shown recently in two of my cases, in which the patients exhibited an obscure fever with other symptoms suggesting tuberculosis, which caused their removal to Colorado. In both instances the infection was shown by the complement fixation test to be gonococcic in nature and was favorably influenced by vaccine therapy. Some difficulties, however, are at present encountered in employing this test to ascertain the predominant secondary infection in pulmonary tuberculosis.

It should perhaps be recognized that embarrassment may result from the existence of intercurrent complications. An influenza or other infection, perhaps of remote origin, may yield a positive response on exhibition of the complement fixation test and yet be without especial significance as regards the lessened individual resistance occasioned by another secondary infection. Thus in some cases it may be impossible to conclude that a positive test from one organism affords any direct information as to the infection from which the patient is actually suffering. Furthermore, even in the presence of a positive test, the lack of definite control renders it impossible to measure with any degree of accuracy the extent of the immunity established.

As illustrative of some of these considerations the following case is of some interest:

Case 3.—In March, 1913, a patient came to Colorado fifteen months after the development of initial pulmonary symptoms. There was great loss of weight, prostration, fever, dyspnea, cough and expectoration, with well defined physical signs in each lung, and especially active involvement of the left. As a result of rest in bed and other rational measures and, without recourse to specific medication, a gain of 36 pounds resulted in the course of eight or ten months, with corresponding change for the better in all the clinical manifestations, including the physical signs. The improvement finally ceased, and was followed by a stationary period for several months, at the end of which a vaccine, prepared in ampules by Drs. Simon and Burdick, appeared to be of very substantial benefit in diminishing the cough and expectoration and lessening the moisture in the left chest. The vaccine was exhausted at the end of about three months, and a culture taken at that time disclosed an entirely different type of infection. Another vaccine was prepared by Dr. Burdick and, although administered for two or three months in steadily decreasing doses, exerted an apparent unfavorable influence, whereupon its use was suspended. After several months without appreciable change in the general condition of the patient, culture of the sputum revealed a still different combination of infections, and a vaccine was prepared by Dr. Waring. This seemed at first to have a beneficial effect, but later became apparently inert.

It is possible that in such an instance the information to be obtained from the use of the complement fixation test might prove of definite value. It is also suggested by this and other experiences that the effects produced by bacterial vaccines may be merely relative and the improvement but transitory, even though for a time an apparent increase in the defensive resources is developed. Desirable as it is to avoid the production of a reaction in such cases, an indication of tolerance is not necessarily an evidence of acquired immunity and is quite insufficient to justify an assumption as to the benefits afforded. Similarly, the absence of unpleasant symptoms does not always suggest the wisdom of continued increase of dosage, but the nature of the clinical manifestations may represent important contraindications.

In this connection especial attention should be devoted to the condition of the kidneys. In many instances these organs are already overtaxed in the effort to eliminate toxins incident to the tuberculous and mixed infections, especially those of streptococcic origin. An additional burden is often imposed by an injudicious attempt to increase largely a protein diet. Under a prolonged continuance of these conditions the administration of vaccines in large doses may be responsible for urinary findings indicative of further injury to the renal tissue.

Amid the obscurity involving many features of vaccine therapy and the inherent difficulties owing to the possible complicating conditions in pulmonary tuberculosis, arbitrary conclusions seem unwarranted. Provisional opinions are permissible only when possibilities of error are eliminated to the fullest extent. When the employment of bacterial vaccines represents simply the introduction of a new element in the therapeutic regimen, all other conditions remaining approximately the same as before its use, it may be fair to assume a causal relation. Thus, sources of confusion, and doubt as to the value of this or any other medicinal agent must obtain, if administered to invalids shortly after radical climatic change, the physiologic influence of which may overshadow the effect of specific medication.

In like manner incorrect deductions are unavoidable, in the event of a coincident change of management or mode of life. In order to minimize the uncertainties of clinical opinion as to their value, it is essential that vaccines be used only in carefully selected cases, preferably those conforming to a rigid regimen for a considerable period without change of climate or environment. The conclusions thus afforded are made still more reliable if the application of this agent is limited to patients whose condition has become more or less stationary with the ultimate prognosis somewhat doubtful. In the absence of a definite progressive tendency in either direction, the development of a substantial clinical change following its use cannot be entirely disregarded. There exists no valid excuse for giving vaccines to patients who are doing well, and but little encouragement for a proper interpretation of results if given to those who are rapidly declining. While vaccines would seem especially appropriate for those exhibiting unsatisfactory progress, yet not entirely hopeless, it is not always possible, even in these cases, to attribute an improvement solely to the specific medication.

In addition to the remedial agent two factors may contribute quite materially to this result, the psychic element, which is worthy of practical consideration among pulmonary invalids, and the opportunity presented for closer observation and more careful direction. Even the fact of a demonstrable gain following the use of bacterial vaccines affords no actual criterion in all cases by which to estimate its specific medicinal effect. In the midst of the discouragement and pessimism engendered by periods of deferred hope, the moral uplift from the thought that something is being done is sometimes quite remarkable. An improved mental attitude, a better appetite and digestion and an increasing spirit of cooperation ensues. The more frequent contact of physician and patient, the influence of which is far-reaching, results in mutual sympathetic relations productive of earnest, interested effort on the part of each. Faithful compliance with instructions is thus secured and a correspondingly greater medical efficiency. Caution should be exercised, however, lest following the initial enthusiasm, the physician permit himself, in the frequent routine of vaccine administration, to devote insufficient attention to important details of management which constitute the very essence of any success to be obtained. The tendency under such circumstances to drift unconsciously from the recognized features of personal control may be quite pronounced. If this is carefully avoided, and due advantage taken of the facilities afforded for more detailed supervision, it is quite conceivable that distinct benefit may accrue from vaccine therapy, quite irrespective of its specific action.

The cautious employment of bacterial vaccines, as previously stated, would seem to be appropriate chiefly for persons who failed to show satisfying improvement under conservative management. I have restricted its use largely to this class of patients, as I could not consistently subject an invalid presenting every reasonable assurance of eventual recovery to the active influence of a therapeutic agent of uncertain value. It does not follow, however, that vaccines are indicated for all patients who are doing poorly. Such a broad classification would include not only those who, on account of the advanced infection, are clearly doomed to a fatal termination, but also others whose retardation of progress may be ascribed to important, though not hopeless complications, or to the development of disturbing conditions capable of amelioration under resourceful management. In many of these cases the unfavorable factors are so apparent as to suggest change of environment, removal of adverse influence, a more generous and appetizing cuisine, added opportunity for physical and mental repose and closer attention to other details, rather than to an abrupt recourse to a doubtful form of medication. In the absence of other pathologic conditions, in themselves explanatory of unsatisfactory general progress, and demanding special remedial measures, it may be granted that a demonstrated inability to respond favorably to an intelligent regimen suggests the expediency of specific therapy. In my earlier experience with vaccines, their application was largely confined to far advanced patients exhibiting a relentless decline with pronounced septic manifestations. All of these, by virtue of every consideration ordinarily influencing prognosis, were regarded as hopeless. In many of the cases, the course of the disease was uninfluenced, but in a few, definite improvement was noted, while in one or two conspicuous instances the clinical picture was unexpectedly transformed. On the whole, the results obtained in this class of cases have been extremely disappointing, and the impression has been received that but little if any encouragement is afforded from vaccine therapy under such conditions.

It would seem that the elaboration of protective substances within the individual from the introduction of a bacterial agent is most unlikely when, in approaching terminal states, the natural powers of defense have become exhausted. It is altogether probable that at such a time the machinery of immunization is inoperative because of the flooding of the blood with bacterial products without capacity for resulting formation of antibodies. When therapeutic stimulation of the active protective processes is thus impossible, an attempt toward the development of passive immunization by the injection of antibodies contained in the serum of immunized animals is justifiable, although likely to be of little avail owing to the difficulties of proper serum identification.

Notwithstanding the very proper objection to the rationale of this procedure, the fact remains that clinical experience has furnished evidence concerning its value in rather a small proportion of cases.

The fever of pulmonary tuberculosis, exclusive of the previously mentioned septic infections in advanced cases, may represent, more than any other feature of the disease, a possible indication for vaccine therapy. A persisting elevation of temperature, independent of the nature and extent of pathologic change, represents an insuperable obstacle to recovery, and hence the application of therapeutic measures for its control is especially significant. It is necessary, however, to discriminate with the utmost care between the fever of mixed infection and that dependent on other causes. It is, of course, absurd to expect benefits from bacterial vaccines when the fever is due to such unrecognized conditions as a pleural effusion, malaria or miliary tuberculosis. Instances of this kind are by no means infrequent, as well as obscure gallbladder infections, chronic appendiceal involvement, sinus disease, cystitis and colon infection of the kidneys. A recent experience has been particularly instructive in that the fever of a young man, shortly after arrival in Colorado, with pulmonary lesions, was found to be produced by paratyphoid B. infection. This information was acquired only after blood cultures, several Widal tests and an examination of the spinal fluid had elicited negative results, and the nature of the clinical manifestations had suggested a reasonable doubt as to the possible causal relation of a mixed infection, despite the detection of the secondary micro-organism in the sputum.

Elevation of temperature is not necessarily attributable to the accompanying bacteria of mixed infection. That absorption of the toxins of the tubercle bacillus may be responsible for fever in some cases is generally accepted.

While the secondary bacteria of mixed infection may play an important rôle in the development of the pathologic processes common to tuberculosis, and exert an influence on the clinical characteristics of the disease, similar constitutional manifestations may exist without recognition, after repeated examinations, of the specific micro-organism in the sputum or blood. Even the detection of the accompanying bacteria in the sputum is not of itself sufficient to confirm an assumption that the mixed infection is the sole responsible cause for the clinical symptoms. Their presence at least affords no reliable measure of the severity of the infection and the relative gravity of the situation, which for practical purposes is best estimated by the extent of temperature elevation. The expulsion of bacteria with the tuberculous sputum, in the absence of unfavorable clinical manifestations, is no indication for the employment of bacterial vaccines. Even when apparently characteristic evidences of mixed infection are present, an element of real doubt as to the propriety of vaccine therapy is unavoidable as the syndrome may, after all, be of essentially tuberculous origin. Irrespective of these considerations as to pathogenesis, and with a just appreciation of the inevitable uncertainties of action, it appears, nevertheless, permissible to resort to vaccine therapy under the conditions enumerated.

In my experience, the results obtained in a fair proportion of cases in which there was moderate fever have been such as to encourage its further cautious employment. No assurances as to its probable effect can be given, and patients should be made to understand that its use is largely experimental. Under a wisely directed management they have but little to lose from its trial and perhaps something to gain.

This is also true to a large extent in connection with its employment in afebrile cases. While the greater proportion of such invalids may be expected to make fairly satisfactory progress under proper supervision without recourse to vaccine therapy, occasional indications for its administration may be found in patients with distressing cough and abundant expectoration. Many of these cases without fever exhibit more or less cavity formation or bronchiectasis with varying degrees of fibrosis. Under these conditions, even if but slight loss of weight has taken place, the constructive change is necessarily slow, while, if nutrition is seriously impaired, the difficulties of successful management are very considerable. The application of vaccines to patients of this class is quite appropriate and the results are sometimes gratifying. Did opportunity permit I could cite numerous cases under my own observation in which the vaccines proved of appreciable benefit and could present in person a few rather exceptional instances of the remarkable improvement sometimes achieved. Notwithstanding these decidedly picturesque examples, which though impressive are infrequently observed, the fact remains that my own clinical experience suggests for vaccine therapy but a limited field of usefulness. As a routine method of treatment in pulmonary tuberculosis it cannot be too strongly condemned. As a special measure of occasional value, but often of doubtful utility, it appears worthy of a judicious trial in selected cases.

Steadman Building.

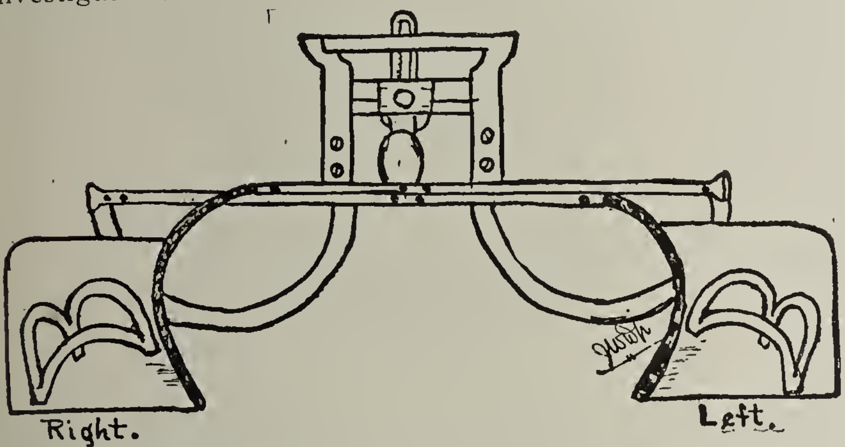
New Instruments and Suggestions

A SEMICIRCULAR CANAL INDICATOR

OF AID IN MAKING THE ROTARY AND CALORIC TESTS OF THE VESTIBULAR APPARATUS

J. W. Downey, Jr., M.D., Baltimore
Surgeon, Baltimore Eye, Ear and Throat Hospital; Associate in Otology, University of Maryland, School of Medicine and College of Physicians and Surgeons

After the examination of a large number of patients drawn from the neurologic clinic of Dr. A. C. Gillis at the Mercy Hospital, and from my otologic clinic at the Baltimore Eye, Ear and Throat Hospital, Dr. Gillis and I feel that the vestibular tests of Bárány are worthy of the most elaborate study and that they furnish a wide field for original investigation.



Semicircular canal indicator; the drawing is made from the rear view of the trial frame with the bows folded.

We have assured ourselves that in normal persons the reactions to the rotary and the caloric tests will come through simply and conclusively. Therefore, we believe that abnormal reactions are undoubtedly due to some interference in the course of arcs whose complexity have, so far, baffled demonstration.

We accept the postulate of Randall and Jones of Philadelphia, that the fibers from the different semicircular canals have entirely separate tracts of their own, and we have corroborated their findings to our own satisfaction in a series of cases on which we hope later to report. We believe, therefore, that it is of the utmost importance to make the rotary tests with the patient's head in such positions as will bring into horizontal plane the various pairs of canals, for it is only in this plane that stimulation can be aroused by rotation, and the caloric tests with the canals in the vertical position, for similar reasons.

The mental concentration necessary to carry the impression of so many factors is sometimes distracting in the general summing up of our findings. I have, therefore, devised this semicircular canal indicator, which consists of models of the canals mounted on the bows of a trial frame. With the trial frame fitted to the patient, the canals are in approximately the correct position, and a glance will show the ones that are being acted on by the rotation, or the douching, in any position of the head. Strong plus lenses, suggested and used by many observers, the more carefully to study the nystagmus, may be used in the trial frames. A *blickfixator* modeled after that of Bárány may also be attached.

I feel that this indicator has the advantage over the Brünings *otogonimeter* in that it is not in the way in any position it may be desired to place the patient's head, and though, perhaps, not so accurate mathematically, it is vastly superior in demonstrating the position in space of the various canals to those who are not constantly visualizing the anatomic peculiarities of the internal ear.

529 North Charles Street.

CUTANEOUS TUBERCULIN TEST BY PUNCTURE WITH A SOLID NEEDLE

D. A. Craig, M.D., London, Ont.
Superintendent, Queen Alexandra Sanatorium; Chief of Tuberculosis Division, Institute of Public Health, London, Canada

In tuberculosis dispensary work in the examination of contact cases, the various skin tuberculin tests have proved of considerable value, particularly in children. Some time ago, Dr. H. W. Hill of the Institute of Public Health here began vaccinating against smallpox by means of puncture with a solid needle through a drop of vaccine. His method was successful, and the detail of the procedure has been reported.[1]

The cutaneous tuberculin tests have been extensively used in our city dispensary, and it was decided to try the skin test by puncture through a film of tuberculin. After trying a large number of cases side by side with the von Pirquet test and also a number of definite open cases, we have come to the conclusion that the puncture test has many advantages, and we are using it constantly in our work.

For the test, pure undiluted "O. T." is used. For the control, we have used glycerinated broth, as it approaches most nearly the basic principle of the tuberculin. For making the puncture a solid needle is used, preferably an ordinary sewing needle. The procedure of the test is as follows:

The skin of the forearm is washed with soap and water, dried, and alcohol or ether is applied and allowed to dry. A thin film of the control solution is placed on the skin, and a series of small punctures made through the film obliquely with a sterilized sewing needle. The punctures should be quite superficial, and in no case should the operator draw blood. Only the extreme tip of the needle is introduced. A film of pure "O. T." is placed on the skin 1½ inches below the control area, and punctures are made through this in a similar way. Six punctures in a space one eighth of an inch square are sufficient. A circle may be drawn around the area with a flesh pencil or pen, and each area marked. The test areas may then be entirely wiped off, as it is not necessary to allow the tuberculin or control to dry. The reaction is produced in this test by the slight amount of tuberculin which is carried under the superficial layer of the skin by the point of the needle, and not by the tuberculin on the surface. Reaction, when present, usually occurs in from twelve to forty-eight hours, and is marked by an infiltration of the tuberculin area. The patient should be instructed not to wash the arm until the test has been observed.

This is in reality a modified intradermal test. In a large number of cases which we have tested, the control entirely disappeared; and when the test is negative, were it not for the marking by the skin pencil or pen, one would be unable to find the test areas. The advantages which this test seems to hold are that the traumatic tissue reaction is extremely slight, and the personal factor of scarification, as in the von Pirquet test, is largely done away with. This is proved by the fact that no evidence of the control can as a rule be found the day following the test. The procedure is painless when properly carried out, and the patient does not have to wait until the film dries, thus saving considerable time. Moreover, the patient cannot rub off the tuberculin or infect the tested areas. In conclusion, one would caution that the tuberculin from the tuberculin area be not transferred to the control area by means of the needle or the absorbent cotton used in wiping off the tuberculin. The same needle or

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1. Hill, H. W.: Canad. Med. Assn. Jour., March, 1916.

sterilized cotton may be used for each puncture area, provided the control is punctured or wiped first.

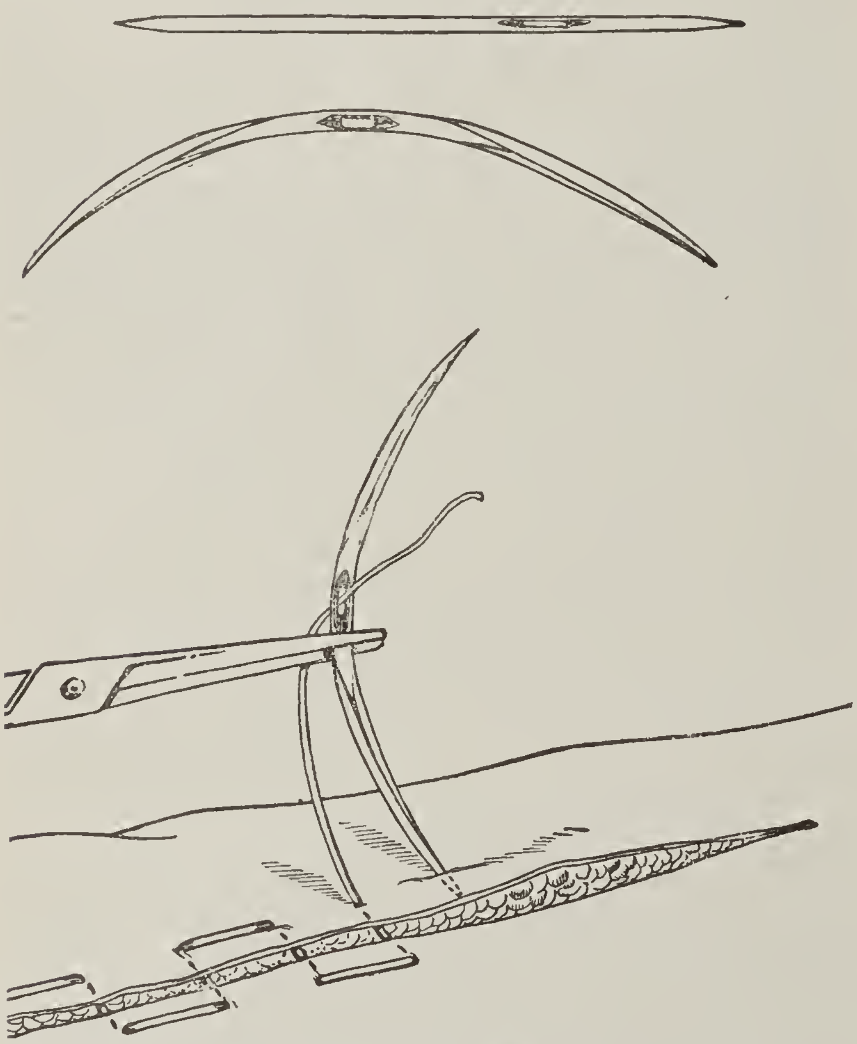
So far we have been successful with this test, and we are hoping that it may prove of advantage to the clinician, particularly in the examination of children.

A NEW NEEDLE FOR SUTURING PURPOSES

William C. Speidel, A.B., M.D., Seattle

The instrument illustrated herewith is self explanatory. The advantages of a double pointed needle are obvious. Among them may be mentioned:

1. Time is saved, in that it is only necessary to seize the needle once on inserting it and once on withdrawal and reinsertion.
2. Action is facilitated in the angles which are so frequently encountered in deep suturing, as the gallbladder, and pelvic and general abdominal work whenever a curved needle is indicated.
3. In intestinal suturing where a purse string stitch is desirable, it finds particular service; for example, in a Czerny-Lembert it can be worked with clocklike precision, requiring an easy to and fro movement, through and right back again, a straight form of needle being employed here.
4. The difficulty in utilizing short ends of suture is reduced to a minimum, and proves a saving of catgut or other material.
5. It is simple. It may be seized at either end and suturing continued without inconvenience or interruption.



Needle for suturing: above, straight needle, showing the eye toward one end; in the middle, curved needle, showing eye in the center; below, needle in the act of being reinserted.

An objection that may be offered is the danger of glove puncture. But here let me emphasize the importance and good practice of keeping the hands out of a wound as much as possible, the needle being properly handled only with forceps.

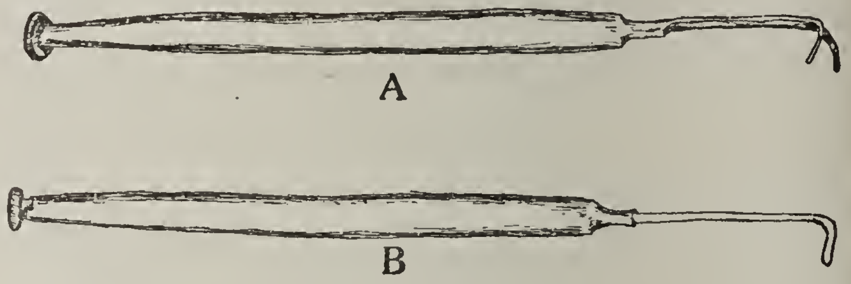
The fact that we have an additional point to attend to is more than offset by the evident and practical advantages already set forth.

519 Cobb Building.

INSTRUMENT FOR REMOVING FOREIGN BODIES FROM THE NOSE

Charles H. Cargile, M.D., Bentonville, Ark.

This instrument is helpful in removing foreign bodies from the nose. It is composed of two parts or shafts. One is smaller so as to pass through the other hollow one and rotate within it. The distal extremity of each terminates in a very delicate hook very like a strabismus hook. These are so adjusted that when closed they lie in lateral apposition with a combined thickness not greater than that of a strabismus hook.



Instrument for removing foreign bodies from the nose: *a*, open; *b*, closed.

The proximal end of the smaller shaft projects slightly beyond that of the larger hollow one, and terminates in an enlargement to be grasped by the fingers during rotation.

In using, the hooks are carefully slipped closed (rotated into lateral apposition) along the septum or lateral wall of the nasal passage until beyond the foreign body. Then the whole instrument is slightly rotated until behind it. This done, the hooks or tines are separated in proportion to the size of the body to be withdrawn along with the instrument.

The only objection is the cost of the instrument, which is greater because it is necessarily hand made.

Therapeutics

"COLDS"

"Colds," also called by various other names, such as coryza, acute rhinitis and acute nasopharyngitis, are without doubt the most common and least severe of all infections. As a rule, "colds" occur in epidemics, almost always being contracted by one person from another. Perhaps the commonest way of spreading is by sneezing, in which manner the agents of the infection are disseminated into the surrounding atmosphere. Aside from this, experiments have demonstrated that there are organisms residing in the nasopharyngeal passages which may produce the infection in others by inoculation.

Tunnicliff,[1] in the acute and chronic forms of rhinitis, isolated an anaerobic gram-negative bacillus, which she named the *Bacillus rhinitis*. In a large percentage of cases this organism was found in pure culture. It was also found in about 90 per cent. of the cases of chronic rhinitis in which there was a mucoid discharge. That this organism was the etiologic factor in acute rhinitis was shown by the production of the condition after experimental inoculation and by recovering the organism in pure form from those infected by the inoculation. Kruse,[2] working along the same lines, was able to demonstrate that when the secretions from the discharge in cases of acute rhinitis were taken and diluted even as much as twenty times, and then filtered, the filtrate inoculated into the noses of healthy people produced typical cases of acute rhinitis. As a result of this he concluded that the acute rhinitis was caused by an invisible and filterable virus, since the filtrate when cultured remained sterile.

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[1] Tunnicliff: Jour. Infect. Dis., 1913, xiii, 283.

[2] Kruse: München. med. Wchnschr., 1914, lxi, 1547.

More recently Foster[3] repeated Kruse's experiments and obtained similar results. He, however, went further, and, using Noguchi's method for growing the parasite of rabies and the organism of poliomyelitis, was able to obtain from the filtrate an organism which, when inoculated into the noses of eleven soldiers, produced a typical condition of acute rhinitis in all of them. Cultures made from the nasal secretions of these also showed the same growth on mediums. Foster, examining the growth under the dark-field microscope, states that there were "myriads of extremely active minute bodies occurring singly, in pairs and in agglomerations of varying magnitude. These did not stain satisfactorily with the usual stains."

As a rule, for the development of a "cold," the soil on which the infective agent will grow, that is, the nasopharyngeal passages, must first be prepared. This is usually effected by the exposure of the individual to varying changes in the temperature of the atmosphere by which the person is surrounded. Thus, it is still commonly believed by some that drafts per se, alone, are responsible for the "cold," or that it is produced in persons whose feet become cold or chilled from the cold or damp ground. Probably there is a dryness of the throat and nasopharynx, and as soon as the normal protecting nasal secretions are absent, the infecting organisms obtain a foothold, and the characteristic symptoms follow.

Although some "colds" may be more severe than others, and even though some may be readily aborted, even in twenty-four hours, nevertheless, the symptoms in all cases at the onset are usually the same. The incubation period, according to Foster,[3] is from eight to thirty hours.

The "cold" begins with dryness of the nose and throat. As dryness produces considerable irritation, there is a frequent desire to sneeze. At this stage, recovery may occur after a few hours rest. As a rule, this stage is followed by slight constitutional sensations of an uncomfortable nature. There may be chilliness and flushing, and a slight rise in temperature, as high as 100 F. The dryness is followed by a congestion of the nasal mucosa, with swelling. The nose feels blocked and stuffy. The sense of smell is lost, and even the taste may be abolished, or perverted. There is also present a dull headache over the frontal sinuses, and a heaviness of the head. In a few hours, or usually on the day following the onset, there appears a marked nasal discharge which seems to flow incessantly. This discharge is thin and watery, and of an irritating nature, and results in an eczematous condition and soreness of the nares and the alae nasi.

The inflammation may spread to the eyes, the conjunctivae of which become reddened and inflamed, and the eyes feel hot and irritated. At times the infection, or at least the irritation, will extend up the eustachian tubes to the middle ear, and will produce tinnitus aurium, with slight deafness. Tonsillitis and bronchitis often follow in the wake of acute rhinitis. By the time that this occurs the original inflammation may begin to subside, the symptoms of the rhinitis persisting from three to six days.

There may be a mixed infection in which some organisms other than the one which produced the primary symptoms will predominate. When this occurs, the discharge will change from a thin, watery one to a mucopurulent, or even to a purulent discharge of a dirty greenish color. From the discharge can be isolated the commoner organisms, such as the *Micrococcus catarrhalis, Streptococcus viridans, Streptococcus hemolyticus,* the pneumococcus, and even the *Bacillus influenzae.* When such a discharge does occur, its duration cannot be definitely foretold.

The treatment of "colds" depends on the stage of the infection at which the treatment is to be started. At the onset, when the mucosa is dry and free from secretions, a purge should be given. A hot bath may also be taken at this time. This should be followed by rest in bed. An ice bag to the head and a hot-water bag to the feet sometimes aid in giving relief, as do also a full hot tub bath and a large glass of hot lemonade before going to bed. For local relief of the nose condition, a spray of epinephrin 1 : 10,000 may be used.

When there is a profuse watery discharge, with or without a sore throat, atropin by mouth can be given until there occurs a dryness of the nose and throat. Hot alkaline nasal irrigations will be found useful. If the discharge is mucopurulent, hot alkaline nasal douches and the application of a 1 per cent. solution of cocain hydrochlorid to the nares may be tried. Sprays of liquid petrolatum are also soothing. The diet consists mainly of milk and eggs. An alcohol rub three times a day seems to have a beneficial action, and for further antiseptic action by way of the circulatory system, hexamethylenamin, 5 grains, internally, three times a day, may be prescribed.

An associated tonsillitis or pharyngitis of course requires appropriate treatment.

Vaccines in "colds" have not demonstrated their usefulness, probably because the vaccine has not been prepared from the true infecting organisms. Mixed vaccines have also been given from a prophylactic standpoint, and favorable results have been reported in those who have previously had frequent attacks of "colds." There is, however, no good proof that such preventive vaccinations are often of benefit. It is possible that a vaccine prepared from the organism described by Foster might be used to immunize an individual against future attacks of "colds."

New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

CHLORAZENE (See The Journal, Sept. 30, 1916, page 1021).—The following dosage form has been accepted:

Chlorazene Tablets, 4.6 Grains.—Each tablet contains chlorazene, 4.6 grains.

Prepared by The Abbott Laboratories, Chicago, Ill.

Truth Attendant on Knowledge.—He that would make real progress in knowledge must dedicate his age as well as youth—the latter growth as well as the first fruits—at the altar of truth.—Bishop Berkeley.

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[3] Foster, G. B.: The Etiology of Common Colds, The Journal A. M. A., April 15, 1916, p. 1180.

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SATURDAY, OCTOBER 21, 1916

RESISTANCE TO INFECTION

The accomplishment of an infection, Zinsser[1] writes, is not determined merely by the fact that a micro-organism of a pathogenic species finds lodgment in or on the body of a susceptible individual, but it is further necessary that the invading germ shall be capable of maintaining itself, multiplying and functionating within the new environment. An infection, then, or an infectious disease, is the product of the two factors, invading germ and invaded subject, each factor itself influenced by a number of secondary modifying circumstances, and both influenced materially by such fortuitous conditions as the number or dose of the infecting bacteria, their path of entrance into the body, and the environmental conditions under which the struggle is maintained.

This struggle between the host and the invading bacteria represents a situation in which no adaptation has taken place. The conflict may result in a local or systemic manifestation which constitutes disease. In the majority of cases it becomes "mild and locally limited if the protective powers far outweigh the invasive powers of the micro-organisms, violent if the balance is reversed." If it were possible to discover the various means by which the organism so often successfully exerts its powers of resistance and secures a recovery or immunity from disease, the prospect of therapeutic advance in the management of infections would doubtless be greatly enhanced. For this reason there seems at present to be in experimental medicine a growing tendency to study the precise fate of bacteria under conditions in which they experience varying degrees of resistance.

The recent studies of Bull[2] at the Rockefeller Institute for Medical Research, New York, are furnishing interesting facts in regard to the deportment of the micro-organisms in the circulation. It now appears quite probable that the power of the blood to cause agglutination determines, in large measure, whether after their direct introduction in an experimental way the bacteria are to be removed promptly from the circulation and septicemia avoided, or whether they are to remain there and produce a blood infection. An inverse ratio seems to exist between the power to produce septicemia and the degree of agglutination of the infection bacteria in the circulation of the host. Thus, according to Bull, virulent pneumococci, dysentery bacilli of the Shiga type, and virulent influenza bacilli do not agglutinate when injected into the circulation of normal rabbits; while typhoid bacilli, dysentery bacilli of the Flexner group, and nonvirulent influenza bacilli are agglutinated immediately after entering the circulation of these animals. On the other hand, an intravenous injection of a small quantity of specific immune serums causes an instantaneous agglutination of pneumococci and Shiga dysentery bacilli in the circulation of infected rabbits. The bacterial clumps accumulate in the organs in which they are phagocyted.

In this way it appears that active immunity generally insures the agglutination of specific bacteria when they are introduced into the circulation. The degree of agglutination and opsonization of bacteria, whereby they are readily mastered by the protective phagocytes available, within the body, is inversely parallel to the infectiousness of many bacteria for the host. Stryker[3] has recently ascertained that the growth of virulent pneumococci in homologous immune serum produces variations in agglutinability, decrease in virulence, inhibition of capsule formation, increase in phagocytability with normal serum, and change in absorption power and antigenic properties. Very few passages through the animal body suffice, however, to induce a reversion to the original type. Bull conservatively points out that the fact of the prominent rôle or even decisive part played by agglutinins and opsonins in the circulation of infected individuals need not imply that these are the only immunity forces at work or available.

THE FALLING DEATH RATE AND LENGTHENING OF LIFE

The baby of today has the prospect of a much longer average lifetime than did the baby of two generations ago. The average duration of life and the death rate are two complementary magnitudes.[4] If the death rate could be accurately established for any period, it would be an easy matter to calculate the span of life in a population in which the annual number of deaths equals the annual number of births, and without emigration or immigration. Such equalities exist in few countries, least of all in the United States. It was calculated by Willcox[5] some years ago that the annual death rate in the United States was about 18 per thousand. On this basis the average length of life would be fifty-five years, obviously a rather high estimate for this country, involving errors of assumption which cannot readily be eliminated from the statistical calculations. For this reason it is ordinarily preferable to be satisfied with a statement of the "crude death rate," or the quotient of the number of deaths in the year divided by the population. Such figures are easier to obtain.

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[1] Zinsser, H.: Infection and Resistance, An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease, New York, 1914, p. 3.

[2] Bull, C. G.: Jour. Exper. Med., 1915, xxii, 484; Further Observations on the Agglutination of Bacteria in Vivo, ibid., 1916, xxiv, 25.

[3] Stryker, Laura M.: Variations in the Pneumococcus Induced by Growth in Immune Serum, Jour. Exper. Med., 1916, xxiv, 49.

[4] Fisher, Irving: Mortality Statistics of the U. S. Census, American Economic Assn., Monograph on the Federal Census, 1899, p. 160.

[5] Willcox, W. F.: Death Rate of the United States in 1900, American Statistical Assn. Publications, x, 155.

In order to ascertain whether modern progress in the knowledge of sanitation and of personal and public hygiene has been attended with improvement in the death rate, it is worth while to turn back to some historical data regarding mortality. The records of old cities show that a decided decrease in the death rate has steadily been going on. In Table 1 are some illustrative figures for mortality in London.[6]

TABLE 1.—MORTALITY IN LONDON

Year	Rate per Thousand
1660-1679	50
1680-1728	80
1729-1780	40
1905	15.1

The statistics in Table 2 for the white population of typical American cities were collected by the actuary of a large American life insurance company.

TABLE 2.—MORTALITY OF WHITE POPULATION OF AMERICAN CITIES

Years	Death Rate per Thousand
1804-1825	24.6
1826-1850	25.7
1851-1863	28.3
1864-1875	25.4
1876-1888	22.9
1889-1901	21.0

An estimate of the death rate in the United States last year, based on reports from states and cities containing 67,000,000 persons, or more than two thirds of the entire population, has been placed at 13.5 per thousand. The same source places the average rate at 16.2 during the period of five years which ended with 1905, and it has been falling ever since. Gains in cities are most noticeable.

There is, obviously, a limit to the increase in the length of human life, but there is reason to believe that the limit is still far off. In seeking for the explanation of success in the conservation results of the past few generations as a guide to the efforts of the future, a medical investigator quite naturally turns to the accomplishments and the possibilities which redound to the credit of our profession and the sciences on which its work rests. A layman may be inclined to conclude that the resources of hygiene have been unduly exploited. It is wholesome, therefore, to read the editorial opinion of a prominent American daily newspaper:

> The chief cause of the improvement has been progress in sanitation, in the use of those precautions and safeguards which are required for the prevention of diseases, especially those of an infectious character. We have profited by the results of scientific inquiry as to the origin and transmission of such ailments. Large and generous expenditures, with concerted effort, have cut down in a few years by more than one fifth the death rate for tuberculosis. Health officers have the support of the people. Pollution of water supplies at once excites public protest in these days, and there are few typhoid epidemics in comparison with the number twenty years ago. The press is always on guard. It will be admitted that its warnings and its constant dissemination of what may be called sanitary truths have been effective in promoting that death-rate reduction which official reports now disclose.[7]

An enthusiast in the conservation movement has stated fifteen years as a safe minimum estimate of prolongation of life still possible. This takes no account of future medical discoveries, and scarcely even reckons with the cumulative influence of present-day hygiene. Fisher[8] maintains that the addition of fifteen years is only a first step. He adds that if clean milk will prevent infantile diarrheal diseases, if clean water will prevent deaths from typhoid, and at the same time — according to Hazen's theorem — prevent two or three times as many other deaths, and if clean air will prevent tuberculosis, then it is evident that mere cleanliness in respect to these necessities will suffice to lengthen life by most if not all of the foregoing estimate. Fifteen years, says Fisher, is merely the "ore in sight." If we will work for it, we may get an even richer prize.

THE IMPROVEMENT OF STREAM-POLLUTION CONDITIONS

About half a century ago Lambert wrote: "It costs no more to 'raise' a man capable of living for 80 years than it does to 'grow' one who has not the capacity of living to be 40 years old."[9] In the midst of present-day enthusiasm for the conservation of life and other natural resources we have come to appreciate how much potential value of life is now allowed to be wasted which could be conserved. It is, however, one thing to recognize and admit the existence of a deplorable situation, and quite a different matter to find workable ways and means of combating it. An expert has calculated that the actual economic saving annually possible in this country by preventing needless deaths, needless illness (serious and minor), and needless fatigue, is certainly far greater than one and a half billions, and may be three or more times as great.[10] Generalizations of this sort, striking as they must be to any thoughtful individual, need to be supported by the evidence of actual conservation possibilities.

The greatest menace to most modern water supplies lies in their pollution with human excreta. The possibilities in this direction have become enormously extended by the installation of sewerage systems for cities and some smaller groups of individuals. This procedure, which has been of incalculable benefit to the individual communities served, has in turn produced a new menace in an indirect way. Public opinion has in the last generation become more and more insistent on the provision of adequate sewerage with universal house connections; but it has not awakened or has actually shown indifference to the far reaching consequences of the sewerage methods in operation. Dr. Frost[11] of the U. S. Public Health Service has presented the situation in this way:

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[6] Farr: Vital Statistics, London, 1885, p. 131.

[7] The Falling Death Rate, editorial, New York Times, Sept. 24, 1916.

[8] Fisher, Irving: Report on National Vitality, Its Wastes and Conservation, Bull. Committee of One Hundred on National Health, 1909, No. 30, p. 110.

[9] Lambert, T. S.: Sources of Longevity, New York, 1869, p. 6.

[10] Fisher, I.: Bulletin of the Committee of One Hundred on National Health; being a Report on National Vitality, Its Wastes and Conservation, Washington, Government Printing Office, July 1909, No. 30, p. 120.

> Great as has been the effect of this improvement in the prevention of sewage-borne diseases, a just estimate of its influence is not to be based on this alone, but must take into account also the enormous social betterment resulting from the elimination of disgusting filth from the environment, the encouragement of more cleanly habits, and general elevation of ideals. Nevertheless, a direct consequence of this great sanitary achievement has been greatly to increase the pollution of watercourses; for the simplest and most obvious means of disposing of sewage is to discharge it directly into a convenient body of surface water, and this has been a common practice. Watercourses which previously were polluted with only such wastes as were thrown into them incidentally or washed in from the soil have now become much more grossly polluted by the discharge of fresh sewage from sewered communities.

The conservation of public health, in the broadest sense, demands that the public water supplies must be protected from such dangerous contamination. Efforts have not been directed to prevent all pollution since this result is at present practically impossible of accomplishment in many regions. Where danger exists it has been found more suitable to purify water at a moderate cost by application of modern, scientific methods, including storage, sedimentation, precipitation, filtration, and disinfection by the use of calcium hypochlorite, liquid chlorin and other disinfectants, making it possible, at a moderate cost, to procure satisfactory, clean, and safe water supplies from dirty and dangerously polluted sources. If this is not the ideal plan, it nevertheless represents an enormous temporary advance in the direction of safety.

A single illustration of some specific and tangible accomplishment in this direction almost invariably lends weight to efforts at remedial action or legislation. For this reason we refer in some detail to the results of a survey, by the Public Health Service and other authorities, of changes in relation to the public water supplies in the Ohio Basin, which is a fairly representative section of the United States. It embraces the water supplies of about 6,300,000 people, of whom fully two thirds are using water from surface sources. Approximately 3,500,000 are taking their water supplies from rivers, and 90 per cent. of these are supplied with water more or less effectively purified by sedimentation, filtration, disinfection, or combinations of these processes, only 10 per cent. using unpurified river waters. Practically all the water-purification plants represented have been installed within the last twenty-five years, the majority within the last ten years, during which period the largest three plants on the watershed, those of Cincinnati, Louisville and Pittsburgh, have been put into operation.

The effect of this plan of purification in the Ohio Basin on the conservation of life and health has been estimated by Frost[11] as follows: Eleven of these cities, with a total population of 243,000 in 1914, were still, in that year, taking their water supplies from the same source as in 1906, with no purification. The average typhoid death rate per hundred thousand in these cities was, in 1906, 76.8, and in 1914 approximately the same, 74.5. Sixteen other cities, including Pittsburgh, Cincinnati and Louisville, having in 1914 a population of 1,866,000, were in that year taking their water supplies from the same sources as in 1906, but with more or less effective purification. The average typhoid death rate in these cities in 1906 was 90.5 per hundred thousand, and in 1914, 15.3. Had these cities in 1914 suffered the same typhoid death rate as in 1906, they would have registered 1,688 deaths from this cause instead of the 286 deaths actually recorded. Thus in a single and not unusual year there was an indicated saving of 1,400 lives, due to the reduction in deaths from typhoid fever alone. There is good reason to believe that the saving in nonfatal cases of typhoid fever amounted probably to not less than from 14,000 to 15,000. Equally striking reductions in the prevalence of this disease have followed immediately on purification of the water supply in scores of other cities with such regularity as to justify the opinion that in the cities cited the reduction in typhoid fever from 1906 to 1914 must be attributed in large part to improvement in their water supplies.

Frost has pointed out that the pollution problem is increasing with the growth of communities in population, so that the purification plants and sewage disposal works are likely to become overtaxed and unable to meet the needs in individual cases. A slightly overburdened plant may be no less a menace than exists in the presence of gross pollution. As natural agencies are made to cooperate in the purification methods, their limitations must be ascertained and dealt with. It is useless to invest large sums in purification schemes or plan extensive works for the improvement of stream pollution without knowing what returns may be expected. The first requisite, in the control of stream pollution, therefore, is a closer and broader study of the conditions of pollution existing in the rivers of the country, of the fundamental factors that influence these conditions, and, above all, of their effects on health. Without such studies there can be no accurate knowledge as to the necessity for remedial measures, and no reliable estimate of the influence of proposed measures in protecting the public health.

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[11] Frost, W. H.: The Sewage Pollution of Streams, Its Relation to the Public Health, Public Health Reports, 1916, xxxi, 2486.

THE PROTEIN-SPARING ACTION OF CARBOHYDRATES

It is well known that the non-nitrogenous foodstuffs may spare body protein. The carbohydrates are unquestionably more efficient as protein sparers than are fats. The starvation output of nitrogenous waste products, or at least of urea, can be notably diminished by the ingestion of either of the non-nitrogenous nutrients mentioned, though the superiority of the carbohydrates in depressing the loss of nitrogen is always manifestly greater. If the carbohydrates are omitted from the diet or even replaced by fat, the effect on the nitrogen output is promptly seen.

Various theories have been proposed to explain this unique function of the carbohydrates in nutrition. One view has maintained that a certain concentration of blood sugar is always necessary for proper maintenance of physiologic activities. This sugar can be produced from proteins if carbohydrates are not available directly; and since, in the absence of carbohydrates, under physiologic conditions fats cannot well supply this want, proteins are broken down to yield the sugar which is lacking. The result is an increase in the nitrogen output in carbohydrate starvation.

Another view lately championed by Cathcart[1] of Glasgow and Janney[2] of New York postulates that carbohydrate is essential to protein synthesis. There is no doubt at present that sugar is not oxidized directly in the metabolism of the organism, but is rather dissociated in a definite way into simpler derivatives, of which methyl glyoxal, $CH_3.CO.CHO$, lactic acid, $CH_3.CHOH.COOH$, and pyruvic acid, $CH_3.CO.COOH$, are the most interesting possibilities. There is evidence that these compounds derived from sugars can in turn be converted into sugar in the diabetic individual. They can, accordingly, be concerned in the synthesis as well as the disintegration of the sugar molecule. But there is also some evidence now available, largely from perfusion experiments on surviving isolated organs, that both pyruvic and lactic acids can be converted into the amino acid alanin; that is, they can add nitrogen under conditions approximating physiologic possibilities.

Kocher[3] has recently reminded us that if this process of retaining nitrogen by dissociation products of sugar to form new amino acids, and hence proteins, occurs on a large scale in the body, it will explain why ingestion of carbohydrates spares body protein. To test this point he has undertaken a comparison of the sparing effects of ingesting lactic and pyruvic acids in contrast with equivalent amounts of undissociated carbohydrates, like sucrose, on the nitrogen output. The outcome of these experiments, conducted at the George W. Hooper Foundation for Medical Research of the University of California, indicates that lactic acid exerts practically the same sparing action on protein metabolism as do carbohydrates. The sparing action of pyruvic acid also is very distinct, but less marked than that following sugar. In view of what has already been mentioned regarding the possibility of adding on ammonia to the structures of the sugar derivatives to form alanin, it is readly conceivable that, when this process is operative, nitrogen arising from the catabolism of body proteins, instead of being promptly excreted, is utilized to synthesize new protein. This is not a new conception of metabolism; but Kocher's work gives added support to the possibility that the fixing of catabolized nitrogen by the dissociation products of glucose to form new proteins is the true mechanism of the sparing effect of feeding carbohydrates on the nitrogen output.

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[1] Cathcart, E. P.: The Physiology of Protein Metabolism, London, 1912, p. 121.

[2] Janney, N. W.: Jour. Biol. Chem., 1916, xxiv, 30.

[3] Kocher, R. A.: The Mechanism of the Sparing Action of Carbohydrates on Protein Metabolism, Jour. Biol. Chem., 1916, xxv, 571.

THE LYMPHATIC SYSTEM

A medical man is frequently brought into relation with situations which remind him of the existence and functional importance of that vague entity entitled the lymphatic system. During his student days its structure and physiologic duties were defined in rather indefinite terms; and the uncertainty as to precisely what the lymphatics consist of, where their ramifications proceed, and how they assist in the undoubtedly useful regulative performances which are ascribed to them seems to persist. It is a decided advantage, therefore, to have an opportunity to review the status of the subject and to have the timely problem of the lymphatic system presented in an expert way. This has recently been done by Dr. Florence R. Sabin.[1]

The conception of the structure and particularly the origin of the lymphatic system has undergone profound changes in recent years. How confused the ideas of the past generation have been is attested by the diversity of nomenclature; for all too often a new word is a convenient cloak for ignorance. Lymph radicles, lymph rootlets, lymph spaces, parenchymal spaces, tissue spaces — each term has had its vogue. In early times the lymphatics were thought to begin in wide mouths in the walls of the various cavities of the body; but the openings or stomata proved to be difficult to find and identify. The time-honored conception of the lymphatic system presented the idea of "hazy lymphatic capillaries that faded off indefinitely through hypothetical lymph radicles into the tissue spaces."

The more recent investigations, to which American students of anatomy have contributed in no small measure, serve to emphasize more clearly than ever before the independent identity of the tissue spaces in distinction from the lymphatic vessels. The old hypothesis of an open system is giving way to the demonstration of distinct closed systems that contain fluid broadly termed lymph. We may now recognize blood capillaries, lymph capillaries and tissue spaces, each distinct and completely lined by endothelium, both blood and lymph capillaries being related to the tissue spaces in comparable ways. These regions are filled, specifically speaking, with plasma, lymph and tissue fluid, respectively. The newly dignified tissue spaces are discussed by Dr. Sabin as follows: It is well known that the plasma of the blood is constantly exuded from the blood vessels into the tissue spaces, so that all the cells of the supporting tissues, as well as the special cells of each organ, are bathed in fluid. Moreover, it is obvious that with all the varying activities of the cells of the body, the fluid becomes laden with different nutritive and with different stimulative substances and with different waste products, so that it varies widely in its composition. The subject of tissue spaces — meaning not empty spaces, but spaces which always contain fluid — is by no means a simple one. There are primarily the general, small spaces between all of the fibers and cells of the connective tissues and between the parenchyma of each organ and its supporting tissues; but there are also special systems of great spaces, which arise from the small spaces by a definite method, have a definite structure, and contain a fluid which is different from the other fluids in the body — such, for example, as the subarachnoid spaces, which surround the central nervous system. Other great systems of spaces are found in the internal ear and in the eye. The perivascular tissue spaces are likewise conceived to be independent of the lymphatics proper, although the chains of spaces along the pathways of certain blood vessels have often in the past been termed perivascular lymphatics because they were apparently arranged in sufficiently definite lines to resemble lymphatic channels.

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[1] Sabin, Florence R.: The Method of Growth of the Lymphatic System, Science, Aug. 4, 1916, p. 145.

The current views which have tended to take the lymphatic system itself "out of the realm of the mystical and to make it a definite anatomic entity" have received much, if not their main support through the study of development. The upshot of this has been to show that the problem of the origin of the lymphatic system is but a part, as Dr. Sabin has expressed it, of the general problem of the vascular system. Lymphatics are modified veins in the sense that they grow from the veins. The veins are the primary absorbents and continue to take part in absorption throughout life. At first they are the only absorbents; but presently the lymphatic vessels, budding out from the blood vascular system, partially invade the body; and present indications, we are told, point to the fact that their functions in absorption may be to some extent specific. In the living organism both true solutions and particles of matter pass into the lymphatic capillaries through the activities of endothelial cells or by means of wandering phagocytic cells. The investigations of the last fifteen years, says Professor Sabin, have demonstrated that the blood vessels are the primary absorbents, and that subsequently partial systems of absorbents develop, such as the arachnoid villi and the lymphatics that drain into the veins. The further elucidation of this topic will surely contribute to the solution of what has been called "the enigma of the mechanism of absorption." It will furnish an explanation of the difference between tissue spaces which are drained by lymphatics and others which are not. It will analyze the nature of the fluids which pass through lymphatics and those which do not.

Current Comment

EARLY MAN AND MEAT DIET

The advocates of the fleshless diet are accustomed to call on comparative anatomy to substantiate the claim that man is not well adapted for a meat-containing regimen. Milne-Edwards concluded that men, like monkeys, are organized for a diet essentially frugiverous; and the vegetarian propagandists delight in quoting the following statement of Cuvier:

> Man appears to be built to feed on fruits, roots and other succulent parts of vegetables. His short and not very strong jaws on the one hand, his canines equal to the other teeth and his tuberous molars on the other hand would not permit him to feed on grass or devour flesh.[1]

In contrast with such statements, Lyon[2] of the George Washington University has presented strong and somewhat unique zoologic evidence that man and his ancestors have long indulged in three forms of animal food which today are commonly found in markets. His argument is based on the recognized fact that three well known large tapeworm parasites of man exhibit a rather high degree of differentiation and a perfect adaptation to their definite and intermediate hosts. The definite host of the beef tapeworm, *Taenia saginata,* and of the pork tapeworm, *Taenia solium,* is man, and probably man alone. Lyon contends that both of these tapeworms are rather highly specialized and do not appear to be readily adaptable to other hosts. The conclusion seems clear that man has been eating cattle and pigs or their immediate ancestors, and perhaps himself, for as many ages as needed for these tapeworms to attain their present degree of differentiation. Lyon adds that we have no evidence that species of any kind are rapidly produced, and the parasites have probably had as slow an evolution as man himself. The fish tapeworm has other definite hosts than man, notably the dog, and the evidence is not conclusive that early man was piscivorous. The ease, however, with which man becomes infested with this parasite might indicate that he had eaten uncooked fish for a long period. As the trichina seems to thrive easily on almost any mamalian host, little importance can be attached to any pparent adaptability of the parasite *Trichina spiralis* or man and pigs, nor can this be taken as an indicaon of a pork diet for early man. Lyon has further entured to suggest that it is not beyond possibility at the acquirement of a meat diet by the vegetarian re-men may by improvement of nutrition, by shorteng of digestive processes, and by stimulating properies of proteins and their split products have played n important part in man's evolution over his vegerian competitors. Such speculations take us far into e realm of unproved fancies.

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[1] Buttner, J. L.: A Fleshless Diet, New York, F. A. Stokes Company, 1910, p. 5.

[2] Lyon, M. W., Jr.: The Animal Diet of Early Man, Science, 1916, xliv, 427.

THE TREATMENT OF POLIOMYELITIS WITH IMMUNE HUMAN SERUM

In his report on the treatment of acute poliomyelitis ith the serum of persons who have passed through n attack of the disease, Wells[1] emphasizes why it may e more advantageous to inject the serum intraveously (or intramuscularly) than intraspinally. While is true that the nature and distribution of the lesions poliomyelitis point to a hematogenous infection, and hat for this reason the intravenous injection of nmune serum, which it is supposed acts directly on he cause of the disease, appears to be indicated, it ay be well to replace at the same time some of the erebrospinal fluid with serum. In that way the essenial localization of the disease would be attacked, so to peak, from all sides. Of course one great advantage f the intravenous route is that it permits the introuction of a practically unlimited amount of serum nd thus a much greater quantity of the specific antiodies than possible by the intraspinal injection. As the results of the injection of immune human serum, can be said that those who have watched the effects losely appear to have been impressed with a prompt nd rapid general improvement, especially in severe ases when treated early. At present, when this is the nly form of anything like a specific treatment at and, it should be used early and freely whenever ossible.

THE ETIOLOGY OF EPIDEMIC POLIOMYELITIS

Undoubtedly the report by Mathers,[2] in which he riefly announced his isolation of a peculiar pleomorhic coccus from the brain and cord after death from oliomyelitis, a coccus that caused paralysis in rabbits nd monkeys, was read with much skepticism by many ho are familiar with the previous work on the etilogy of poliomyelitis. Had it not been established eyond all doubt, they asked, that poliomyelitis is aused by a filterable virus, practically ultramicrocopic? And is it not a fact that, in all the recent nvestigations into the causation of this disease, no nention even is made of any organism which can be een and grown so easily as the one described by lathers? But totally unexpected though they may ave been, Mathers' results did not have to wait long or confirmation by other and independent workers, as shown by the reports of the splendid work by Rosenow and his co-workers[3] and by that of Nuzum and Herzog[4] in this issue of THE JOURNAL. The fact that what seems like the same streptococcus-like micrococcus with the peculiar small and large forms has been isolated from the brain and cord in altogether about thirty cases of typical poliomyelitis in two widely separated cities by independent observers certainly must be accepted as sufficient evidence that the microorganism plays such part in at least the current epidemic of poliomyelitis as to demand the closest and most exhaustive study. Indeed, when we consider the reported results of the various inoculation experiments on animals with the cultures obtained from the brain and cord, as well as with those obtained by Rosenow and his associates from the throat and tonsils in a large number of cases of poliomyelitis, experiments with both unfiltered and filtered materials, there seems to be no escape from the general conclusion that the organism either is a secondary invader which in cultures may be more or less closely associated with the independent virus of poliomyelitis, or that it is itself the cause of poliomyelitis and capable of existing in filterable and nonfilterable forms. It would be interesting to discuss in detail the various facts and considerations which appear to favor the one and the other of these two possibilities, but it is doubtful whether such discussion would promote the final solution of the etiologic problem of poliomyelitis as now presented. We must await the results of further experiment and study.

ACTIVATED SLUDGE

The utilization of the nitrogen in sewage by the so-called activated sludge process is proving one of the most promising of recent methods of sewage treatment. As is well known, the disposition of sludge has long been a stumbling block in various processes of sewage disposal. This is chiefly because the expense of separating the solid matter of sewage from the water with which it is associated is so great as to overbalance any fertilizing value the sludge itself might possess. It is not found economical in most instances to dry or press the sludge and sell it for fertilizer, so that the removal of the sludge entails additional expense rather than revenue. Another reason for the failure to utilize sludge has been that when any separation of the solid matter is carried out, much of the organic matter of the sewage remains behind in the fluid portion. Simple sedimentation removes only about one third of the total organic matter in ordinary sewage, and chemical precipitation only about one half. It is considered an advantageous feature of the activated sludge process that the colloidal and suspended matters of the sewage are more highly concentrated in the sludge. According to recent experiments in Milwaukee,[5] about 70 per cent., or more than two thirds of the organic matter, is removed by the activated sludge method. The result appears to be that the fertilizing value of the sludge is raised by this process almost for the first time to the point of commercial importance. It seems likely from the Milwaukee experiments that under favorable conditions the nitrogen-rich activated sludge can be rid of its water and marketed at a profit. In the future, nitrogenous fertilizers are almost certain to be in even greater demand than at present. While there are many problems which still remain to be worked out with respect to the most suitable methods of drying or pressing, it is evident that sanitary engineers who have concerned themselves with this problem are much encouraged by the possibility for successful treatment offered by the activated sludge process.

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[1] Wells, C. W.: Immune Human Serum in the Treatment of Acute oliomyelitis, this issue, p. 1211.

[2] Mathers, George: Some Bacteriologic Observations on Epidemic oliomyelitis, THE JOURNAL A. M. A., Sept. 30, 1916, p. 1019.

[3] Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, this issue, p. 1202.

[4] Nuzum, John W., and Herzog, Maximilian: Experimental Studies in the Etiology of Epidemic Poliomyelitis, this issue, p. 1205.

[5] Copeland, W. R.: Engineering News, Oct. 5, 1916.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Chamber of Commerce Protests Appointments of Nonresidents.—Announcement having been made that in filling existing vacancies in the positions of chief food inspector and chief medical and sanitary inspector of public schools, appointments would be made without reference to residence in the District of Columbia, the Washington Chamber of Commerce adopted a resolution that said positions should be filled from among the many duly qualified physicians who are bona fide residents of the District.

Medical Inspector Dies of Infantile Paralysis.—Dr. Arthur Le Roy Hunt, a medical inspector in the service of the health department, died, October 7, of infantile paralysis believed to have been contracted in the line of duty. While Dr. Hunt had not been exposed to any known case of infantile paralysis since the middle of July, yet his daily duties had brought him into contact with many children who had come into the District of Columbia from infected areas, with certificates from the local authorities purporting to show absence of exposure to infection. Dr. Hunt was one of the best known anesthetists in Washington.

GEORGIA

Hospital Items.—Dr. Jefferson D. Chason, Bainbridge, has awarded the contract for the erection of a hospital on Shotwell Street, to cost $45,000. The hospital will have thirty rooms for patients in addition to the operating rooms, public wards and nurses' quarters.——The annex to the Columbus City Hospital was opened for the inspection of the public, August 17. The dedicatory speech was made by Rev. J. W. Howard. The new building is three stories in height, and will be used for a contagious disease ward and for negro patients.——A building permit has been issued for the new Macon City Hospital which is to cost $80,000, and work on the foundation has already been commenced. The three hospital buildings are to be completed within eight months. The main building will be a five-story structure with balconies on each floor and a roof ward. There will also be a service building, a three-story structure with a free clinic or outpatient department, and dispensary for both white and colored patients. The upper two floors will contain wards for negroes. It is expected that the cornerstone will be laid the latter part of this month.——LaGrange will soon have a city hospital. Mr. J. E. Dunson, president of the LaGrange Banking & Trust Co., willed the city $10,000, and $500 a year for five years for its support, provided the city would give a like amount.——The LaGrange Sanatorium, valued at $30,000, has been bought, the city giving $10,000 and Dr. and Mrs. Henry R. Slack, LaGrange, the remaining $10,000 to complete the purchase. Possession will be given to the city, Jan. 1, 1917. The hospital will have forty beds and a negro ward.

IDAHO

New Officers.—At the annual meeting of the Idaho State Medical Association, held at Twin Falls, October 5 and 6, the following officers were elected: president, Dr. Charles S. Moody, Hope; vice president, Dr. Albert F. McClusky, Buhl; secretary, Dr. Edward E. Maxy, Boise (holdover); delegate to the American Medical Association, Dr. Charles R. Scott, Twin Falls; alternate, Dr. Leonard E. Hanson, Wallace. Sand Point was fixed on as the place of meeting for 1917, and the meeting will be held in the latter part of June or early in July, the exact date not yet being fixed.

ILLINOIS

New Sanatorium Opened.—The Municipal Tuberculosis Sanatorium at Rock Island was opened, October 19, and a reception was given in the afternoon and evening.

Diphtheria in State School and Colony.—The State School and Colony of Lincoln reports nine new cases of diphtheria, October 11, making a total of nineteen. One death has thus far been reported.

Southern Illinois Medical Association.—The forty-second annual meeting of the Southern Illinois Medical Association will be held at Benton, November 2 and 3, under the presidency of Andrew J. Butner, Harrisburg.

Hospital Auxiliary Formed.—The Mary Thompson Hospital Auxiliary has been formed with Mrs. George Patrick, Wheaton, president, and Dr. Goldye Hoffman as a vice president. The association hopes to do much to perpetuate the work of the founder of the hospital, the late Dr. Mary Thompson.

Personal.—Dr. James W. Pettit was elected president of the Mississippi Valley Sanatorium Association, at the meeting of the Mississippi Valley Conference on Tuberculosis, October 7.——Dr. Charles H. Starkel, Belleville, chief surgeon of the Southern Railway Company, entertained the members of the staff of the railway at a dinner at the St. Clair Country Club, October 3.

Chicago

New Dean for Northwestern.—The resignation of Dr Arthur R. Edwards, as dean of Northwestern Universit Medical School, was accepted by the trustees of Northwester University, October 17. Arthur I. Kendall, professor of bacteriology, was made acting dean.

Personal.—Dr. Julius H. Hess has been appointed professo of pediatrics and head of the division of pediatrics in th University of Illinois, College of Medicine.——Dr. Gilber M. Loewe, who has been working under the German Re Cross at Naumburg, Germany, for eight months past, ha returned home.——Dr. Franklin H. Martin has been appointe a member of the advisory commission to be associated wit the council of national defense.

MARYLAND

Personal.—Dr. J. Hubert Wade has been appointed chairman of the Penal Board of Control.——Dr. William H Welch has returned from Europe.——Dr. John H. Von Dreel health warden of the thirteenth ward of Baltimore, ha resigned.——Dr. James J. Mills, Baltimore, has returne from France.——Dr. Grover A. C. Stem, Baltimore, who on duty with the German army on the Eastern front, ha been given the iron cross by the emperor.

Increase in Infantile Paralysis.—The total number of case of poliomyelitis for the week exceeded forty-five, the highe number on record since the beginning of the outbreak. Wit the development of this number of new positive cases, th health department has more patients than it can care fo the Children's Hospital School, Sydenham Hospital, and th Harriet Lane Home being crowded. Arrangements ha been made with the Kernan Hospital for ten additional be and for as many at the Garrett Hospital as can be obtaine At present there are sixty-one cases at the Children's Ho pital School. There is a slight epidemic of the disease Garrett County, several new cases having been reported to t state department of health during the week. The situation the counties was discussed at a recent general meeting of t state board of health, and Dr. John S. Fulton, the secreta of the board, was authorized to lift the quarantine whenev he felt conditions would justify it. Children from oth states are still barred from Maryland and in several instanc have been turned back. It is at present hoped that the schoo will be open to the kindergarten and first six grades November 10.

NEW YORK

Italian Liner Quarantined.—The Italian liner *Duca d'Aosta* which arrived from Naples, October 14, with 1,372 steerage passengers, has been held in quarantine for twenty-four hours on account of the illness of an immigrant who presented symptoms suggestive of Asiatic cholera.

Lessons in Hygiene.—The New York County Chapter of the American Red Cross has opened a teaching center at 3 East Fifty-Sixth Street where classes in elementary hygiene and care of the sick, first aid to the injured, home dietetics and the making of surgical dressings are held daily.

New York City

Poliomyelitis.—October 14, there were fifteen new cases of poliomyelitis reported in Greater New York, with four deaths. The number of cases to that date has been 9,202, with 2,356 deaths, and there were 1,136 patients in hospital on October 14.——On the recommendation of Senior Surgeon Charles E. Banks, U. S. P. H. S., in charge of inspection in New York, Surgeon-General Blue has ordered the federal inspection of travelers from New York to be discontinued.

Police Laboratories Again Opened.—Funds have been contributed which make possible the opening of the Psychopathic Laboratory at police headquarters. This laboratory was opened last December in order to cull from the prisoners each day those who were mentally defective and to send them to suitable institutions. The list of those subscribing to the support of this laboratory include Andrew Carnegie, F. W. Vanderbilt, Daniel Guggenheim, Mortimer L. Schiff, William Rockefeller and Mrs. George B. Alexander.

Fireproof Garb for Children.—Dr. Charles F. Pabst, Coroner's Physician of Brooklyn, declares that the statistics of the New York fire department show that 90 per cent. of accidental and preventable fires during the past year were caused by children swinging cans filled with dried leaves and paper, and warns parents against allowing children to play with these portable fires. He recommends that all children's clothing should be fireproofed and says this may be done by soaking any fabric for five minutes in a solution of ammonium phosphate, in the proportion of 1 pound to 2 quarts of water. This will render any material fireproof until it is washed.

Lectures.—The Wesley M. Carpenter lecture, which was to have been delivered by the late Dr. John B. Murphy, Chicago, was delivered by his collaborator, Dr. Philip H. Kreuscher, who presented the joint work of Dr. Murphy and himself on "A Clinical and Experimental Study of the Metastatic Arthritides," based on 800 clinical cases and illustrated with lantern slides, at the New York Academy of Medicine, October 19. Dr. George E. Brewer also gave a brief appreciation of Dr. Murphy and his place in American surgery. ——The governors of the New York Skin and Cancer Hospital announce that the eighteenth series of clinical lectures on diseases of the skin will be delivered by Dr. L. Duncan Bulkley in the outpatient hall of the hospital on Wednesday afternoon at 4:15, beginning November 1.

PENNSYLVANIA

Typhoid at Capital.—Eight new cases of typhoid fever were reported in Harrisburg, October 12, making a total of 122 since October 1. The city health officials today canceled the license of the Hershey Creamery Company, forbidding the sale of its products here. The source of the epidemic has been traced to the company's plant and products.

Paralysis Bar Up Again.—Public schools, Sunday schools and moving picture places have been closed in Norwood, Delaware County, following the discovery of a case of infantile paralysis in that town.——The schools of Collingswood, N. J., which have just been opened have been ordered closed again, following the development of two cases there.——Three new cases were reported in Philadelphia, October 12. Four new cases were reported in districts outside of Philadelphia, October 12, making a total of 1,722 since July 1. The list includes 905 in Philadelphia.

Philadelphia

Rush Society Lecture.—John Scott Haldane, M.D., LL.D., F.R.S., Fellow of New College, Oxford, gave the first lecture in the Rush Society series for the present year in Thomson Hall, College of Physicians, October 19. The subject was the "New Physiology." Professor Haldane is in this country at the invitation of Yale University, to deliver the Silliman Lectures.

Personal.—Although Daniel Baugh resigned from the board of trustees of Jefferson Medical College and Hospital last summer, the board thus far has not accepted his resignation. His reason for resigning is his advanced age—he is now 80—and his desire to lessen his duties. He has been a munificent benefactor to Jefferson and by his active participation in its management has been of great service to that institution. In July, this year, he gave $100,000 for the endowment fund of the college.——Dr. Frank C. Abbott, who has been serving in the Military Hospital in Vendome, France, has returned home.——Two Philadelphia physicians, Lieuts. Joseph V. Klauder and John B. Ludy, M. R. C., U. S. Army, have been placed on the active list and assigned to duty in the Hawaiian Department.——Dr. R. Tait McKenzie, physical director of the University of Pennsylvania, who has been in England for the past year serving as a major in the Medical Corps of the British army, has arrived in Philadelphia to resume his usual duties at the university.——Dr. Ardrey W. Downs, formerly professor of physiology at the Medico-Chirurgical College, has accepted a position as head of the department of physiology at McGill University, Montreal.

WISCONSIN

Poliomyelitis in Wisconsin.—According to the records of the state board of health, 318 cases of infantile paralysis had been reported in Wisconsin up to September 30.

Work of Rhinelander Laboratory.—The new Rhinelander branch of the state department of hygiene is manufacturing antityphoid vaccine which it is sending to any physicians in its territory on request. The laboratory is also prepared to make analyses of sputum, the Widal test, water analysis and the like.

University Dispensary Clinical School Opens.—The dispensary clinical school of the Marquette University Medical Department reopened at Reservoir Avenue and Fourth Street, Milwaukee, September 25. A new feature will be a charge of 10 cents a visit for those who can pay it. The dispensary will be open from 10:45 a. m. to 2 p. m. daily.

Wisconsin Medical Women's Meeting.—At the seventh annual meeting of the Wisconsin Medical Women's Society, held in Milwaukee, October 3 to 4, the following officers were elected: president, Dr. Minnie M. C. Hopkins, Oconto; vice president, Dr. Irene G. Tomkiewicz, Milwaukee; secretary, Dr. Mary L. Ewing, Evansville, and treasurer, Dr. Belle Mair, Oshkosh.

New State Society Officers.—At the seventieth annual meeting of the State Medical Society of Wisconsin, held in Madison, October 4 to 6, the following officers were elected: president, Dr. Hoyt E. Dearholt, Milwaukee; vice presidents, Drs. John F. Pember, Janesville, and Joseph F. Smith, Wausau; secretary, Dr. L. Rock Sleyster, Waupun, and treasurer, Dr. Sidney S. Hall, Ripon; delegates to the American Medical Association, Dr. Horace M. Brown, Milwaukee, and the secretary.

Health Movies.—The Wisconsin Anti-Tuberculosis Association has started a crusade throughout the rural districts of the state. It has sent out a health wagon which carries sound health information, moving pictures and a health exhibit. The wagon is in charge of Ted Worle, the originator of the flying squad of health of the association. The beginning was made in Walworth County in August, Rock County was the next to be invaded, and the work will be continued as late into the fall as the weather conditions will permit. The days are spent in traveling and visiting farm houses and distributing literature, and in the evenings moving picture shows and lectures are given in the nearest villages or towns.

GENERAL

Southern Medical Association.—The annual meeting of the Southern Medical Association will be held in Atlanta, November 11 to 16, under the presidency of Dr. Robert Wilson, Jr., Charleston, S. C.

Erie Surgeons Elect.—At the twenty-sixth annual meeting of the Erie Railway Surgeons Association, held in New York, Dr. Chalmers D. Morgan, Galion, Ohio, was elected president; Dr. Rufus B. Harden, Waverly, N. Y., vice president; and Dr. Bertis R. Wakeman, Hornell, N. Y., secretary and treasurer. The next meeting will be held in Cleveland.

National Medical Examination Day.—Following a custom inaugurated last year the National Association for the Study and Prevention of Tuberculosis has set apart the week of December 3 to 10 as National Tuberculosis Week, and has fixed December 6 as National Medical Examination Day when physicians all over the United States will be requested to examine patients for tuberculosis free of charge.

American College of Surgeons Meeting.—The fifth meeting of the American College of Surgeons will be held in Philadelphia, Oct. 27, 1916. One of the chief questions of interest to come up at this meeting will be the acceptance of a gift of from $300,000 to $500,000 from the John B. Murphy Memorial Association of Chicago to build in Chicago the John B. Murphy Memorial Hall of the American College of Surgeons.

Accuracy of Certified Causes of Death.—At the next meeting of the American Public Health Association, to be held in Cincinnati, October 24, the accuracy of certified causes of death will be one of the important subjects considered. To the meeting will be submitted the report of a special committee, of which Dr. Haven Emerson is chairman, appointed to consider the causes in question and their relation to mortality statistics and the "International List of Causes of Death."

Impostor.—D. Appleton & Co., New York, announce that a man using the name B. F. Little has recently been collecting money from physicians in Oregon and Washington as their representative. This man states that he is collecting for the Western Students Benefit Association of Denver. Physicians in Puyallup, Wash., and Coquille, Ore., have been victimized. Any payments made to this man, who has no connection whatever with their firm, are made at the risk of the physician making the payment.

New Mississippi Valley Officers.—At the annual meeting of the Mississippi Valley Medical Association, held at the Hotel Claypool, Indianapolis, October 10 to 12, Toledo, Ohio, was decided on as the place of meeting for 1917, and the following officers were elected: president, Dr. Channing W. Barrett, Chicago; vice presidents, Drs. Francis M. Pottenger, Monrovia, Calif., and Frank B. Wynn, Indianapolis; secretary, Dr. Henry Enos Tuley, Louisville, Ky. (reelected), and treasurer, Dr. S. C. Stanton, Chicago (reelected).

Southwestern Physicians Hold Meeting.—The eleventh annual meeting of the Medical Association of the Southwest was held in Fort Smith, Ark., October 2 to 4. Kansas City was selected as the next place of meeting and the following officers were elected: president, Dr. Everett S. Lain, Oklahoma City; vice presidents, Drs. Howard L. Snyder, Winfield, Kan.; John H. Thompson, Kansas City, Mo.; Matthew M. Smith, Dallas, Texas, and Charles S. Holt, Fort Smith, Ark., and secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla.

Personal.—Dr. Joseph A. Blake has recovered from his recent illness and has returned to work in his hospital.——Dr. Louis L. Seaman arrived in New York on the Anchor liner *Cameronia,* October 9.——Dr. Paul J. Werner sailed for Europe, September 22, and will do war relief work in Heidelberg.——Dr. J. Richard Kevin, major surgeon of the Twenty-Third Infantry, has returned from the border.——Dr. Francis LeRoy Satterlee, Jr., underwent an operation, October 10, for cancer contracted as a result of Roentgen-ray burns several years ago. Dr. Satterlee has been operated on twice and lost two phalanges of the second finger of the right hand.

Poliomyelitis in Neighboring States.—Up to the last available date of record there have been in New York and the adjacent states of New York, Connecticut, Massachusetts, New Jersey and Pennsylvania the following number of cases and deaths:

	Cases	Deaths
New York City (Sept. 30)..........	9,029	2,286
New York State, exclusive of New York City (Sept. 14)..............	2,785	318
Connecticut (Sept. 18)..............	677	Not reported
Massachusetts (Sept. 19)............	678	95
New Jersey (Sept. 19)...............	3,495	775
Pennsylvania (Sept. 20).............	1,278	313

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to $250, will be made on July 14, 1917, provided that an essay deemed worthy of the prize shall be offered. The essays must be on the subject of medicine, and cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1917. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. The successful essay or a copy thereof shall remain in possession of the college; other essays will be returned on application within three months after the award. The essays should be sent to Dr. Francis R. Packard, secretary of the College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia. The Alvarenga prize was not awarded in 1916.

Definition of Major Surgical Operation.—Dr. Francis D. Patterson, chief of the Division of Industrial Hygiene and Engineering of the Department of Labor and Industry of Pennsylvania, forwards the following definition of the term "major surgical operation," as defined and issued by the Workmen's Compensation Board of that state, in interpreting the term as applied to cases under the compensation law of Pennsylvania:

> A major operation is a surgical procedure which entails immediate serious consequences to the patient and which requires skill and training to perform and includes: 1. The setting of fractures of long bones and reducing of subluxations, providing accuracy and efficiency of reduction be demonstrated by x-ray taken before and after surgical treatment. 2. All operative procedures, other than finger and toe amputations, cleansing, draining and closing wounds, evacuating pus by incisions, the manipulating and reduction of uncomplicated dislocations, the treatment of uncomplicated fractured ribs, the removal of superficial foreign bodies from the eyes, and the removal of subcutaneous foreign bodies.
>
> NOTE.—All fees for a major operation shall be limited to such charges as are reasonable for similar treatment of injured persons of like standard of living in the same community, and where such treatment is paid for by the injured person himself, the charges including hospital service to be paid by the employer not in any case to exceed the sum of $75.

Bequests and Donations.—The following bequests and donations have recently been announced:

Beth Israel Hospital, New York, $10,000, by the will of Harris Wolff.

Fresh Air Fund and Home for Crippled Children of St. Thomas Protestant Church, New York, and the Brooklyn Home for Consumptives, each $5,000, by the will of Mrs. Mary Stewart Bierstadt.

Mount Sinai Hospital, New York, and the United Hebrew Charities, each $1,000, by the will of Dr. Jacob H. Frankenberg.

White Plains Hospital, New York, $2,500; New York Society for Prevention of Cruelty to Children, and New York Society for Suppression of Vice, each $5,000.

Norwegian Lutheran Deaconess Home and Hospital, Chicago, $10,000, subscription by the staff of the hospital; $25,000 for the endowment of a ward, by J. P. Hovland; a donation of $9,100, by Mrs. Elvira Lindeman, and up to October 15, subscriptions of $26,450, and a fund of $1,000 by James A. Patten.

Minnesota State Anti-Tuberculosis Fund, $12,935.40, from the State Athletic Commission, being 10 per cent. of the receipts of legally authorized boxing matches in the state.

To founding a chair of bacteriology in Jefferson Medical College, one half of the trust fund remaining from the estate of Dr. James Y. Shearer, Sinking Springs, Pa.

Boston Dispensary and Massachusetts General Hospital, each $3,000, by the will of Henry F. Lynde, Somerville.

For erection of a home for nurses of La Crosse (Wis.) Hospital, two pieces of property and a donation of the necessary funds by Mrs. Henry Gund.

Peoria (Ill.) Public Health Nursing Association, $3,300, as a result of tag day.

FOREIGN

Hospital Improvements.—Government decrees in the Argentine have authorized the installation of water and sewerage services at a cost of $58,000 at the Hospital Comun Regional del Centro Bell-Ville, Cordoba; the construction of a building to be used for an electric plant at a cost of $15,000, and the installation of an electric plant and electric lighting at a cost of $48,900 for the Comision Asesora de Asilos y Hospitales Regionales, Buenos Aires, and the installation of water and sewerage works at the Sanatorio Nacional de Tuberculosos, Sante Maria, Cordoba, at an estimated cost of $62,700.

Health for Siam.—Mahildo, Prince of Songkla, brother of the King of Siam, has come to America to take a course of instruction in public health at Harvard Medical School and the Massachusetts Institute of Technology, with the idea of a new régime in Siam in which the public health will be a serious concern of the government. The care of the body will be taught in the schools; sanitary living will be made compulsory; preventable diseases will be prevented, and by state control of marriage, the union of those not physically fit will be made impossible. Prince Mahildo will maintain his headquarters in Gloucester.

Restriction of Sale of Drugs in Spain to Pharmacies.—According to the Madrid *Siglo Medico,* the sale of *medicamentos* is definitely and permanently forbidden outside o pharmacies and in these they are to be sold only on *prescripcion facultativa.* Pharmacists and their employee have their attention called in particular to ether, cocain an morphin which must not be dispensed without a corresponding prescription for them which insures their proper use Infringements of this regulation will be punished and thos knowing of such infringements are urged to inform the stat board of health (*Inspeccion provincial de Sanidad*).

German Journal Arrives.—The *Therapeutische Monatshefte* for September arrived, October 8, the first German medical journal to reach The Journal since early last May. It is the second issue of the *Monatshefte* to be received this year, No. 2 having been reviewed in The Journal, April 15, p. 1280. Before the war twenty-six German journals were indexed regularly. The German medical journals are being published regularly, as abstracts from them appear in the Scandinavian and Netherlands exchanges. An Amsterdam exchange lists the contents of several of the German weeklies regularly. Military surgery and hygiene crowd nearly everything else out, but both are conspicuous by their absence in the articles in the lone *Therapeutische Monatshefte* just received.

Enforcement of Antimosquito Measures in Paris.—The French Académie de médecine recently voted a resolution to the effect that the public health service should have added to the regulations in vogue against epidemics the right to enter private property and apply the measures necessary to eradicate mosquitoes. Such regulations are in force in the French colonies and are rigidly applied, but the population has no redress for the nuisance and danger of mosquitoes in France proper. The war has brought many carriers of the malaria parasite to France, and a number of small foci of true malaria have developed from them in regions where the anopheles abound. Certain large private grounds in Paris have been a hotbed for mosquitoes this year but the police were powerless to interfere. During the discussion it was stated that a house or factory left vacant for a month or so is liable to afford breeding places for mosquitoes in the water-closet tanks and traps.

Drugs in Italy.—An important medical organization in Italy, the Consiglio della Federazione degli Ordini dei Medici, recently adopted by unanimous vote a resolution calling on the government to aid the state and private laboratories and central military pharmacy in the production and sale of drugs, and to study ways and means to foster the best conditions in these lines. The second half of the resolution urges physicians in their prescriptions to restrict themselves to drugs of well-recognized and practical efficiency and prescribe as little as possible of pharmaceutic specialties and specialized products. The resolution concludes with the words, "and deploring once more that certain physicians lend themselves to the study and boosting of pharmaceutical specialties of certain houses, we call attention to the numerous resolutions adopted by the organization from time to time condemning any and every form of suspicious relations between physicians and pharmacists."

Deaths in the Profession Abroad.—Dr. William Appleton Meredith, M.B., C.M. (Edin.), 1872, F.R.C.S. (Eng.), 1897; aged 68; a native of Philadelphia, but for many years a resident of London; well known as an abdominal surgeon, and consulting surgeon to the Samaritan Free Hospital; author of many monographs dealing with his specialty; died in London, recently.——P. Lagleyze, aged 61, professor of ophthalmology in the University of Buenos Aires, and permanent member of the executive committee of the Pan-American medical congresses, a frequent speaker at international medical and ophthalmologic congresses, collaborator on various specialist and general medical journals and dean of the university. He also took a leading part in fostering art and was a member of the National Art Commission. He had published about 200 articles on the eye and devised a special technic for operations on cataract, squint and ectropion.——A. Quiroga, professor of chemistry at the same university, aged 65, and G. Anschutz, professor of bacteriology, aged 37.

CANADA

University News.—Attendance and registration in the new postgraduate course in the University of Toronto in medicine s above the average this year. It is expected that several students will yet enroll in the coming two weeks.

Total Canadian Losses in War.—Up to October 11, the otal number of casualties among officers and men of the Canadian expeditionary forces has been 52,025, divided as follows: killed in action, 8,134; died of wounds, 3,120; died of sickness, 452; presumed dead, 1,009; missing, 1.372, and wounded, 37,939. The marked feature of this report is the very small number dying of sickness.

Canadian Committee on Orthopedics.—The Military Hospitals Commission has appointed the following committee on orthopedics to consider the matter of artificial limbs for soldiers: Drs. Clarence L. Starr, Toronto; William E. Gallie, Toronto, and Lieut.-Col. A. Mackenzie Forbes, Montreal. Dr. Francis J. Shepherd, Montreal, and Dr. Frederick E. Thompson, the medical superintendent of the commission, will be ex-officio members of the committee.

Personal.—Dr. William A. C. Macdonald, Windsor, has been commissioned in the medical department of the Canadian army, and will soon leave for France to assist in the eye and ear work in a Canadian base hospital.——Maj. Alex. B. Osborne, Hamilton, Ont., has been promoted to lieutenant-colonel.——Hon. Dr. Robert A. Pyne, minister of education for Ontario, has returned from England.——Surg.-Gen. Carleton Jones, director-general of the Canadian Army Medical Services, is returning to Ottawa, but this does not mean that General Jones is to leave the service.

Hospital News.—The proposed reorganization of the Canadian Army Medical Services in England and France and the segregation of Canadian soldiers in Canadian hospitals abroad is not to be accomplished without many vigorous protests. The plan was very carefully considered by a committee of Canadian officers abroad, consisting of Col. Herbert A. Bruce, Toronto; Col. Charles Hunter, Winnipeg; Lieut.-Col. Walter McKeown, Toronto; Lieut.-Col. Frank W. E. Wilson, Niagara Falls, Ont., and Lieut.-Col. Wallace A. Scott, Toronto. This committee considers that the work of caring for the wounded will be greatly facilitated thereby, but the segregation is not to take place until the convalescent stage has been reached. It is understood that the plan will result in saving many millions of dollars. It is also claimed for the scheme that instead of 15 per cent. returning to active service, fully 65 per cent. will be available.——Queen's University Base Hospital in France is to move from Tréport to Etaples as soon as the weather becomes too cold to stay in tents. The hospital has treated over 4,000 patients in France.——Lieut.-Col. John Stewart, Halifax, N. S., has been offered the position of head of the Duchess of Connaught Canadian Hospital at Cliveden, England, but has not yet accepted. Dr. Charles W. F. Gorrell, Ottawa, who was in charge of this hospital, has resigned, and is returning to Ottawa.——The Military Hospital at Coburg, Ont., has now in residence eighty returned soldiers.——The new private pavilion of the Royal Victoria Hospital, Montreal, donated by Mr. J. K. L. Ross, one of the directors of that institution, was formally opened by the Duke of Connaught during the past week. This will make available about 200 additional beds in the Victoria Hospital proper for public ward patients.——Reforms are to be instituted in the Toronto Base Military Hospital as the result of a recent official inquiry. The inquiry elicited the fact that the medical staff under the command of Lieut.-Col. Thomas B. Richardson has taken splendid care of their patients in this hospital. Over 9,000 patients have been treated, and the death rate has been less than one half of 1 per cent. A complete quartermaster's staff will be appointed for base hospitals in the future.

WAR NOTES

New Collapsible Stretcher.—The Red Cross reports the use of a new collapsible stretcher which can be folded so compactly that it can be lowered into a trench and a wounded soldier placed in it, thus obviating the necessity previously existing of lifting the wounded men out of trenches, exposed to fire, and then placing them on the ambulance stretchers.

Ambulance for Balkans.—The recently formed section of the American Ambulance Field Service, which is to serve with the French army in the Balkans, left Paris, October 13, for the Saloniki front. The section includes thirty ambulances with the necessary repair cars and kitchen car and the other accessories for service, and is under the command of Lovering Hill of New York.

OUR TROOPS ON THE BORDER

Health Report.—The weekly health report from the Southern department for the week ending September 30 shows the percentage of illness among the militia to have been 2.25 per cent., with seven deaths. For the same period the percentage of illness among the regulars was 3.42 per cent., with five deaths.

National Guard Officers Resign.—The resignations of the following officers of the Medical Corps of the Organized Militia have been accepted by the president, taking effect on the dates given below: Lieut. Harry C. Guess, Buffalo; Lieut. Philip H. Stephens, Los Angeles, September 15; Capt. Dean F. Winn, Atlanta, Ga., September 29; Maj. Frank W. Foxworthy, Indianapolis, September 16; Maj. George H.

Parmerlee, Detroit, August 31; Lieut. William C. Bell, Dearborn, Mich., September 1; Capt. Arnt G. Andersen, Minneapolis, September 25; Capt. William O'G. Quinby, Newark, N. J., September 1; Lieut. Sherwood V. Whitbect, Hudson, N. Y., September 30; Lieut. George B. Booth, Toledo, Ohio, September 1; Lieut. Lemuel R. Brigman, Cleveland, September 1; Maj. Thomas G. Aller and Lieut. James B. Rucker, Jr., both of Philadelphia, August 30, and Maj. Scurry H. Terrell, Dallas, Texas, September 15. Maj. W. H. Tukcy, Boise, chief surgeon of the Idaho National Guard, resigned, September 15, to accept a new position in Idaho.

PARIS LETTER

Paris, Sept. 21, 1916.

The War

TREATMENT OF WOUNDS OF THE VESSELS

At the "Réunion médicale de la IV-e armée," Dr. E. Potherat, surgeon of the Paris hospitals, drew attention to cases of wounds of the greater vessels (of the neck and limbs), in which the hemorrhage is absent or very slight, and which are compatible with life; these lesions sometimes cause so few signs that they may be altogether passed over until it happens that the obstacle to hemorrhage is removed, and bleeding is suddenly produced in abundance and with the gravity ordinarily associated with the wound of a great vessel. The obstacle to considerable primary hemorrhage which tends to mask the lesion is usually a small hemorrhage closely confined by the muscles and aponeuroses; this hematoma acts as a plug. Sometimes the vascular coats are themselves the seat of this plug while at other times it is formed by the projectile. The removal of a foreign body or the breaking down of clots by suppuration, and the freeing of the vasculonervous bundles by the removal of the hematoma or of the cellular tissue are the usual causes which provoke secondary hemorrhage with its consequences.

This train of events is quite common in war wounds and in all parts of the body, and, because of the danger to life which it constitutes, it is necessary to bear it in mind. Fatal hemorrhage may occur after a few hours, a few days or even, sometimes, a few weeks. Whenever, therefore, a projectile has penetrated the body in such a place or in such a direction that it must have passed through a vasculonervous bundle or in the immediate neighborhood of large vascular trunks even though the hemorrhage is moderate or nonexistent, even though no sign betrays the vascular lesion, it is necessary to follow the same line of conduct as if such a lesion were certain. The wound must, therefore, be opened up, and the vessel exposed and carefully examined to make certain of its integrity if it is intact, to discover the lesion if it exists, and to tie the vessel. By opening up the wound and removing the clots and injured parts which are sure to necrose, this intervention, even though it may prove that the vessels are intact, produces conditions favorable for repair, and if there is a vascular lesion, it safeguards the life of the patient.

Drs. Barbarin and Lerat communicated to the "Réunion médico-chirurgicale de la V-e armée" twenty-three cases of ligature of vessels, twenty-two of them practiced three hours on the average after the infliction of the wound. Of these twenty-three cases one terminated fatally. In this instance death occurred suddenly a few moments after the ligature of the femoral vein in Hunter's canal. At the necropsy, numerous infarcts were found in the right lung. In the twenty-two other cases amputation was required in three, and in one of these it was necessitated solely by the bony and articular lesions, the ligature of the anterior tibial artery having nothing to do with it. In the nineteen remaining cases, the postoperative condition was good, and no circulatory troubles were observed even in three cases of ligature of the popliteal vein. From a consideration of these twenty-three cases of ligature of the vessels, Barbarin and Lerat drew the following conclusions: 1. Lesions of the vessels are more frequent than they appear. 2. They exist sometimes in the most unsuspected places. 3. They are benefited almost more than any other war wound by the earliest possible intervention. With regard to the technic of these operations, one has to distinguish between the cases in which the wound is in the usual line for exposing the vessel from those, much more numerous, in which it is situated elsewhere. In the former case it is necessary only to open up the wound and proceed in the classical manner to find the artery in the vein. In the other case, it is better not to yield to the temptation to seek the vessel in the wound because one will only be hindered by the muscles which are infiltrated with blood. It is better after having opened up the wound to cut down on the vessels in the classical position. In this case one has the choice of suturing or not suturing this operative wound. It has been the usual practice to put in a few stitches and to place a package of agar with a tube to permit of dakinization. Dakin's fluid irrigates the wound and flows out by the proper drain with the result that cicatrization is rapidly obtained.

CONDEMNATION OF SOLDIER FOR REFUSAL OF TREATMENT

The Council of War of the fifth corps d'armée, sitting at Orleans, has condemned to three months' imprisonment a soldier who refused to allow mercurial injections on himself, under the pretext that these injections caused pain and other unpleasant consequences. The lieutenant who conducted the prosecution submitted that the accused had no motive to refuse a recognized treatment other than that of wishing to avoid a return to the front, and that in refusing treatment he caused himself to be a danger for others.

WOUNDS OF THE EYEBALL AND EYELID

This subject is being discussed at the Société d'ophthalmologie de Paris, and as the result it is made clear that wounds of the eyeball are serious and that the diagnosis in such wounds in wartime is graver than in times of peace. The reason, of course, is in the nature of the penetrating body. Foreign bodies are not always magnetic. Besides pieces of cast iron or steel, one frequently comes across fragments of stone, lead and copper (in proportion to ⅔) which are not susceptible of being removed by the electromagnet. When a wound of the eyeball presents itself, one should do all one can to save the organ, because even if the visual function is definitely destroyed, it may be possible to fit a movable artificial eye. Enucleation is far too often practiced without sufficient consideration. The object is to avoid sympathetic ophthalmia, but this complication is comparatively rare, and in any case does not manifest itself till the third or fourth week. Every surgeon who is not an oculist, when in the presence of a wound of the eye, should limit himself to (1) disinfecting the eyelids, the eyebrows and the cheek with weakly iodized alcohol, avoiding contact with the conjunctiva and the eye; (2) washing the eyeball and the conjunctival sac with warm physiologic salt solution, and (3) placing an occlusive dressing and sending the wounded man to an ophthalmic surgeon; (4) not in any circumstances, should he practice an enucleation. As regards wounds of the eyelids and neighboring regions, there are two considerations: early operation and later plastic operation. It is characteristic of war wounds involving eyelids that they are almost invariably accompanied by destruction of the eyeball and by lesions of the facial skeleton. They are sometimes very large. The following conduct is recommended in order to reduce the amount of disfiguration: After disinfection of the wound and removal of fragments, it is not good practice to open it up and drain it. On the contrary, it is far better to bring the integuments together, and this is possible without interfering with the drainage. If such wounds are left to granulate spontaneously, the future plastic operations will be compromised and many of the patients will remain permanently disfigured. One should, therefore, be careful to bring the fragments of torn eyelids together, and to respect their surface and that of the conjunctiva; drainage by tubes or wicks is usually quite sufficient. If necessary, one can practice a counteropening. Such wounded should evidently not be kept in the ambulance, but should be sent as soon as possible to the nearest ophthalmic center. Certain of the reconstitutions (plastic operations) can be practiced a few weeks after the infection of the wound, but the more important esthetic interventions are a work of patience. Granted this patience on the part of the surgeon and the wounded, much can be done for the disfigured by means of numerous operations. This kind of work, however, is more suited for the services in the interior of the country, and it will be especially a work of peace time.

Personal

Dr. Charles Paul, medicolegal expert to the tribunal of the Department of the Seine and at present head of the medicolegal service of the army, has just been mentioned in genera orders in the following terms:

> A physician as remarkable for his learning as for his courage render distinguished services to the army and to the civil population by hi dangerous experiments on asphyxiating gases. By his tireless activity his perilous missions in the firing line, hastening to any spot where thes gases cause danger, he has given proof of the greatest courage and o complete contempt for danger. He has been injured by the action o these gases.

Measures Against Rabies

In a previous letter I noted the diminution of rabies during the period 1910-1914 (The Journal, July 29, 1916, p. 369). During the last few months there has been a manifest increase in this disease. In Paris and its neighborhood, a district which has seemed during several years definitely freed from this plague, seventeen cases have been reported from March to July, inclusive. This grave situation seems due to the evacuation of houses in the military zone, which has left numerous dogs without domicile. The prefect of police has therefore published an order concerning dogs in the capital. A similar step has also been taken for the Department of the Seine. Henceforward every dog must wear a collar bearing the name of his owner, and must be either led or muzzled. Dogs found on the highway without such a collar, whether muzzled or not, and any dog whose owner is not known in the neighborhood, will be captured and killed. Dogs and cats bitten by a suspected animal will be immediately killed. Suspected animals will be quarantined for observation.

Sale of Poisons

The new law of July 12, 1916, concerning the importation of trade in and the storage of poisonous substances, cocain, opium, morphin and other narcotics, has just been applied for the first time by the Court of First Instance of Paris. A former law of 1845 imposed insignificant penalties—from six days to two months in prison and from 100 to 3,000 francs ($19.30 to $579) fine. Moreover, this law punished only for the sale, the purchase and the use of poisonous substances. Under the new law the penalty has been considerably increased. It varies from three months to two years in prison and from 1,000 to 10,000 francs ($193 to $1,930) fine. Moreover, the simple possession of poisons is punishable in the same way as the selling thereof. In the case mentioned the accused, who derived a considerable income from the sale of cocain, was condemned to one year's prison and 1,000 francs ($193) fine.

LONDON LETTER

London, Oct. 2, 1916.

Sir Lauder Brunton

Sir Lauder Brunton, Bart., M.D., C.M., D.Sc. (Edin.), M.D.R.U.I. (Hon.), LL.D. (Edin. and Aberd. [Hon.]), F.R.C.P. (Lond.), F.R.S., consulting physician to St. Bartholomew's Hospital, died at his residence in London in his seventy-third year. For many years he was easily the foremost authority on pharmacology and therapeutics in this country. A Scotsman, he was born in Roxburghshire, and was educated at Edinburgh, where he graduated M.B., in 1866, B.Sc., in 1867, M.D., in 1868, and D.Sc. in 1870, having in the meanwhile worked at Paris, Vienna, Berlin and Leipzig in the laboratories of the greatest physiologists of the day. Settling in London, he became a member of the Royal College of Physicians in 1870 and a fellow in 1876, and was appointed assistant physician to St. Bartholomew's Hospital, with which he had ever since been connected as physician and lecturer. His earliest important work was a thesis on digitalis in which he conducted most of the experiments on himself and showed that while small doses had little or no action, marked diuresis occurred when the drug was pushed so as to produce symptoms of poisoning. He found, also, that while the diuresis continued, the absolute quantity of solids excreted daily in the urine was increased, although their proportion to the urinary water was diminished. The great aim of his life was to convert therapeutics from an art into a science. As his friend and pupil Dr. Mitchell Bruce says, his "Experimental Investigation of the Actions of Medicine" (1875) was the first systematic textbook on experimental pharmacology, and his "Pharmacology, Therapeutics and Materia Medica," which appeared in 1885, was the first complete treatise on the subject from the standpoint of physiology, not from that of drugs. He formulated completely for the first time, in his thesis on digitalis, in 1866, the action of this drug on the heart and vessels. He introduced in 1867 a new class of remedies—vasodilators—into medicine, in using amyl nitrite as a remedy in disease because its physiologic action was to act in an opposite manner to the pathologic condition which he had discovered in the disease—angina pectoris—namely, rise in arterial pressure. Magendie did the same in regard to strychnin in paralysis; but he recommended it to combat a symptom; Brunton recommended the drug to combat a pathologic condition. He was the first to use scientific opotherapy by administering raw meat in diabetes in order to supply a glycolytic ferment. In his work with A. Macfadyen, he found that bacilli excreted an enzyme by which they attack and digest the soil in which they grow. In this observation he believed that they were anticipated by Salmon. They were, moreover, the first to discover that bacilli have the power of adapting the enzyme they secrete to the soil on which they grow. In 1889 he delivered the Croonian lectures of the Royal College of Physicians of London on the "Relationship between Chemical Structure and Physiological Action," and was thus a pioneer in a subject which has become most important in the present day. Other subjects in which he made his mark were the therapeutics of the circulation and of digestion, the action of snake venom, and the administration of chloroform. He was a lucid writer, and the manner in which he applied the discoveries of the laboratory to the problems of the clinic fascinated his generation. Many of the present day professors of materia medica and pharmacology are his pupils. Perhaps his most important practical work was the introduction into medicine of the drugs which lower blood tension. The story of his well known textbook on pharmacology was characteristic of the man. More than fifteen years before it appeared he had a work on materia medica ready for the press, but he asked the printer to wait a little so that he might make some improvement and remove some redundancies. When he went over the manuscript again he found many unsatisfactory statements and uncertainties which he thought he could remove by a few experiments, but as he went on the labor grew, and not until the end of the period mentioned was he able to produce the book which was the pioneer work of the kind. Many editions appeared both in London and America, as well as translations into French, Italian, Spanish and German. This was the first book in which pharmacology was considered as a scientific study of the physiologic action of drugs, and it exercised a most important influence throughout the world.

A Physician Who "Conscientiously" Objects to Attend to the Wounded

In this country cranks of all sorts flourish, and extreme regard for the rights of the individual allows a latitude unknown on the European continent, whether among our friends or foes. There the "conscientious objector" to military service is never heard of because the right to object does not exist. Here he is drafted into the ambulance corps or given other military work which does not involve the taking of life. But even this is not sufficient for some objectors. The extraordinary and so far unique case of a physician who objected even to attend to the wounded recently came before the Argyllshire Appeal Tribunal. Dr. J. C. MacCallum, tuberculosis officer of the county, appealed for exemption as a conscientious objector. The local tribunal had decided that he had not made out a case for exemption, and suggested that there was nothing to prevent him showing a true Christian spirit by placing his medical skill at the disposal of his wounded fellow countrymen. In his appeal, Dr. MacCallum said that his father was a parish minister who had preached consistently the essential sinfulness of war, and the family had for many years been conspicuously antimilitarist. Current events had done nothing to shake his ingrained repugnance to war. On the contrary, the spectacle of the neverending contest which was drenching Europe in blood had but served to steel his resolution against what was shown clearly to be a crime against humanity. Further, he was unable to realize that there was any logical difference in morality between combatant and noncombatant service. The appeal was dismissed.

Fatigue from the Economic Standpoint

At the meeting of the British Association for the Advancement of Science, the Section of Economic Science had an interesting discussion on the second report of the committee which is inquiring into the question of fatigue from the economic standpoint. The report included a memorandum from Dr. Gwynne Maitland, who during the war in Serbia had special opportunities for observation on accumulated fatigue in warfare. Experience of work in the field led him to useful conclusions which had resulted in some measure of reform in the army. Long continued trench strain gave rise to cases of breakdown in which the patients recovered after a period of rest, but were left with a shorter period of utility on return to the trenches, and on breaking down again were frequently discharged as of no further use. Not only was the period of activity shortened, but also the quality of the work deteriorated, as was shown by inaccurate firing and an inability to time hand-grenade fuses. Under the conditions which existed, it could not be hoped to obtain an ideal working day for each military unit; but with the present greater ability to supply reinforcements, it could be hoped to diminish the strain as well as more frequently to replace the actual fighting units. It became a matter of the greatest urgency that with this ability and with the growing delicacy of perception in the anticipation of the breaking point, a greater discretion might be employed to prevent it.

The report also dealt with fatigue as a cause of accidents, and the applicability of psychology to problems of industrial fatigue. Dr. G. B. Hunter, chairman of a large manufacturing firm, thought the matter of industrial fatigue had been greatly exaggerated. His experience was that so far from there being more accidents when hours were longest, most accidents occurred on Saturday when the working day was shortest. The average working hours in shipyards were thirty-seven weekly in ordinary times, and there was not much fatigue about that. They did, however, find fatigue when a man worked hard and drank whisky with it. Those who did not take drink worked the longest hours and suffered least from fatigue. He believed the average mother of a family grew more tired in a day than any shipyard worker.

Sir Thomas Oliver said that industrial fatigue was entirely the outcome of recent conditions of labor. All reports showed that it existed, and in his opinion it played an important part in the number of accidents which occurred. The hours of munition workers, he suggested, were far too long. It was also a mistake that girls should be working in the factory during the night. Women had done admirably, but we should see that the conditions under which they worked did not injure their health.

The Compulsory Notification of Venereal Disease

Lord Sydenham, president, and Sir Thomas Barlow and the Bishop of Southwark, vice presidents of the National Council for Combating Venereal Diseases, have written to the *Times* on this important subject as follows: "As some misunderstanding seems to have arisen in regard to the attitude of the National Council for Combating Venereal Diseases toward the question of compulsory notification, we desire to point out that we are determined to adhere strictly to the recommendations of the royal commission. That body carefully considered this question, and arrived at the conclusion that notification at the present time was impracticable, and might be detrimental to the operation of the measures it advocated. A great mass of evidence was taken, and the balance was strongly opposed to compulsory methods of this nature. The commissioners, however, recognized that, when public opinion became more enlightened and adequate facilities for treatment had been provided, 'the question of notifications should then be further considered.' They added that when these conditions have been fulfilled it is 'possible that notification in some form will be demanded.' We are convinced that this view is sound, and the national council will, therefore, lend no support to any proposals having for their object the establishment of compulsory notification—proposals which would necessarily lead to controversy at a time when unanimity of effort is essential."

Marriages

Charles Lounsbury Ruggles, M.D., Wellsberg, W. Va., to Miss Phoebe Otto of Cleveland, October 10.

Russell Firth Sheldon, M.D., Boston, to Miss Lura Emma Hewey of Brookline, Mass., October 9.

William H. MacDonald, M.D., Lake Geneva, Wis., to Miss Alma E. Hall of Chicago, October 18.

Adelbert Stephen Dederick, M.D., Brooklyn, to Mrs. Daisy M. Hunter of Summit, N. J., September 27.

John Irwin Gaston, M.D., Madill, Okla., to Mrs. Eula B. Mullins of Oklahoma City, August 14.

Byam Hollings, M.D., Waverley, Mass., to Miss Alice Walker of Norwood, Mass., October 2.

Thomas John Sullivan, Jr., M.D., to Miss Gertrude Scotten, both of Chicago, October 4.

Gordon Hurst Yeo, M.D., to Miss Ernestine Bishop, both of Big Rapids, Mich., October 2.

Paul Hume Crawford, M.D., to Miss Helen McKee, both of Oklahoma City, September 7.

Deaths

William Preston Miller, M.D., Hagerstown, Md.; University of Pennsylvania, Philadelphia, 1894; Baltimore Medical College, 1892; aged 46; a Fellow of the American Medical Association, and formerly president of the Washington County (Md.) Medical Society; local surgeon of the Baltimore and Ohio System; formerly a member of the council of the Medical and Chirurgical Faculty of Maryland; lecturer on pathology in Baltimore Medical College in 1897 and 1898; died at his home, October 6, from double pneumonia.

James W. McMeekin, M.D., Saginaw, Mich.; McGill University, Montreal, Que., 1885; aged 57; a Fellow of the American Medical Association; professor of surgery and clinical surgery in the Michigan College of Medicine and Surgery, Detroit; gynecologist to the Women's Hospital, Saginaw, and formerly surgeon to the Bliss Deaconess Hospital; a specialist in radiology and a fellow of the American College of Surgeons; died at his home, October 3, from angina pectoris.

Josiah L. Wilcox, M.D., Springfield, Ill.; Washington University Medical School, St. Louis, 1860; Illinois Army Board, 1863; aged 80; surgeon of the Eleventh Illinois Infantry, U. S. V., throughout the Civil War; a member of the legislature in 1874 and collector of internal revenue in the central Illinois district; for several years city physician of Springfield; died at the home of his daughter in Smithfield, Ky., October 4.

Saxe Johansen Froshaug, M.D., Benson, Minn.; Keokuk (Iowa) Medical College, 1895; aged 49; formerly local surgeon of the Great Northern Railroad at Hills, Minn.; chairman of the board of health of Rock County and county coroner; a member of the Minnesota State Medical Association; died at his home, October 1, from acute peritonitis, due to a perforating ulcer of the duodenum.

Matthew Woods, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1873; aged 67; a Fellow of the American Medical Association, and a member of the Philadelphia Psychiatric Society; a veteran of the Civil War; a specialist in the treatment of epilepsy and author of several books and monographs on this subject; died in Philadelphia, October 13, after a surgical operation.

Henry Goodsir Mackid, M.D., Calgary, Alta.; University of Toronto, 1879; L.R.C.P. Edinburgh, L.R.C.S. Edinburgh, L.R.F.P.&S., Glasgow, 1888; aged 58; president of the Dominion Medical Association in 1912; coroner of Alberta and chief surgeon of the Canadian Pacific Railroad; a fellow of the American College of Surgeons; died at his home, August 16, from diabetes.

Elijah Iles Kerlin, M.D., Chicago; University of Pennsylvania, Philadelphia, 1886; aged 62; a Fellow of the American Medical Association and for many years a member of the staff of St. Joseph's Hospital and the Lincoln Park Sanitarium for Sick Babies; who had suffered several years from bronchial asthma; died at his home, October 11, from acute dilatation of the heart.

Arthur LeRoy Hunt, M.D., Washington, D. C.; George Washington University, Washington, D. C., 1905; aged 39; a Fellow of the American Medical Association and corresponding secretary of the Medical Society of the District of Columbia; medical inspector of the health department of the District of Columbia; died in Washington, October 7, from anterior poliomyelitis.

Herbert Marshal Howe, M.D., Bristol, R. I.; University of Pennsylvania, Philadelphia, 1865; aged 72; formerly a practitioner and coal operator at Philadelphia; a director of the Tradesmen's National Bank, Philadelphia, and many other industrial corporations; also a director of the Pennsylvania Academy of the Fine Arts; died at his home, October 1, from heart disease.

George Carleton Dominick, M.D., New York; New York Homeopathic Medical College, New York, 1904; aged 40; attending physician to the Metropolitan and Volunteer hospitals, New York; while returning from a two weeks' trip on the United Fruit Company's steamer *Pastores*; died from tuberculosis, October 2, as the steamer was entering New York Harbor.

John Herbert Mease, M.D., Canton, N. C.; Vanderbilt University, Nashville, Tenn., 1893; aged 44; formerly a member of the Medical Society of the State of North Carolina; a member of the Medical Corps of the North Carolina

National Guard and attached to the Ambulance Company; died in a hospital in Goldsboro, N. C., September 24.

Hawley Nathan Barney, M.D., Richmond, Calif.; University and Bellevue Hospital Medical College, New York, 1900; aged 39; a Fellow of the American Medical Association; formerly president of the Contra Costa County Medical Society and health officer of Point Richmond; died in the Napa Hospital, October 7, from paresis.

David Magie, M.D., Princeton, N. J.; College of Physicians and Surgeons in the City of New York, 1863; aged 75; a member of the Medical Society of the State of New York; for many years a practitioner of New York and attending physician in the heart and lung department of the New York Hospital; died at his home, October 3.

Grace Agnes Murphy Curry, M.D., New York; Women's Medical College of the New York Infirmary for Women and Children, 1897; aged 47; formerly a Fellow of the American Medical Association, and assistant pathologist at the Troy (N. Y.) Hospital; died suddenly on a Hudson River steamer, October 3, while en route to New York.

Louis Corwin Millspaugh, M.D., New York; New York University, New York, 1884; aged 54; formerly a member of the Medical Society of the State of New York; assistant in the Nose and Throat Clinic of the New York Post-Graduate School; was drowned while swimming in the Mississippi River at Red Wing, Minn., recently.

Wellington G. Steele, M.D., Mongaup Valley, N. Y.; Albany (N. Y.) Medical College, 1886; aged 61; formerly a member of the Medical Society of the State of New York; a specialist on diseases of the nose and throat; died at his home, September 10, from acute laryngitis.

John Loper Smith, M.D., Chattaroy, Wash.; Jefferson Medical College, 1890; aged 71; a veteran of the Civil War; surgeon-general of the G. A. R. in 1910-1911 and for many years in charge of the Great Northern Railway Hospital in Chattaroy; died at his home, September 30.

Josiah Hornblower, M.D., Jersey City, N. J.; New York University, New York, 1860; aged 80; a member of the New Jersey Legislature from 1870 to 1872 and for three terms a member of the Jersey City Board of Education; died at his home, October 5.

Tobias John Green, M.D., Mexico, N. Y.; Geneva (N. Y.) Medical College, 1845; aged 98; formerly a member of the Medical Society of the State of New York; said to have been the oldest practitioner in the state; died suddenly at his home, October 4.

Franklin Duane Babcock, M.D., Morrisville, N. Y.; Bellevue Hospital Medical College, 1889; aged 68; for twenty-five years a member of the board of education of Morrisville, and for many years its president; died at his home, September 27.

John W. Hosier, M.D., Spring Valley, Ill.; Medical College of Ohio, Cincinnati, 1873; aged 69; for forty years a practitioner and druggist of Bureau County, Ill.; died in St. Margaret's Hospital, Spring Valley, October 2, from diabetes.

Robert Williams Crawford, M.D., Strasburg, Va.; University of Maryland, Baltimore, 1906; aged 36; chief surgeon of the Atlantic Coast Line Railway, with headquarters at Wilmington, N. C.; died at his home, September 21.

Elizabeth C. Secord, M.D., Farmerston, N. B.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; Northwestern University Women's Medical School, Chicago, 1882; aged 74; died at her home, July 4, from tuberculosis.

Horace W. Coombs, M.D., Cave City, Ky.; Eclectic Medical Institute, Cincinnati, 1870; aged 70; formerly a member of the Kentucky State Medical Society; died at his home, August 9, from carcinoma of the rectum.

Cardinal T. Wolsey, M.D., Buffalo, N. Y.; Howard University, Washington, D. C., 1885; aged 67; for twenty years medical examiner for the U. S. Marine Recruiting Office in Buffalo; died at his home, September 27.

Joachim B. Weintraub, M.D., Chicago; University of Vermont, Burlington, 1893; aged 46; who was shot by a patient in his office, October 9, died the next day in St. Luke's Hospital from his injuries.

Thomas M. McVay, Summerfield, Ohio (license, years of practice, 1896); aged 74; a practitioner and druggist since 1863; formerly treasurer of Noble County, Ohio; died at his home, September 27.

Francis J. Boutin, M.D., Coyle, Okla.; Hahnemann Medical College, Chicago, 1883; aged 61; a member of the Oklahoma State Medical Association; died at his home, August 26, from heart disease.

Herman Bening, M.D., Cibolo, Texas; Eclectic Medical College of the City of New York, 1879; aged 64; a member of the State Medical Association of Texas; died at his home, September 13.

L. R. Metzgar, M.D., Pasadena, Calif.; Long Island College Hospital, Brooklyn, 1866; aged 80; formerly of Wilkinsburg, Pa.; a veteran of the Civil War; died at his home, October 4.

Roy Herbert Nichol, M.D., New York; Rush Medical College, 1911; aged 34; a member of the staff of Kings County Hospital, Brooklyn; died in New York, October 7, from pneumonia.

Timothy Lowthian, M.D., Unionville, Mich.; University of Buffalo, N. Y., 1880; aged 68; a Fellow of the American Medical Association; was found dead in his office, September 30.

Louis L. Lloyd, M.D., Baltimore; Baltimore Medical College, 1904; aged 46; died in the Maryland General Hospital, Baltimore, September 29, from disease of the intestine.

Lewis Hamilton Smith, M.D., Toledo, Ohio; Medical College of Ohio, Cincinnati, 1893; aged 46; was found dead at his home in Toledo, October 2, from heart disease.

George Price, M.D., Altoona, Pa.; University of Pennsylvania, Philadelphia, 1878; aged 68; a veteran of the Civil War; died at Edgegood, Pittsburgh, September 24.

Samah Wilford Lewin, M.D., Sanford, Fla.; Flint Medical College, New Orleans, 1895; aged 44; a colored practitioner; died in Sanford, September 16, from appendicitis.

Claire Adele Verge Taylor, M.D., Peru, Ind.; University of Paris, France, 1868; aged 69; a practitioner of Peru for thirty years; died at her home, September 19.

Edward Severance, M.D., Tacoma, Wash.; University of Oregon, Portland, 1888; aged 61; died in St. Joseph's Hospital, Tacoma, September 26, from nephritis.

John Milton Tobias, M.D., Mitchell, Neb.; Eclectic Medical Institute, Cincinnati, 1872; aged 76; a veteran of the Civil War; died at his home, September 29.

Nathan A. C. Mackie, M.D., Golinda, Texas; University of Tennessee, Nashville, 1881; aged 64; died at his home, September 26, from cerebral hemorrhage.

John William McNamara, M.D., Denver; Medical College of Ohio, Cincinnati, 1901; aged 39; died at his home, September 19, from tuberculous meningitis.

Harry Carter, M.D., New York; University of Vermont, Burlington, 1903; aged 36; died in the Hartford (Conn.) Hospital, July 4, from tuberculosis.

Russell Bingham, M.D., Fitchburg, Mass.; Hahnemann Medical College, Chicago, 1890; aged 65; died at his home, September 23, from acute gastritis.

Byron L. Craft, M.D., Newark, N. J.; University of Buffalo, N. Y., 1893; aged 48; died suddenly in East Elmira, N. Y., September 17, from heart disease.

Benjamin Fagnant, M.D., Springfield, Mass.; Victoria University, Coburg, Ont., 1871; aged 73; died at his home, August 19, from angina pectoris.

Charles Fee Kratzer, M.D., Savannah, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1885; aged 55; died at his home, September 17.

William S. Ellsberry, M.D., Bethel, Ohio; Medical College of Ohio, Cincinnati, 1873; aged 64; died suddenly in his office in Bethel, September 9.

William Clancy Peters, M.D., Harrisburg, Pa.; Hahnemann Medical College, Philadelphia, 1881; aged 57; died at his home, September 20.

Oliver L. Hudson, Princeton, Ind. (license, Indiana, 1897); aged 86; for sixty-five years a practitioner; died at his home, September 22.

John D. Mercur, M.D., Towanda, Pa.; Jefferson Medical College, 1878; aged 63; died at his home, September 21, from acute gastritis.

Herschel A. Russ, M.D., Hillsboro, Ohio; Medical College of Ohio, Cincinnati, 1890; aged 47; died at his home, September 23.

Ralph Kenneth Mitchell, M.D., Milwaukee, Wis.; Rush Medical College, 1913; aged 27; died at his home, September 24.

Ezra M. Carr, Pipestone, Minn. (license, Minnesota, act of 1887); aged 78; died at his home, September 15.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

NUXATED IRON

It Contains but Little Iron and Practically No "Nux"

Newspapers whose advertising ethics are still in the formative stage have, for some months past, been singing—at so much a song—the praises of "Nuxated Iron." The public has been told that this nostrum is what makes Ty Cobb, "the greatest baseball batter of all time," a "winner" and is what helped Jess Willard "to whip Frank Moran" besides being the "untold secret" of Willard's "great triumph over Jack Johnson."

"Nuxated Iron" is put on the market by the Dae Health Laboratories of Detroit. It "is not a patent medicine or secret remedy"—if one is to believe the advertisements. On the trade package we read:

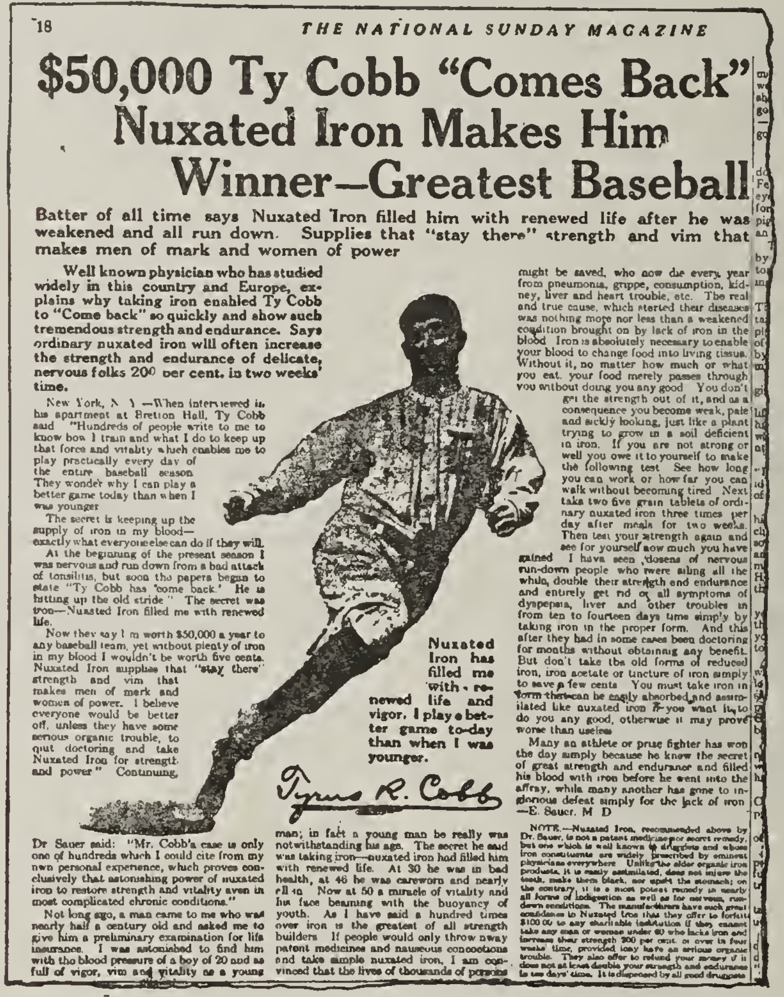
> "FORMULA. — The valuable blood, nerve force and tissue building properties of this preparation are due to organic iron in the form of ferrum peptonate in combination with nux vomica, phosphoglycerate de chaux and other valuable ingredients."

This, apparently, is the company's idea of nonsecrecy. The Dae Health Laboratories also say that they are willing to send to any physician "full information in regard to its ingredients and methods of preparing." So far as we know, no physician has been sent "full information." One physician who did write for this information received in return a form letter addressing him as "Mr. Druggist," and reading in part as follows:

> "That you may be conversant with the nature of the product, which we are asking you to sell, we wish to give you the following information which you in turn may give to such of your employees as you may see fit.
>
> "We respectfully ask that this information be regarded as confidential, although there is no harm in your telling your customers that you are familiar with the product and that you believe the ingredients to be beneficial, etc.
>
> "The principle [*sic!*] ingredients in Nuxated Iron are:
>
> "Organic Iron in the form of Iron Peptonate.
>
> "Nux Vomica.
>
> "Glycero Phosphate of Calcium.
>
> "To the above is added a little magnesia, ginger, a laxative and certain other minor ingredients."

As an example of "full information," regarding the "ingredients" and "methods of preparing," this letter left much to be desired, so much in fact that THE JOURNAL felt that it owed it to the public to find out just how much iron and nux vomica there were in "Nuxated Iron." Packages of the nostrum purchased on the open market were subjected to analysis both in the Chemical Laboratory of the American Medical Association and elsewhere. Qualitative tests indicated the presence of iron, calcium, magnesium, carbonate, glycerophosphate and small amounts of potassium and chlorid and the presence of cascara. Quantitative examinations were made and, so far as the essential ingredients—nux vomica and iron—of the nostrum are concerned, gave the following results:

Total nux vomica alkaloids, per tablet..........	1/500 grain
Iron, (Fe) per tablet...........................	1/25 grain



18 THE NATIONAL SUNDAY MAGAZINE

$50,000 Ty Cobb "Comes Back" Nuxated Iron Makes Him Winner—Greatest Baseball

Batter of all time says Nuxated Iron filled him with renewed life after he was weakened and all run down. Supplies that "stay there" strength and vim that makes men of mark and women of power

Well known physician who has studied widely in this country and Europe, explains why taking iron enabled Ty Cobb to "Come back" so quickly and show such tremendous strength and endurance. Says ordinary nuxated iron will often increase the strength and endurance of delicate, nervous folks 200 per cent. in two weeks' time.

New York, N. Y.—When interviewed in his apartment at Bretton Hall, Ty Cobb said "Hundreds of people write to me to know how I train and what I do to keep up that force and vitality which enables me to play practically every day of the entire baseball season. They wonder why I can play a better game today than when I was younger.

The secret is keeping up the supply of iron in my blood—exactly what everyone else can do if they will.

At the beginning of the present season I was nervous and run down from a bad attack of tonsilitis, but soon the papers begun to state "Ty Cobb has 'come back.' He is hitting up the old stride." The secret was iron—Nuxated Iron filled me with renewed life.

Now they say I'm worth $50,000 a year to any baseball team, yet without plenty of iron in my blood I wouldn't be worth five cents. Nuxated Iron supplies that "stay there" strength and vim that makes men of mark and women of power. I believe everyone would be better off, unless they have some serious organic trouble, to quit doctoring and take Nuxated Iron for strength and power." Continuing,

Nuxated Iron has filled me with renewed life and vigor. I play a better game to-day than when I was younger.

Tyrus R. Cobb

Dr Sauer said: "Mr. Cobb's case is only one of hundreds which I could cite from my own personal experience, which proves conclusively that astonishing power of nuxated iron to restore strength and vitality even in most complicated chronic conditions."

Not long ago, a man came to me who was nearly half a century old and asked me to give him a preliminary examination for life insurance. I was astonished to find him with the blood pressure of a boy of 20 and as full of vigor, vim and vitality as a young man; in fact a young man he really was notwithstanding his age. The secret he said was taking iron—nuxated iron had filled him with renewed life. At 30 he was in bad health, at 46 he was careworn and nearly all in. Now at 50 a miracle of vitality and his face beaming with the buoyancy of youth. As I have said a hundred times over iron is the greatest of all strength builders. If people would only throw away patent medicines and nauseous concoctions and take simple nuxated iron, I am convinced that the lives of thousands of persons might be saved, who now die every year from pneumonia, grippe, consumption, kidney, liver and heart trouble, etc. The real and true cause, which started their diseases was nothing more nor less than a weakened condition brought on by lack of iron in the blood. Iron is absolutely necessary to enable your blood to change food into living tissue. Without it, no matter how much or what you eat, your food merely passes through you without doing you any good. You don't get the strength out of it, and as a consequence you become weak, pale and sickly looking, just like a plant trying to grow in a soil deficient in iron. If you are not strong or well you owe it to yourself to make the following test. See how long you can work or how far you can walk without becoming tired. Next take two five grain tablets of ordinary nuxated iron three times per day after meals for two weeks. Then test your strength again and see for yourself how much you have gained. I have seen dozens of nervous run-down people who were ailing all the while, double their strength and endurance and entirely get rid of all symptoms of dyspepsia, liver and other troubles in from ten to fourteen days time simply by taking iron in the proper form. And this after they had in some cases been doctoring for months without obtaining any benefit. But don't take the old forms of reduced iron, iron acetate or tincture of iron simply to save a few cents. You must take iron in a form that can be easily absorbed and assimilated like nuxated iron if you want it to do you any good, otherwise it may prove worse than useless.

Many an athlete or prize fighter has won the day simply because he knew the secret of great strength and endurance and filled his blood with iron before he went into the affray, while many another has gone to inglorious defeat simply for the lack of iron.
—E. Sauer, M. D.

NOTE.—Nuxated Iron, recommended above by Dr. Sauer, is not a patent medicine nor secret remedy, but one which is well known to druggists and whose iron constituents are widely prescribed by eminent physicians everywhere. Unlike the older organic iron products, it is easily assimilated, does not injure the teeth, make them black, nor upset the stomach; on the contrary, it is a most potent remedy in nearly all forms of indigestion as well as for nervous, run-down conditions. The manufacturers have such great confidence in Nuxated Iron that they offer to forfeit $100.00 to any charitable institution if they cannot take any man or woman under 60 who lacks iron and increase their strength 200 per cent. or over in four weeks' time, provided they have no serious organic trouble. They also offer to refund your money if it does not at least double your strength and endurance in ten days' time. It is dispensed by all good druggists.

Greatly reduced photographic reproduction of a typical "Nuxated Iron" newspaper advertisement.

According to these analyses there is only one-twenty-fifth of a grain of iron in each "Nuxated Iron" tablet, while the amount of nux vomica, as expressed in terms of its potent alkaloids, is practically negligible. If a person wants to take iron on his own responsibility—and this cannot be recommended—it is possible to get this drug in a staple form in the well known Blaud's Pills. In a dollar bottle of "Nuxated Iron" the purchaser gets, according to our analysis, less than 2½ grains of iron; in 100 Blaud's Pills, which can be purchased at any drugstore for from 50 to 75 cents, there are 48 grains of iron. The claim that "Nuxated Iron" possesses great advantages over other forms of iron is the sheerest advertising buncombe.

The exploiters of "Nuxated Iron" would have the public believe that iron is the one thing that most ailing people need. Nothing could be much further from the truth. Iron is a useful and valuable drug in selected cases, but the conditions for which it may be useful are limited. The indiscriminate use of iron is illogical and unwise. Few drugs have been more abused and taken with less discrimination than is iron.

DR. SAUER—STOOLPIGEON

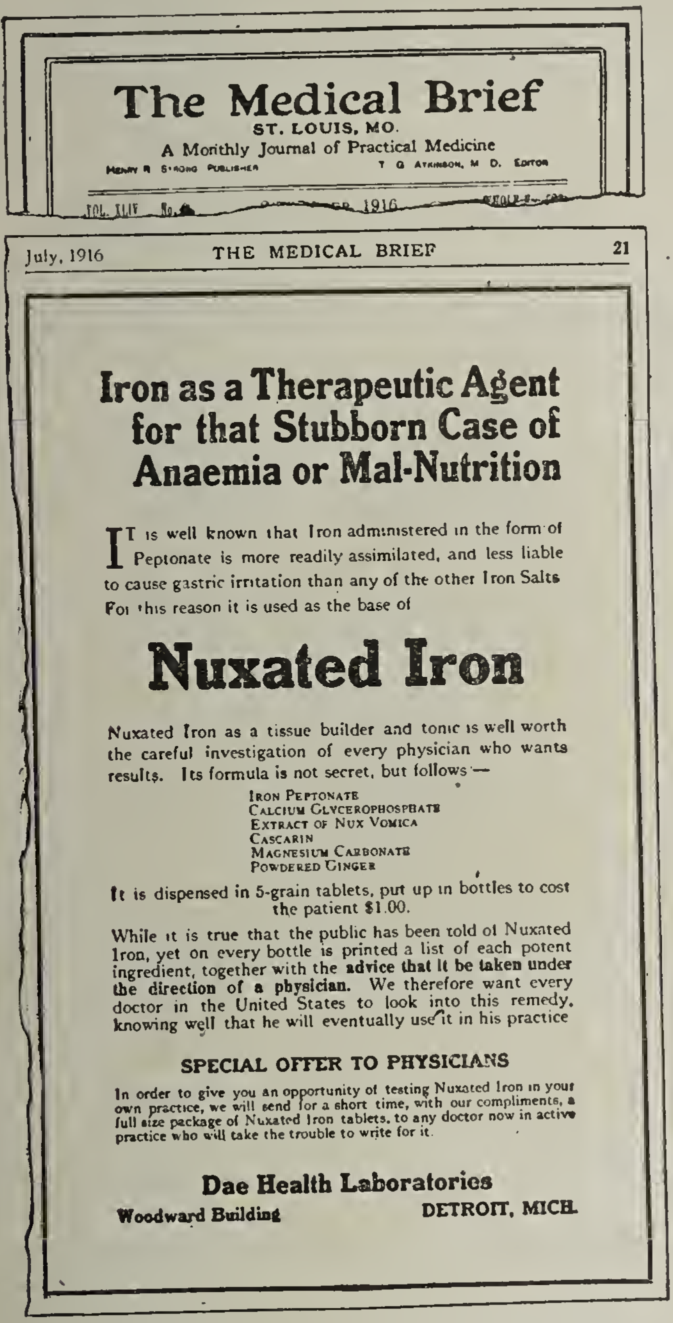
In practically all of the newspaper advertisements of "Nuxated Iron" quotations are given from the alleged statements of one "Dr. E. Sauer" characterized by the nostrum exploiters as a New York "specialist" and as "a well known specialist who has studied widely both in this country and in Europe." Dr. Sauer is *not* well known either as a specialist or anything else save as he has attained notoriety in connection with the "Nuxated Iron" advertisements and through his own advertising in New Haven (Conn.) newspapers, in which he used to cry his wares. From our records it appears that if he ever practiced in New York he did so in violation of the law, for he is not licensed in that state. Emil Sauer was graduated in 1903 by the Jefferson Medical College of Philadelphia; he is licensed to practice in Massachusetts and Connecticut. So far as our records show, and they are remarkably complete, Sauer has never been elected to his local medical society in any of the many localities in which he has practiced. Possibly he never stayed long enough in one place. Since graduating, Sauer seems to have lived in Berlin, Vienna, Worcester, Mass., Boston, Hartford, Conn., Springfield, Mass., and New Haven, Conn. In how many more places he has lived we do not know, as our attempts to locate him since 1914 have failed; this, too, in spite of the fact that the "Nuxated Iron" concern insists that he is "well known."

NOT A PATENTED MEDICINE BUT A "PATENT MEDICINE"

The claim that "Nuxated Iron" "is not a patent medicine" while technically correct is essentially just as false as many of the other statements made in behalf of the nostrum. A true "patent medicine" is one whose composition or method of making, or both, has been patented. It is not secret because its composition must appear in the patent specifications; moreover it must have some claims to originality or a patent would not be granted. What are colloquially called "patent medicines" are really proprietary medicines, products usually secret in composition, that have been given a trademarked name. In the popular meaning of the words, "Nuxated

Iron" is just as much a "patent medicine" as is "Peruna," "Lydia Pinkham's" or "Pierce's Favorite Prescription." "Nuxated Iron" is essentially secret in composition and, while the public is led to believe that the preparation consists chiefly of nux vomica and iron, analyses indicate that it contains much less than an ordinary dose of iron and a negligible amount of nux vomica. It is sold under claims that are both directly and inferentially false and misleading, not only in regard to its composition, but also as to its alleged therapeutic effects. As for the claim that "Nuxated Iron" is the responsible agent for Jess Willard's victory over Jack Johnson or Ty Cobb's "come back," it would be just as reasonable and true to give this nostrum credit for the success of Samson's historical escapade with the jaw-bone of an ass.

So much for the consideration of "Nuxated Iron" from the standpoint of the public. Until the people realize the extent to which they are defrauded and injured by "patent medicine" fakers generally, it is not likely that they will demand a law requiring the manufacturers of "patent medicines" to declare the kind and amounts of active drugs in their preparations. In the meantime, if the public wishes to drug itself with compounds of unknown composition and strength, that is its privilege. But the "Nuxated Iron" humbug has another angle to it, one that directly affects the medical profession. It would seem that there is no nostrum too quackish but certain publications calling themselves medical journals will welcome it into their advertising pages; that there are no "patent medicines" too fakish but certain men who, unfortunately for the public, have the legal right to practice medicine, will prescribe it.



The Medical Brief
ST. LOUIS, MO.
A Monthly Journal of Practical Medicine
Henry R Strong Publisher T G Atkinson, M D. Editor

July, 1916 THE MEDICAL BRIEF 21

Iron as a Therapeutic Agent for that Stubborn Case of Anaemia or Mal-Nutrition

It is well known that Iron administered in the form of Peptonate is more readily assimilated, and less liable to cause gastric irritation than any of the other Iron Salts For this reason it is used as the base of

Nuxated Iron

Nuxated Iron as a tissue builder and tonic is well worth the careful investigation of every physician who wants results. Its formula is not secret, but follows—

Iron Peptonate
Calcium Glycerophosphate
Extract of Nux Vomica
Cascarin
Magnesium Carbonate
Powdered Ginger

It is dispensed in 5-grain tablets, put up in bottles to cost the patient $1.00.

While it is true that the public has been told of Nuxated Iron, yet on every bottle is printed a list of each potent ingredient, together with the **advice that it be taken under the direction of a physician.** We therefore want every doctor in the United States to look into this remedy, knowing well that he will eventually use it in his practice

SPECIAL OFFER TO PHYSICIANS

In order to give you an opportunity of testing Nuxated Iron in your own practice, we will send for a short time, with our compliments, a full size package of Nuxated Iron tablets, to any doctor now in active practice who will take the trouble to write for it.

Dae Health Laboratories
Woodward Building DETROIT, MICH.

Full page advertisement (greatly reduced) of "Nuxated Iron" in the *Medical Brief*. The *Medical Brief* poses as a medical journal; most physicians know better.

"MEDICAL BRIEF"—NOSTRUM EXPLOITER

The *Medical Brief* has for some months been carrying full page advertisements of "Nuxated Iron." As our readers may remember, the *Medical Brief* has for its editor Thomas G. Atkinson, the "medical expert" for the Wine of Cardui concern in its recent suit against the American Medical Association. It was Atkinson who swore he was an "L.R.C.P. (Lond.)" He also swore that he received his license in 1892 but had since lost it; this in spite of the fact that The Journal has in its possession a letter from the Royal College of Physicians of London denying that Atkinson ever received such a license.

The publisher of the *Medical Brief* is Henry R. Strong, who also publishes the *National Druggist,* a journal which recently accused the United States judge who sat in the Wine of Cardui case of being partial to the American Medical Association and prejudiced against the Chattanooga Medicine Company. The *National Druggist* has long been a mouthpiece for the "patent medicine" interests and can always be counted on to devote a substantial part of its editorial columns each month to blackguarding doctors in general and the American Medical Association in particular.

Of course the intelligent physician views the *Medical Brief* with the same contempt that the decent druggist bestows on the *National Druggist.* But the layman is not and cannot be so discriminating; to him a "medical journal" is a medical journal. Then, too, it is doubtless a fact that, even if the bulk of the *Medical Brief* circulation is of the "sample copy" variety, there are some physicians who actually subscribe for and support it. It is true that the *Medical Brief* carries advertisements of "Duffy's Malt Whiskey," "Eckman's Alterative," "Micajah's Wafers," "Sal Hepatica" and several other "patent medicines" but to none of these is quite as much space given as to "Nuxated Iron."

It is not surprising, while such conditions as these obtain, that the American Medical Association failed to receive technical justification—as it did receive moral justification—in its recent lawsuit with the nostrum interests. American medicine of today is cursed with two evils, venality and ignorance. The former flourishes among those who, for their own gain, exploit those members of the profession who are afflicted with the latter. The time will come when it will be hard to realize the disgraceful part that some portion of the medical profession has played in furthering the nostrum evil. Education and an awakened professional conscience will relegate such episodes as the "Nuxated Iron" advertisements in the *Medical Brief* to the limbo of a forgotten and dishonorable past.

Correspondence

Postgraduate Course for Resident Staff at Harper Hospital

To the Editor:—Much discussion at present is centered on the requirement of a fifth year for medical students, the year to be a postgraduate year in hospital work. From all indications this plan will soon be adopted generally, and hospitals should be prepared for it.

Aside from the question of a fifth or postgraduate year, the question of intern instruction is important. The intern is using one, two or three years of the best part of his life, after having spent his allotted time in school, trying to prepare himself better to serve the public, and during this period of hospital work he is able to grasp whatever is given him because his time can be so arranged that he can attend a course of instruction. His mind is still receptive; he has not the care of a practice on his hands, and it is the duty of the hospital he is serving to give him all it possibly can for the time which he spends. A hospital is of necessity a teaching institution, has student nurses, and really student or graduate student physicians to maintain its working efficiency. The greater the teaching plan, the greater the efficiency and the more attractive the service.

The intern, of course, has his regular ward work and his special work which he elects to do as well as that required.

Furthermore, he receives individual instruction from the visiting physician in the particular service in which his internship takes him. He does not get a definite correlated course of instruction, however, with a definite plan to it, but rather a hit and miss service as cases happen to come. This, I believe, is true in all institutions and is certainly true in most. It has been felt not only by this hospital, but also by many others, that the interns and resident staff should receive more instruction than they get from the individual visiting physicians or individual cases. Individual case instruction is a necessity and really one of the big reasons for taking a hospital appointment; but with this, a well correlated course of instruction certainly can be made invaluable.

With our large service, we must have a large number of interns. Taking into consideration the residents, assistant residents and interns, we have about forty physicians. With so large a service, we have opportunity to carry out an extra course for interns. Accordingly we have established practically a postgraduate course for the benefit of the house staff. The medical and surgical courses are arranged separately. The course as organized is as follows:

The department of pathology and research will give thirty-six lectures or demonstrations to each service. The lectures for the medical service will embrace the pathology of the blood, sputum, urine, kidneys, spleen, lungs and liver, etc., while the surgical side of the service will be more of a course in surgical pathology, namely, new growths, bone pathology, peritonitis, etc.

The roentgenologic department will in like manner have two distinct courses, one for medical and one devoted more especially to surgical roentgenology. The medical work will be devoted to roentgenology of the chest and intestines, while the surgical will take up fracture work, with, of course, intestinal and kidney work and general roentgenology of the surgical conditions. This course embraces thirty-two lectures each, for medical and surgical service.

The remainder of the medical teaching is divided among the specialties and general medicine. The dermatologic and neurologic departments have divided one hour a week so that each has sixteen lectures. The dermatologic department has elected to show cases by the clinical method, and after the clinic the cases are freely discussed. These cases are obtained from the hospital ward, from the outpatient department and from the instructor's private practice. Thus a wealth of material will be provided.

The neurologic department is for the present at least directing its attention more to psychiatric study than to nerve lesions, as it feels that psychiatry is not a subject ordinarily well brought to the attention of the undergraduate.

The general medical course is planned about as any general medical clinic would be elsewhere, depending on the material at hand and the inclination of the instructor.

The surgical side of the course is arranged much the same as the medical. The roentgenologic and pathologic side has already been described.

The general surgical course has been divided among eight men, each of whom has one month of the course, and will consist of lectures and clinics according to the choice of the surgeon.

The specialties have been divided into four sections of sixteen lectures or clinics each. Proctology and genito-urinary surgery have the first four months, with ophthalmology and allied subjects and gynecology the last four months.

The proctologic outline will include malignant diseases of the rectum, surgical treatment of the ordinary rectal troubles, such as hemorrhoids and fistula, and also instruction in the use of the proctoscope.

The genito-urinary course will include more of the simple genito-urinary problems, such as instruction in catheterization and the treatment of ordinary acute infections of the genito-urinary tract, with final special instruction when possible in cystoscopy.

Ophthalmology, otology and rhinolaryngology will offer instruction and demonstration as the surgeon thinks best, depending on the material at hand.

In gynecology the plan is to give both lectures and demonstrations so that each person may become better acquainted with methods of examination of patients and interpretation of the facts obtained by examination.

These lectures and demonstrations will be given over from time to time to free discussion of the material at hand. The entire course will cover eight months, one hour each day for each service, five days of the week.

The visiting staff has entered into this plan heartily, and we feel that its success is assured. Certainly from the point of view of the intern it is a distinct advance in training.

T. K. Gruber, M.D., Detroit.
Assistant Superintendent, Harper Hospital.

Physicians Wanted for War Service

To the Editor:—May I venture to ask that attention be called through The Journal to the shortage of surgeons in the foreign armies. I am prepared to guarantee traveling expenses and full officer's pay to 150 competent men for service on the eastern front.

Louis L. Seaman, M.D., New York.
247 Fifth Avenue.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ESSENTIAL ALKALINURIA

To the Editor:—Can you give any information as to the cause and treatment of essential alkalinuria? If continued will it cause irritation of the deeper urinary tract? H. R.

Answer.—Alkalinity of the urine is often a physiologic phenomenon due to ingestion of a food rich in vegetables or of alkaline mineral waters. It also occurs during the so-called "alkaline tide" after a meal. Pathologic "essential alkalinuria" results from various diseases of the intestinal tract, the commonest of which is fermentative dyspepsia. It is frequently associated with a marked degree of neurasthenia, and there is often disorder of the sexual organs. As the condition produces a turbidity of the urine, it is apt to be regarded as a sign of "loss of power" by the patient and drives him frequently into the hands of a quack. Alkaline urine is also present in some cases of cancer of the alimentary tract. In children there is a special liability to alkalinuria owing to the excretion of an undue amount of calcium by the kidneys, the normal excretion by the colon being in these cases much decreased. This form has been found occasionally, but by no means invariably, with colitis.

So far as the alkalinity of urine is concerned, the principal dangers are the formation of calculus, and that referred to above, of the effect on the patient's mind.

Treatment should be directed to the cause when known—flatulent dyspepsia, neurasthenia, etc.—by tonics and the usual indications in regard to diet. Specifically the one drug which seems to increase the acidity of the urine with any certainty in a way to meet this condition is acid sodium phosphate. In some cases in which there is an excessive excretion of calcium by the kidneys, diet low in calcium has been recommended, but the rationale is not obvious.

METHOD OF COUNTING CELLS OF CEREBROSPINAL FLUID

To the Editor:—Please describe the method in detail of counting the cells of the cerebrospinal fluid, that is, not a differential count, but the number of cells per cubic millimeter. R. K.

Answer.—The following mixture is employed for staining the white and dissolving the red cells: Methyl violet 0.2 gm., glacial acetic acid 5 c.c., water to 100. Fill the blood-counting pipet with stain to the mark I and then fill to mark II with uncentrifuged cerebrospinal fluid. Shake thoroughly, let stand for five minutes and count, using a Fuchs-Rosenthal counting chamber. The ruled surface of the cell contains 3.2 c.mm. of fluid. Count all of the white cells in the entire ruled area, multiply by 11 and divide by 32. The result is the number of cells per cubic millimeters, which varies from 1 to 10 normally.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

Connecticut: Homeopathic, New Haven, Nov. 14-15. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Florida: Homeopathic, Jacksonville, Nov. 10. Sec., Dr. J. B. Griffin, St. Augustine.

Louisiana: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Mississippi: Jackson, Oct. 24-25. Sec., Dr. J. D. Gilleylen, Jackson.

Nevada: Carson City, Nov. 6. Sec., Dr. S. L. Lee, Carson City.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

West Virginia: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

Arkansas Homeopathic June Report

Dr. Scott C. Runnels, secretary of the Homeopathic State Medical Board of Arkansas, reports the oral, practical and written examination held at Little Rock, June 1-3, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 9, all of whom passed. One candidate was granted a reregistration license by examination. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1908)	80.3
Hahnemann Medical Coll. of the Kansas City Univ.	(1902)	88
Southwest School of Med. and Hosp.	(1916)	77, 87, 89.2, 91.7, 91.7 92.3, 92.9.

Iowa June Report

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 8-10, 1916. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 50, of whom 48 passed and 2 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1915) 90.1, 92; (1916)	85.1
Hahnemann Med. Coll. and Hosp., Chicago	(1916)	91
Northwestern University	(1902) 91.5; (1914) 88; (1916)	87
Rush Medical College	(1901) 85.2; (1914) 91; (1915)	89
University of Illinois	(1916)	88.5, 91, 91.1
Indiana Medical College	(1907)	96
State Univ. of Iowa, Coll. of Med.	(1890) 76; (1916)	85.6, 88.9, 88.9, 89, 89, 89, 90, 90, 90, 90, 90, 90.2, 90.2, 90.5, 90.6, 90.9, 91, 91, 91, 91, 92, 92, 92.1, 93, 93.4, 93.4.
Johns Hopkins University	(1907) 86; (1914)	93
Harvard University	(1896)	87.8
Tufts College Medical School	(1915)	91.2
Barnes Medical College	(1902)	85.5
John A. Creighton Medical College	(1913)	92
University of St. Joseph, Beirut	(1903)	80.5

FAILED

College	Year Grad.	Per Cent.
Bennett Medical College	(1909)	69.9
Homeopathic Medical College of Missouri	(1903)	66

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1881)	Minnesota
University of Kansas	(1906)	Kansas
National University of Arts and Sciences	(1914, 2)	Missouri
Washington University	(1914)	Missouri
John A. Creighton Medical College	(1915, 2)	Kan., Neb.

South Dakota July Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Deadwood, July 11-12, 1916. The total number of subjects examined in was 13; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 14, of whom 13 passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons	(1900)	84.1
Bennett Medical College	(1909)	78.5
Chicago College of Medicine and Surgery	(1916)	86.1
Hahnemann Medical College and Hospital, Chicago	(1909)	87.3
Loyola University	(1916)	87.7
Northwestern University	(1916)	90.7
Rush Medical College	(1915) 85.4; (1916)	85.1
Drake University	(1909)	79.1
Baltimore Medical College	(1909)	81.2
Johns Hopkins University	(1912)	84.3
University of Minnesota	(1914)	85.9
Jefferson Medical College	(1913)	77.5

FAILED

College	Year Grad.	Per Cent.
John A. Creighton Medical College	(1912)	71.5

Miscellany

POLIOMYELITIS ON THE CROW RESERVATION

JOSEPH A. MURPHY, M.D.
Medical Supervisor, Indian Office
Washington, D. C.

In the course of an epidemic of poliomyelitis on the Crow reservation in Montana, I noticed that contact with previous cases either in the incubation or in active stages seemed to play an important part in the spreading of the epidemic. A special effort was made to trace the source of the disease in the individual cases. Since the epidemic occurred only in a restricted district in the vicinity of Pryor, Mont., where contact with neighbors and others is more or less limited, it was more easy to trace than in more crowded communities.

All of the Indians from the Pryor district were in Billings from July 10 to July 14, and practically all of them were also there August 2 to 6. (The occasions for these visits were in one case a council which was supposed to be held at Crow Agency for the purpose of discussing the opening of the reservation, the families traveling overland as far as Billings and remaining there while the men took the train to Crow Agency, and in the other case the attraction was a sort of wild west celebration.) The Indians on these occasions were camped together on the edge of town, and were in intimate contact with each other, as well as with certain elements of the town population. Whether or not the patients at Billings actually came in contact with the Indian camp is unknown, but it is believed that the original source of the disease was brought to them while at Billings. Whether or not the Indians were in contact with any of the white patients at Edgar, the railroad point for Pryor, is also unknown. The dates of onset of the known cases there are July 28, August 4, August 9 and August 16.

The cases occurred in the following order:

Case 1.—Leo F., Indian, aged 2 years, living about 1 mile from Pryor, was taken sick, July 25, with high fever, pain on motion and weakness of lower extremities, which later became paralyzed. The fever continued about three days. August 20, he was unable to walk or stand, and cried on being placed upright. The left leg was paralyzed, and the right leg partially paralyzed. The patient is showing gradual improvement.

The source of the disease is believed to be contact in Billings. The family was in Billings from July 10 to July 14.

Known contact with subsequent cases: Daniel L. lived in same household, but moved away. He was taken ill August 7.

Case 2.—Dan F., Indian, aged 19 years, living about one-third mile from Pryor, was taken sick, July 28, with fever, and pains in the limbs. The fever ranged at about 104 for nearly a week. The left arm showed marked weakness. The flexors of the fingers, the biceps and the deltoid were all affected. August 25, he was able to pull 15 pounds against a spring balance with the left hand and arm, and the muscles seemed to be gradually regaining their tone.

The source of the disease is believed to be contact in Billings.

Case 3.—Frederick S., Indian, aged 3, was taken ill, August 1, with fever (103 F.), and died, August 2, with laryngeal paralysis.

The source of the disease is believed to be contact in Billings. The family was in Billings from July 10 to July 14.

Case 4.—Simpson S., Indian, aged 8 years, was taken ill on the same date as his brother (Case 3) with high fever, and somewhat similar symptoms, but without paralysis. He was believed to have an abortive case.

Case 5.—Gilbert G., Indian, aged 1, was taken sick, August 3, with high fever, irritability, and marked trembling all over. The child trembled constantly while awake. The fever lasted about three days, after which it was noticed that the legs were limp. There was also marked tendency to throw the head back. At present there is slight paralysis of the right leg, and weakness of arms, gradually improving.

The source of the disease is believed to be contact in Billings. The family was in Billings from July 10 to July 14. They are also related to the family of Patient 2, and visited there.

Known contact with subsequent cases: The G. family with the baby took dinner and visited in the home of Patient 7 one week previous to the time Patient 7 was taken ill. The G. baby was taken ill three days after this visit.

Indirect contact with subsequent cases: Four members of the patient's family were at a dance at Pryor, August 5, coming from direct contact with the patient.

Case 6.—Daniel L., Indian, aged 2½ years, was taken sick, August 7, on the road from Billings. The most prominent symptoms were digestive disturbances. He became paralyzed in both legs, August 8. At present both legs are partially paralyzed. The right leg has a slight patellar reflex. The left leg has no reflex, and is flaccid. The patient's condition is improving.

The source of the disease is possibly Billings. The family was there from July 10 to July 14 and from August 2 to August 6. The patient was also in contact with Patient 1, who was taken ill July 25.

Case 7.—Julia S., white, aged 5 years, was taken ill, August 7, with high fever and pain in the back, legs and chest. The left leg became paralyzed, August 8. At present there is paralysis of the flexor muscles of the left thigh. The patient is gradually improving.

The source of the disease is direct contact with Patient 5 and his family, July 30.

Indirect contact with subsequent cases: Mutual visiting between this family and the family of Patient 8.

Case 8.—Amy B., white, aged 12, was taken ill, August 11, and died August 14. She had high fever, aching in the limbs, and paralysis. The cause of death was reported to be paralysis of respiration.

The patient visited Billings, July 31, and was also in indirect contact with the home of Patient 7. She attended a dance at Pryor, August 5, at which four members of the family of Patient 5 were present. The latter came from direct intimate contact with Patient 5, then at the height of the disease.

Direct contact with subsequent cases: The patient may have been in the incubation stage of the disease at the time of the dance. Patients 11 and 12 developed the disease, August 17, and both were present in contact with Patient 8 and the family of Patient 5. Patient 8 also paid a three-hour visit in the home of Patients 10, 13, 14, 15 and 17, August 10, when she was beginning to feel ill. Following this visit five of the children became ill on the following dates: Patient 10, August 14; Patient 13, August 17; Patients 14 and 15, August 20, and Patient 17, August 22.

Case 9.—Mary B., Indian, aged 5 years, was taken ill, August 13, with fever, headache, cough and pulmonary symptoms. Paralysis was noticed, August 18. The case rapidly became serious, and was complicated by pulmonary infection. After being critically ill for a week or more, the patient began to improve. At present, there is almost complete paralysis in both legs.

The source of the disease was contact in Billings, from July 10 to July 14, and from August 2 to August 8. The patient was possibly in contact with Patient 6, who was in Billings at the same time. Furthermore, the patient lives across the road from Patient 2, and there may have been direct or indirect contact between the two families.

Case 10.—Orpha M., white, aged 10 years, was taken ill, August 14, with fever, and aching in the limbs and head. There was no paralysis, but there were symptoms similar to paralytic cases.

The source of the disease was direct contact with Patient 8, August 10.

Case 11.—Rose L., Indian, aged 16, was taken ill, August 17, with fever, headache, and aching of the neck and right arm. The symptoms continued for several days, but no paralysis developed.

The source of the disease was contact with Patient 8 and the family of Patient 5 at the dance, August 6. Members of the family of Patient 8 attended a party at the home of Patient 11, August 7. Patient 8 was invited, but could not come on account of her illness, which began on that date.

Case 12.—Elwood C., white, aged 19 years, was taken ill, August 17, with chill, vomiting and spitting of blood. He then felt better for a few hours, but gradually became worse, and had high fever and pain in the back and hips, and was unable to swallow; he was delirious while dozing. On the third day the left deltoid became paralyzed. The paralysis gradually traveled down the arm, extending to the pectoral muscles and diaphragm. Death, due to paralysis of respiration, occurred on the third day of the disease.

The source of the disease was contact with Patient 8, and with members of the family of Patient 5 at the dance at Pryor, August 5. The patient lived in an isolated section of the reservation, and is reported not to have been away from home at any time except when he attended the dance at Pryor, August 5.

Case 13.—Wayne M., white, aged 2 years, was taken ill, August 17, with fever (101.4); the pulse was 162; there were restlessness and evident weakness of the left leg. The mother stated that the child had a fall and injured the leg, but there was no bruising or evidence of trauma. The fever lasted four days. The left leg became slightly paralyzed, but showed gradual improvement.

The source of the disease was contact with Patient 8, August 10, also with Patient 10 in the same home.

Case 14.—Zelda M., white, aged 13, was taken ill, August 20. The temperature was 103.2. There were headache, sore throat and aching all over. The patient hated to be moved. She had a slight chill at onset. The tonsils were enlarged, but not inflamed. The fever lasted three days, gradually reaching normal. Both legs were weak, and on first attempting to stand the patient fell over. Strength in the legs quickly improved, but the patellar reflexes were absent for a few days.

Case 15.—Verne M., white, aged 6, was taken ill, August 20, with fever and aching in the body and limbs. The temperature gradually became normal after a few days. There were no paralytic symptoms.

The source of the disease was contact with Patient 8, August 10, and with Patient 10.

Case 16.—Wilson L., Indian, aged 14 months, was taken ill, August 21, with fever, restlessness and irritability. August 22, the temperature was 101.4; the feces were soft; there was coryza; there were râles in the chest. The right eye turned up and in toward the nose at times. There was paralysis of the right side of the face. It was impossible to close the right eye. Milk dribbled from the right cheek. The high temperature lasted two days, gradually becoming normal, but paralysis of the face continued with very slight improvement. The child is now apparently normal except for the facial paralysis. The mother thought there was slight weakness of the right arm and leg, but was not positive.

The patient was in Billings from August 4 to August 7. He is related to the family of Patient 9, which was in Billings at the same time. Patient 9 was taken ill August 13, and the family of Patient 16 was in contact.

Case 17.—Ross M., white, aged 4 years, was taken ill, August 22, with fever. The temperature was 103, the pulse 140. The patient vomited, and had pain in the back and the right leg. The back was slightly tender, the throat slightly red. The high temperature lasted two days, gradually returning to normal. There were no paralytic symptoms.

The source of the disease was contact with Patient 8, August 10, and with cases in his own family.

While there may have been other means responsible for the spread of the disease, it seems apparent that actual contact with patients having active cases, or cases in the incubation stage of the disease has largely been responsible for the spread of poliomyelitis on the Crow reservation. It is worthy of note that no Indians from other sections of the reservation were in Billings except the Pryor Indians, and the disease has been confined to the group which were associated with each other there. Spread to the white persons on the reservation seems to have been largely from Indian sources. The family of Patient 5 had a breakdown on the road near the home of Patient 7, and while the wagon was being repaired they were invited to take dinner there. Patient 5 was in the incubation stage of the disease at the time, and exactly one week after this visit, Patient 7 was taken ill with the disease. Whether Patient 8 was the source of infection at the dance at Pryor, August 5, or the infection was spread by the members of the family of Patient 5, who left the bedside of Patient 5 and went direct to the dance, is impossible to say. It is undoubtedly true, however, that the dance was responsible for the infection of Patient 12, who had been isolated at home for months, and whose only touch with the sources of infection was his attendance on the dance. The infection must have been very virulent, since two of the persons who attended this dance died.

It is also of interest to note the infection in the family of Patients 10, 13, 14, 15 and 17. There are seven children in this family, and following the visit of Patient 8, five of them, after an average incubation period of seven and a fraction days, were taken ill with abortive symptoms of the disease.

Dr. Benson of Fromberg, who had charge of a number of patients at Edgar, some of whom I saw, and also Dr. Arnold of Billings reported a number of cases of abortive symptoms. At Edgar there were two abortive cases in one family. Several days later a third child was taken with the same symptoms, but developed paralysis of both arms and legs. I feel confident that the infection in the family of Patients 10, 13, 14, 15 and 17 was the abortive type of infantile paralysis.

Every home in the Pryor district was visited, and all members of the family examined for the disease. Strict quarantine was maintained on the entire district, and all the Indians compelled to clean up their homes and keep their children at home. Only the men were permitted to go out, and then only on urgent business. This seems to have been successful in checking the further spread of the disease.

Medicolegal

When Vaccination May Still Be Required

(Bright vs. Beard (Minn.), 157 N. W. R. 501)

The Supreme Court of Minnesota reverses a judgment obtained by the plaintiff for alleged violation by the defendant, a member of the board of education of the city of Minneapolis, of Section 2900 of the General Statutes of 1913, which provides that any member of any public school board or board of education of any district, who, without sufficient cause, etc., shall vote for the exclusion from school privileges of any person entitled to admission to the schools of such district, shall forfeit to the party aggrieved $50 for each offense. It appeared that a case of smallpox had developed in the public school wherein the plaintiff was a pupil, and that the defendant, as a member of the board of education, had voted for a resolution which, in effect, required the pupils in that school who had been exposed to the contagion to be vaccinated and in default thereof to be excluded from attendance until the lapse of two weeks. The court says that the defendant could not be penalized for the act of the health commissioner or the superintendent of. the schools. The court also thinks it fairly appeared that the trial court's finding of want of sufficient cause for the defendant's affirmative vote on the resolution adopted by the board of education was based on an erroneous conception of the effect of a statute, and not on facts, assuming that the plaintiff was a pupil covered by the resolution. From the time said Section 2900 appeared on the statutes, in 1877, down to the enactment of Chapter 299 of the Laws of 1903 (which was revamped and inserted by the revisers in subdivision 8 of Section 2131 of the Revised Laws of 1905; Section 4640 of the General Statutes of 1913), no one could have made a plausible contention that exposure of a school pupil to a virulent contagious disease, such as smallpox, did not constitute sufficient cause for excluding such pupil from attendance during the period that there was danger of imparting such disease by such pupil to others in the school. Did said Chapter 299, Laws of 1903, change the situation? The court thinks not. That law was designed to prohibit compulsory vaccination, and also to prohibit school authorities from making vaccination a condition precedent to the enjoyment of school privileges except during the prevalence of an epidemic of smallpox. It has nothing to do with the status of school pupils who have been exposed to a contagious or infectious disease whether of smallpox, scarlet fever, diphtheria, or the like. It is unreasonable to surmise that this law of 1903 was intended to prevent school authorities from taking the usual precautions to prevent the spread of contagious diseases through pupils who have became exposed to contagion. The temporary exclusion from school attendance of such pupils is still left to the good judgment of the authorities. The resolution here in question went no further than to deal with pupils who had been exposed to contagion from the dread smallpox. The facts found showed that one of the pupils attending the school became a victim of the disease and had exposed others therein to contagion. This furnished sufficient cause for the adoption of the resolution on which the defendant voted, and the finding that no epidemic of smallpox then prevailed in the city was not important. In 1902, in State ex rel. vs. Zimmerman, 86 Minn. 353, a regulation requiring children to be vaccinated as a condition precedent to attendance in a public school during an epidemic of smallpox was upheld as reasonably necessary. And the exception in the law of 1903 recognizes the principles announced in the decision. A person carrying the germs of infection may spread the disease perhaps as readily before the disease has become epidemic as after it has arrived at that stage. Unless the power still remains in the school authorities to exclude temporarily those from school attendance who have come in contact with smallpox patients, we may expect epidemics of that disease to be started in short order in the public schools. The court does not believe a reasonable construction of the statutes herein referred to invites such calamities.

Society Proceedings

COMING MEETINGS

American Public Health Association, Cincinnati, Oct. 24-27.
Clinical Congress of Surgeons, Philadelphia, Oct. 23-28.
Kentucky State Medical Association, Hopkinsville, Oct. 24-27.
Southern Medical Association, Atlanta, Nov. 13-16.
Virginia State Medical Society, Norfolk, Oct. 24-27.

INDIANA STATE MEDICAL ASSOCIATION

Annual Session, held at Fort Wayne, Sept. 28 and 29, 1916

The President, Dr. George F. Keiper, Lafayette, in the Chair

Advanced Ectopic Pregnancy

Dr. Edmund D. Clark, Indianapolis: A woman, aged 28, was in her fourth pregnancy at term. Pregnancy was apparently normal, except for an unusual amount of abdominal pain and nausea. Fetal movements were observed between the fourth and fifth months, and continued in a normal way until three weeks before her admittance to the hospital. At the end of the tenth month an attempt to bring on labor resulted in an infection of the uterus, necessitating removal of the fetus, placenta, infected uterus and tubes. The mother made an uneventful recovery. She is now in perfect health.

DISCUSSION

Dr. Charles M. Mix, Muncie: The primary pain of ruptured ectopic pregnancy is said to be in the lower abdomen. That has not been my experience. In the majority of cases it has been epigastric or umbilical, and it settles down into the lower abdomen exactly as the primary pain of appendicitis settles down into the right iliac fossa.

Dr. Charles Stoltz, South Bend: It is very essential to recognize cases of tubal or extra-uterine pregnancy early, and then operate to guard against danger which may follow. I do not suppose any one would recommend waiting if he know there was a tubal pregnancy.

Dr. J. W. McCausland, Fort Wayne: In the last five months I have seen eight cases of advanced ectopic pregnancy with rupture. Seven patients left the hospital recovered, while the eighth died. The great difficulty in ectopic pregnancy is to make the diagnosis. After the diagnosis has been made, the surgery is easy.

Dr. H. A. Duemling, Fort Wayne: I recall the case of a woman, aged 21, in which the diagnosis of ectopic pregnancy was made in the early months. I saw the patient about two months later. At this time the abdomen was filled with a large fluctuating tumor. She had considerable elevation of temperature and a rapid pulse. A diagnosis was made of suppurating ovarian cyst. On opening the abdomen we found a full-term child.

Dr. H. H. Martin, Laporte: The tendency to spontaneous hemorrhage is governed a great deal by the site of the rupture. I had an experience with two cases illustrating that point. The first patient was quite a large, full-blooded woman about six or seven weeks pregnant. Rupture occurred at 8 o'clock in the evening; in probably fifteen minutes after the onset of the pain she was pulseless. The patient was operated on at 11 o'clock. At that time it was impossible to count her pulse, and she seemed to be dying. The rupture occurred in the tube, and right through the placenta. There was an enormous amount of blood in the abdominal cavity, and it seemed as though the woman would bleed to death in a short time. On going through the peritoneum the blood spurted up like a fountain. The second patient was seized with a sudden pain; she was operated on four hours after the onset of the pain. The hemorrhage had been entirely from the fimbriated end of the tube and was not large in amount. The pain was not as severe as in the other cases.

Dr. A. M. Hayden, Evansville: The mere fact that a patient bleeds to death warrants us in operating in all of these cases as soon as the diagnosis is made. The ideal time to operate is before rupture.

Dr. A. S. Jaeger, Indianapolis: I saw a case two months advanced in pregnancy in a married woman who absolutely denied pregnancy and claimed that hemorrhage was due to the fact that she had some menstrual disturbance which necessitated a vaginal examination. She gave a history of never having stopped normal menstruation. Her word was accepted, and a diagnosis was made of hemorrhage into the broad ligament. Operation revealed a three months' pregnancy with the placenta attached to the posterior aspect of the broad ligament. The placenta had become partially detached and the hemorrhage was the symptom.

Dr. Alfred F. Schmauss, Alexandria: In cases of extra-uterine pregnancy, operation should be performed before rupture takes place. Valuable time is lost in trying to make a positive diagnosis.

Dr. J. W. Shafer, Lafayette: The time to operate is before rupture has taken place, but many patients come to us only as the result of hemorrhage. The incidence of fibroid tumor and extra-uterine pregnancy has been remarkable to me.

Dr. D. S. Wiggins, Newcastle: In the last two years I have seen ten cases of tubal pregnancy. In six of these, rupture had taken place. Four were unruptured, and operation was performed for twisted pedicle, appendicitis or something else. While it is ideal to operate before rupture, we do not frequently see these patients before rupture has taken place. Whether the surgeons would do any better in diagnosis than the general practitioner is a question.

Dr. George R. Andrews, Muncie: In a case of abdominal pregnancy, the placenta was attached to the posterior aspect of the broad ligament. Another woman manifested nothing unusual in the course of her gestation, except that she did not go to labor at what was supposed to be full term. She went on for about two months, when she was referred to me. I recognized an abdominal pregnancy, and operated, finding a dead child. This woman had a fibroid tumor of the uterus.

Dr. Charles D. Terry, South Bend: No man can make a diagnosis of tubal pregnancy by vaginal examination, bimanual or otherwise, and feel certain as to the diagnosis if he ignores the history of the case. All cases of tubal pregnancy give a distinct and positive history as regards menstruation. There is an irregularity as to time or amount and character of the discharge, the discharge being mucous or slimy, which suggests tubal pregnancy.

Dr. John Sluss, Indianapolis: We all are agreed that immediate operation in these cases is indicated, but I do not regard rupture of a tubal pregnancy so grave an emergency as I formerly did. It is exceptional that an artery of any size is torn or ruptured. The symptoms of gravity in the early stages of rupture are very frequently those of shock. It is impossible in such cases to differentiate between shock and hemorrhage.

Conservatism in Cesarean Section

Dr. J. W. Shafer, Lafayette: Cesarean section is indicated only in cases in which the pelvis is too small to admit of delivery of a living child. Eclampsia, placenta praevia, malpresentations and tumors are indications for cesarean section only when accompanied by other complications. "Once a cesarean section, always a cesarean section," is a safe and sane axiom. A pelvis justo minor to the extent of 5 cm. with dead child is a positive indication for cesarean section, except when the patient has been submitted to frequent examinations and attempts at delivery, or is exhausted by prolonged labor, dilatation is partial or complete, membranes are ruptured, the child is injured by instruments, and there are signs of weakness of the child. Then cesarean section is contraindicated, and craniotomy and embryotomy are methods of choice and safer for the mother.

DISCUSSION

Dr. A. S. Jaeger, Indianapolis: A justo minor pelvis is not the only indication for cesarean section. There are many other indications, largely individual, which are just as absolute. Cesarean section in eclampsia is a question of personal opinion and experience. We must not adapt the patient to the operation, but rather adapt the operation to the patient. If a patient is seen early enough, or if the physician has nursed the patient along, the patient may not have to undergo a cesarean section for eclampsia.

Dr. Thomas B. Eastman, Indianapolis: Anybody can do a cesarean section, or can learn to do it, in ten minutes, provided he knows how to be clean; but it requires more skill to do a version or to make some of these forceps deliveries.

Dr. Louis Burkhardt, Indianapolis: It is not necessary to perform so many cesarean sections; if the practitioner is skilled in doing version, many cesarean sections can be avoided.

Dr. Charles C. Terry, South Bend: It requires more courage on the part of a surgeon to be conservative than it does to be radical. What would be the objection to the principle, "once a cesarean section always a cesarean section"? Where a woman has difficult labors, requiring long forceps deliveries, it would be better to have a cesarean section done, but we should be careful to make the correct diagnosis.

Hyperthyroidism and Its Relation to Certain Pelvic Disorders in Women

Dr. Thomas B. Eastman, Indianapolis: There is a close physiologic interrelationship between the ovaries and the thyroid, with the result that in certain circumstances any affection of either one may produce abnormal conditions in the other. Thyroid secretion and ovarian secretion do not supplement each other; they neutralize each other.

DISCUSSION

Dr. Maurice I. Rosenthal, Fort Wayne: The interrelationship between the genital organs and the thyroid is nicely shown in some cases of exophthalmic goiter in which pregnancy takes place. In two cases in women about two or three months pregnant, I was afraid to operate because of symptoms referable particularly to the heart. I watched one woman for quite a while; I gave her the rest cure. About the second month the circulation of the heart had improved to such an extent that we did a thyroidectomy. She went along nicely with her pregnancy and was delivered at full term. That experience has occurred twice in my practice.

Dr. H. A. Duemling, Fort Wayne: The fact that the thyroid is more or less closely associated with the sex glands presents itself in various ways, such as the enlargement of the thyroid in young girls at puberty, and in females generally at the time of menstruation.

Dr. Charles M. Mix, Muncie: Infection may be the activating and underlying cause of this disturbance. Not long ago some man, whose name I have forgotten, demonstrated streptococci in the so-called cystic ovaries. Cystic ovaries, with dysmenorrhea, and hyperthyroidism, especially in a goitrous region, may be associated conditions in which the streptococcus is the active factor.

Dr. A. F. McDonald, Warsaw: Some years ago our attention was called to cases of amenorrhea at times following confinement and associated with a gain in weight, and also occurring in young girls who gained appreciably in weight, and had amenorrhea. I have given these patients thyroid extract, and I can recall at present possibly half a dozen cases in which loss of weight and a free menstrual flow resulted. I mention this as showing the connection between the thyroid and the ovary.

Dr. H. O. Bruggeman, Fort Wayne: The ovaries are not the only sex glands. The pineal gland is absolutely a sex gland, and tumors of this gland exert a profound influence on the development of the sexual organism. The same is true of the hypophysis. There is also an intimate relation between the thymus and thyroid.

Dr. Miles F. Porter, Fort Wayne: Regarding the influence of hyperthyroidism on pregnancy and vice versa, my experience is in accord with what has been said. A patient with extreme hyperthyroidism stops menstruating. She also loses flesh. She goes on until her thyroid is used up; her menses do not return, but her flesh does. A pregnant woman without a thyroid slightly hyperactive is in considerable danger from toxemia or, if she goes through labor, from infection. Our observations teach us that a slight hyperactivity of the thyroid is a normal condition to a woman bearing children if she has to carry that child without undue risk. On the other hand, a woman with an extremely hyperactive goiter may have hemorrhages and lose her child. When she has her goiter removed, or a part of her goiter, she regains her health and becomes mother to a family. Many of these things seem very contradictory.

Occlusive Drainage for Empyema of the Chest

DR. MAURICE I. ROSENTHAL, Fort Wayne: The diaphragm itself offers sufficient motive power to evacuate the chest, and if resort is had to a proper valve, air can be prevented from entering. To accomplish this I devised the following operation: The tube is inserted into the chest by means of a specially constructed trocar and cannula; it is fixed to the chest by means of adhesive plaster. It is left hanging dependent about 24 inches to act as a discharge tube and at the same time a siphon. The end is cut at a long angle. Over this is placed a very thin rubber tube somewhat larger than the drainage tube. This tube is tied in place so that it overhang the drain about 3 inches. The thin tube will act as a valve excluding air from the chest on expiration and allowing the escape of pus and consequent approach of the lung to the ribs on each inspiration. The thinner the tube the better the valve action. Sterile adhesive plaster should be used, as it is much less irritating about the wound. The operation can be performed in about one minute under local anesthesia. When the cavity is quite obliterated and there still persists a slight amount of drainage, the tube is removed and a braided bundle of silkworm gut is substituted. In a few cases I have occasionally poured from one-half to 1 ounce more or less of sulphuric ether through the tube into the chest to act as an antiseptic.

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-Ninth Annual Meeting, held at Indianapolis, Sept. 25-27, 1916

The President, DR. HUGO O. PANTZER, Indianapolis, in the Chair

Appendicular Abscess, Complicated by Hemorrhage and Death

DR. MAGNUS A. TATE, Cincinnati: This condition is rare. The patient was a young woman who had her first attack. The abdomen was opened through the right rectus, and drainage was profuse for six days. At the end of the eleventh day her condition was good. On the twelfth day she complained of pain and nausea. On the morning of the thirteenth day there was hemorrhage from the wound, and on the fourteenth day her condition was alarming, death occurring the same evening. Necropsy revealed a gangrenous sac, the size of a dollar, in the mesentery, probably the site of hemorrhage.

DISCUSSION

DR. ALBERT GOLDSPOHN, Chicago: After a normal course following a vaginal hysterectomy in a septic case, the patient began to bleed about two weeks after the wound had nearly closed. After futile attempts to stop the hemorrhage by local tamponning and the use of clamps, I saved the patient's life by doing an abdominal section and ligating the internal iliac arteries.

Drainage for Pus Conditions in the Pelvis During Pregnancy

DR. FRANCIS REDER, St. Louis: The most frequent cause of a pus accumulation in the pelvis during pregnancy is a diseased appendix. If the pains and frequent indispositions which usually accompany the pregnant state are not promptly interpreted the primary clinical picture of appendicitis may be recognized only when the more serious phases of the disease have manifested themselves. Before any pus formation has taken place, the pulse and temperature may show little or no change. The pain is usually located in the epigastric region, and remains there until the disease has reached the stage when all pain ceases. Even in an advanced pregnancy, a readily recognizable rigidity of the right rectus is seldom encountered, and only exceptionally does palpation reveal a tender spot over McBurney's point. Nausea and vomiting count for naught because they are frequently associated with the toxemia of pregnancy. Pregnancy favors the rapid development of appendicitis, and pus may be found in the pelvis in a very short time. The most satisfactory and convincing evidence as to the presence of pus in the pouch of Douglas can be obtained by a rectal examination. In the treatment of a pelvic abscess complicating pregnancy, two factors become absolutely axiomatic; first, prompt recognition of the collection of pus, and, second, the simplest surgical measure for relief. An abdominal operation can be done with less risk of interrupting pregnancy before the fourth month than after. Great antipathy still exists as to attacking a pelvic abscess through the rectum, largely because of the likelihood of infecting the abscess cavity. Patients relieved in this manner have usually suffered no untoward results, and their recoveries have been satisfactory.

DISCUSSION

DR. HERMAN E. HAYD, Buffalo: In cases of appendicitis complicated with pregnancy, miscarriage is apt to take place. Undoubtedly a bacteremia is established, and the fetus is made ill by the infected blood. The point brought out of opening the abscess through the rectum is a good one.

DR. W. A. B. SELLMAN, Baltimore: One method of dealing with these abscesses is that suggested of opening through the vagina posteriorly into the culdesac and by that means reaching the abscess. The second method is opening the abscess through the rectum. In two cases I selected the abdominal route, draining the abscess cavity. My experience is that it is necessary to drain the cavity for a long time.

DR. ROLAND E. SKEEL, Cleveland: As regards making a puncture through the rectum in these abscesses, I have used that procedure for ten years, but I would emphasize the fact that there must be an abscess cavity. If there is no abscess cavity, with a thin wall, it would be dangerous on account of peritonitis or rectal infection. I can recall cases of appendicular abscesses which opened and drained through the rectum spontaneously.

Case of Rupture of Uterus; Sepsis; Operation; Recovery

DR. RUFUS B. HALL, Cincinnati: My patient was operated on thirty-seven days after delivery. She made a slow but satisfactory convalescence, and is now perfectly well. Rupture of the uterus during labor is a rare and dangerous accident. From the history of the case and the subsequent findings at the time of the operation, I ask the question if it is possible that the unrecognized small rupture, causing leakage into the abdomen, might not be more frequent than is generally believed. My case would suggest that as a possibility, because there were no symptoms which would suggest rupture, and it was not suspected until revealed at the time of the operation.

DISCUSSION

DR. HENRY SCHWARZ, St. Louis: There should be some history accounting for cicatricial tissue or some weakening in the uterine wall. Without such a history, and without the symptoms of scar, tallying with the symptoms of rupture of the uterus during delivery, I should hesitate to accept this case as one of rupture of the uterus occurring at the time of delivery.

DR. EDWARD J. ILL, Newark, N. J.: I do not think Dr. Hall's patient had a rupture of the uterus. Rupture of the uterus always occurs in the lower and hardly ever or never in the upper segment. He speaks of no blood being in the abscess. There must have been some blood there if the woman had a rupture of the uterus. I have seen many cases of chronic suppurative metritis following labor in which abscess occurred near the anterior horn; and after being opened and drained, the patient got well, provided it was a single abscess.

DR. J. HENRY CARSTENS, Detroit: Might not this case have been one of embolism of the uterus, in which the muscle tissue degenerates slowly, breaks loose, and finally there results an infection of the abdominal cavity?

DR. ROLAND E. SKEEL, Cleveland: Rupture of the uterus belongs to one of two categories—those cases in which there is a disproportion and after a prolonged labor there is a thinning out of the lower uterine segment and rupture occurs in the uterine cavity. In the other cases, in which degeneration of the uterine muscle takes place, rupture may occur early in labor anywhere in the body of the uterus.

Dr. Sylvester J. Goodman, Columbus: In one of two cases which occurred in our service in the last few months, the diagnosis was not made until a week after the rupture occurred. Infection took place with general peritonitis and pus everywhere. The abdomen was opened, and a dead, macerated fetus removed, hysterectomy done and abdominovaginal drainage instituted. The woman recovered. The other was a case in which the diagnosis was made promptly by the attending physician. Appendectomy was done, abdominovaginal drainage instituted, and the patient made an uneventful recovery.

Dr. O. H. Elbrecht, St. Louis: If you recall the different types of bicornate uteri and the different types of double uteri, occasionally you will see one that is open or very thin, and there is a disproportion between the one uterus and the other, the one being parasitic to the other, the tubes and ovaries being only two in number. There is a possibility that Dr. Hall's case was one of this type, as the patient did not manifest any of the classical symptoms of a typical rupture of the uterus.

Dr. James E. Davis, Detroit: Cullen some years ago reported 150 cases of cysts occurring from the wolffian duct remains between the anterior part of the uterus and bladder. Last year I had such a case. The cyst had become infected—in fact, most of these cysts become infected and are recognized following obstetric deliveries. In my case the woman manifested a septic temperature, beginning on the fourth day, which continued for about eight weeks. When she came to operation, an abdominal section was done and nothing was found to account for the conditions until I began to separate the bladder from the anterior portion of the uterus, and then I opened into a cystic cavity, which was infected, and which I diagnosed as belonging to this type of cyst. Dr. Hall's case might belong to this class of cases.

Dr. E. Gustav Zinke, Cincinnati: There is an absence of history of injury, and if a rupture had taken place it was probably spontaneous, owing to some disturbance in the uterine wall. There is a possibility that the placenta in some of its parts had probably undergone chorionic epitheliomatous degeneration and had destroyed the uterine musculature of that region. It may have been very limited in extent.

Dr. Charles L. Bonifield, Cincinnati: The woman might have received some injury to the uterus through the abdominal wall which may have caused a limited thrombosis.

Rupture of the Uterus in Cesareanized Women

Dr. John Norval Bell, Detroit: A cesareanized woman is always in danger of uterine rupture in subsequent pregnancies, and should be under careful observation for the last half of her gestation. In case her puerperium following the first section was afebrile, she may be allowed to go to term if she can be in the hospital for the last month of gestation; otherwise the labor should be anticipated and operation done at least two weeks prior to term. Implantation of the placenta over the scar area undoubtedly increases the danger of rupture, as does also a febrile puerperium following operation.

Fibromyoma Uteri and Cardiovascular Disease

Dr. Ben R. McClellan, Xenia, Ohio: I have studied twenty-six cases of fibromyoma uteri, nine of which had well-marked cardiovascular complications. In each case the diagnosis of the latter condition was confirmed by a competent internist. Of the nine, only two gave any history of other adequate cause than the presence of the fibroid uterus; these two gave distinct histories of a previous acute pelvic infection. Two of the nine patients died, one within a few hours following a difficult removal of a very large multiple fibroid of many years' growth, which had undergone cystic degeneration, and was complicated by very extensive adhesions to the surrounding viscera. The heart behaved badly during the operation, and death was undoubtedly due to shock, which in turn was caused by extreme traumatism in the presence of heart and blood vessels already handicapped by changes due to the presence of the chronic uterine disease. The other patient, in whose case there were pronounced cardiac and renal complications, was carefully prepared for the operation, which was not difficult, although the tumor was of extreme size. The patient made an exceptionally good recovery up to the eleventh day, but died without warning, while sleeping after a dinner which she had greatly enjoyed. No doubt the cause of death was brown atrophy of the heart. In neither of these cases could a necropsy be secured, but both physical examination and the clinical history were enough to establish the fact of serious cardiovascular changes. The remaining seven patients have all recovered with symptomatic relief from cardiac trouble, and only three, on careful physical examination, show some hypertrophy.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

October 5, CLXXV, No. 14

1 Treatment of Diabetes. F. Fremont-Smith, Washington, D. C.—p. 476.
2 Insufficient Oxygen Supply as Factor in Disease. F. H. McCrudden, Boston.—p. 480.
3 Roentgentherapy in Hypertrophy of Thymus. Report of Cases. P. H. Cook, Worcester.—p. 483.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXVI, No. 308

4 *Treatment of Neurasthenia. A. F. Riggs, Stockbridge, Mass.—p. 281.
5 *Gastro-Intestinal Findings in Case of Sprue; Treatment Based on These Findings. T. R. Brown, Baltimore.—p. 289.
6 Case of Atrophy of Fatty Layer of Skin, Preceded by Ingestion of Fat by Large Phagocytic Cells—Macrophages. T. C. Gilchrist and L. W. Ketron.—p. 291.
7 *Tetanus Following Gunshot Wounds. J. A. C. Colston, Baltimore.—p. 294.
8 Gas Gangrene — Its Course and Treatment. K. Taylor, Paris.—p. 297.
9 *Prognostic Value of Blood Cultures in Erysipelas. T. P. Sprunt, Baltimore.—p. 300.
10 History of Discovery of Secretory Glands and Their Function. M. Frank, Chicago.—p. 302.

4. **Treatment of Neurasthenia.**—Riggs is convinced that prolonged rest had regularly done his patients more harm than good. In fact, the more rest they had had, the more tired they seemed to have become. On the other hand, those who had had an exercise cure were in much better condition, not only physically, but mentally as well. As to the cause of the condition, Riggs believes that neurasthenia is primarily a mental disorder; that the disorder, in nearly all cases, is originally independent of any and all bodily conditions, and that it exists, in spite of a structurally normal central nervous system. To all intents and purposes, then, the neurasthenic is an organically normal individual. He is sound of mind and body, but this normal apparatus of his gets out of working order because it is unskilfully used and, therefore, gets out of internal adjustment, and also out of adjustment with what should be its work. Were neurasthenia exhaustion, rest would cure it. It does not. Were it an inherent weakness of the organism, not a single case could be cured. Many cases are cured. Were it due to physical disorders, then physical treatment of these disorders would cure it. The conclusion seems clear that neurasthenia is not weakness nor exhaustion; that it is neither a malady of the intestines, the heart, the stomach, nor a disorder dependent on structural change of the nervous system; and that it, therefore, cannot be cured by rest or by any other physical means. It calls for psychotherapy primarily and for physical means only secondarily, and then only to combat the physical byproducts—whatever they may be. Fundamental reeducation of the

patient is the weapon in which Riggs puts his greatest trust. Occupation, both manual and intellectual, is one of the most important instruments of reeducation. A thorough physical examination precedes treatment.

As soon as the patients have acquired a good working modicum of self-control, and their physical condition has become satisfactory with as little warning beforehand as possible they are sent home on a trial trip, to apply their knowledge and the fruits of their practice to their own environment. The stay at home varies from two and three weeks to six months or more in length—according to the case and the environment. A return for treatment usually follows the trial trip. The next home going is apt to be permanent, but is often followed in six months or a year by another and final visit of a few days. Patients discharged two years and over, 129. No improvement, 0.7 per cent.; improved, 15 per cent.; much improved, 36 per cent.; cured, 47 per cent. Patients discharged three years and over, 91. No improvement, 1 per cent.; improved, 11 per cent.; much improved, 30 per cent. and cured, 57 per cent.

5. **Gastro-Intestinal Findings in Case of Sprue.**—The most striking features in Brown's case were, first, the persistence of the complete absence of pancreatic secretions, not only during the stage of apparent illness, but even after the patient felt and seemed absolutely well; second, the essential rôle of the constant administration of pancreatic extract by mouth n the therapy of the disease; third, that whatever the cause of sprue, and at present it seems probable that it is due to an nfection with monilia, the lack of pancreatic secretion seems persistent and fundamental, the absence of gastric juice variable and accidental; fourth, that as long as the patient still suffers from this pancreatic achylia she can in no wise be considered as cured, although clinically she is apparently well; and the ultimate outcome must still remain doubtful.

7. **Tetanus Following Gunshot Wounds.**—Colston endorses he use of intraspinal administration of magnesium sulphate n cases of tetanus in which a fatal outcome is to be feared from spasm of the glottis or from exhaustion.

9. **Blood Cultures in Erysipelas.**—Five patients of the thirty-four cited by Sprunt showed a streptococcus bacteremia. Of hese, four died. The fifth had very few organisms in the blood, no other demonstrable complication, and recovered after a prolonged febrile course of thirty-two days, the longest of the series. The only other fatality occurred in a case in which a blood culture was not made, but in which metastatic esions suggest that a demonstrable bacteremia existed. There was no death among the patients whose blood was sterile, hough several complications were encountered, namely, suppuration, phlebitis, erysipelas migrans.

Colorado Medicine, Denver

September, XIII, No. 9

11 *Abdominal Pain. J. R. Espey, Trinidad.—p. 262.
12 Treatment of Ununited Fractures by Use of Bone Graft. E. F. Dean, Denver.—p. 268.
13 Control of Cancer. F. W. Bancroft, New York.—p. 273.
14 Infantile Hygiene During Preschool Age. K. Lindsay, Boulder. p. 279.
15 Records of Plague. W. H. Crisp, Denver.—p. 282.

11. Abstracted in The Journal, Sept. 30, p. 1040.

Georgia Medical Association Journal, Augusta

September, VI, No. 5

16 Chancre. E. G. Ballenger and O. F. Elder, Atlanta.—p. 81.
17 So-Called Tertiary Syphilis. W. L. Champion, Atlanta.—p. 84.
18 Pathology of Syphilis. E. C. Thrash, Atlanta.—p. 87.
19 Original Wassermann vs. Noguchi Reaction for Diagnosis of Syphilis. A. H. Bunce, Atlanta.—p. 92.

Journal of Bacteriology, Baltimore

March, I, No. 2

20 *Preliminary Report on Synthetic Media. C. J. T. Doryland, Fargo, N. D.—p. 135.
21 Significance of Voges-Proskauer Reaction. M. Levine, Ames, Iowa.—p. 153.
22 Studies on Soil Protozoa and Their Relation to Bacterial Flora. J. M. Sherman, Madison, Wis.—p. 165.
23 Are Spore-Forming Bacteria of any Significance in Soil Undcr Normal Conditions? H. J. Conn, Geneva, N. Y.—p. 187.
24 Possible Function of Actinomycetes in Soil. H. J. Conn, Geneva, N. Y.—p. 197.
25 Practical Observations on Titration and Adjustment of Culture Media. B. van H. Anthony and C. V. Ekroth, New York.—p. 209.

May, No. 3

26 New Species of Alcohol Forming Bacterium Isolated from Interior of Stalks of Sugar Cane Infested with Cane Borer Diatraea Saccharalis. W. L. Owen, New Orleans.—p. 235.
27 Studies on Aerobic Spore-Bearing Nonpathogenic Bacteria. W. W. Ford, Baltimore.—p. 273.
28 Spore-Bearing Bacteria in Milk. J. S. Lawrence and W. W. Ford, Baltimore.—p. 277.
29 Number of Colonies Allowable on Satisfactory Agar Plates. R. S. Breed and W. D. Dotterrer, Geneva, N. Y.—p. 321.
30 Modification of Hygienic Laboratory Method for Production of Tetanus Toxin. H. L. Wilcox, New York.—p. 333.
31 Method of Anaerobic Plating Permitting Observation of Growth. H. W. Jones, Washington, D. C.—p. 339.
32 *Testicular Infusion Agar. Sterilizable Culture Medium for Gonococcus. I. C. Hall, Los Angeles.—p. 343.

20. **Preliminary Report on Synthetic Media.**—This paper deals both with synthetic nutrient solutions and with solid synthetic media formed by the precipitation of an agglutinant from compounds of known composition and structure. Silica jelly is pronounced by Doryland to be the most suitable solid medium. The method consisted essentially of dissolving chemically pure potassium silicate and chemically pure sodium silicate in water in sufficient amounts to give a concentration of 34.2732 gm. of silicic acid per liter. One half this concentration of silicic acid per liter gives a medium which will solidify in approximately five minutes, thus making a medium suitable for plating. The mixture of sodium and potassium silicate gives us sodium and potassium salts in the final medium instead of only sodium salts, thereby lessening the danger of too great a concentration of sodium salt.

The solid synthetic media were prepared in the following manner: solutions of hydrochloric acid, sulphuric acid and phosphoric acid were each standardized separately, against the sodium silicate and potassium silicate solution, so that 1 c.c. of each acid would just neutralize 1 c.c. of the silicate solution. Whenever an organic acid such as formic, acetic lactic or tannic, etc., was used as a source of energy it was made in sufficient concentration to just neutralize an equal volume of the silicate solution. These acids, that is the hydrochloric acid, sulphuric acid, phosphoric acid, and the organic acid, were then mixed together in such proportion that the resulting salts from the sodium and potassium silicate would be present in the final silicate medium in quantities, approximately, inversely proportional to their osmotic action, thus giving a minimum osmotic pressure. Before standardization the hydrochloric acid there was added to it 0.5 gm. magnesium sulphate, 0.01 gm. calcium carbonate or calcium oxid, 0.01 gm. of ferric sulphate and 0.01 gm. of manganous sulphate per liter. Ammonia nitrogen was added to the hydrochloric acid as ammonium sulphate. Cyanid nitrogen was added to the hydrochloric acid as potassium ferricyanid. Nitrite nitrogen was added to the neutral solution in the Petri dish, nitrate nitrogen was added to the acid mixture as nitric acid. All the sources of nitrogen were added in proportion to give 1 gm. of their respective salts per liter.

When sterile, 5 c.c. of the acid mixture was added to a sterile Petri dish, after which there was added 5 c.c. of the silicate solution. The plate was then rotated to mix the two solutions thoroughly, and then inoculated. If a nonacid compound was used as a source of energy (say glucose) a sufficient amount of a sterile aqueous solution, to give 10 gm. per liter, was added at this point. The resulting silica medium was neutral to phenolphthalein and set firmly in approximately five minutes. The growth of organisms on this solid medium resulted generally in quite typical colonies, although with a few organisms somewhat peculiar developments took place. The liquid media used had a concentration similar to the above with the exception that silicic acid was absent.

32. **Testicular Infusion Agar.**—The formula followed by Hall in preparing testicular infusion agar for the growth of the gonococcus in preparing suitable vaccines is as follows: 1. Mix 500 gm. ground beef testicle from which the tunica vaginalis has first been stripped, with 1,000 c.c. distilled water. 2. Soak overnight at room temperature. 3. Heat to 50 C.

Keep warm for one hour by placing in the incubator at 37 C. 4. Boil, strain and restore to 1,000 c.c. with distilled water. If in excess do not reduce by boiling since overheating is injurious. 5. Add 2 per cent. peptone (Witte's or Difco), 3 per cent. agar chopped fine, 0.5 per cent. glucose, 0.3 per cent. acid sodium phosphate. 6. Soak at least one hour to soften the agar. Melt in the autoclave at 10 pounds pressure for thirty minutes. 8. Titrate with phenolphthalein and add N/1 sodium hydroxid sufficient to neutralize if no unsaturated compounds were present. 9. Check the titer by repetition. Five c.c. should require from 1.0 to 2.0 c.c. N/20 sodium hydroxid to display color hot. 10. Tube and sterilize in the autoclave at 10 pounds for thirty minutes. 11. Slant or pour into plates.

Journal of Immunology, Baltimore

April, I, No. 2

33 *Isolated Organ Lipoids as "Antigen" in Wassermann Test. E. S. L'Esperance and A. F. Coca, New York.—p. 129.
34 *Is Hyperleukocytosis Following Injection of Typhoid Bacilli into Immunized Rabbits Specific? H. I. McWilliams, New York. —p. 159.

June, No. 3

35 Effect of Lecithin and Horse Serum on Hemolytic Action of Certain Peptones. A. A. Epstein, New York.—p. 183.
36 Study of Strain of B. Welchii Isolated in France Together with Some Notes on Gastric Ulcers. M. W. Stewart and R. West, New York.—p. 189.
37 Human Sensitization. R. A. Cooke and A. Vander Veer, Jr., New York.—p. 201.
38 *Study of Grouping Meningococcus Strains. M. P. Olmstead, P. L. DuBois, J. B. Neal and R. Schweitzer, New York.—p. 307.
39 *Bacterial Cultures of Human Spleens Removed by Surgical Operation. A. W. Sellards, Boston.—p. 321.

33. **Isolated Organ Lipoids as Antigen in Wassermann Test.**—With their method of employing the isolated ox-heart lipoids L'Esperance and Coca have obtained a relatively low percentage (compared with the figures of Ritz and Sachs) of positive reactions in individuals denying syphilitic history, and a relatively high percentage of positive reaction in clinically recognized syphilis. Similar differences were observed in the results obtained in parallel tests with the isolated lipoid antigen and the alcoholic extract of guinea-pigs' heart muscle in a series of 706 cases. In 650 of the 706 cases the results of the tests were the same with the two "antigens." In the remaining fifty-six cases different results were obtained. In twenty cases of thoroughly treated syphilis without symptoms, and of other diseases, no inhibition was obtained at either incubation temperature even with 0.2 c.c. of the diluted extract of the guinea-pig's heart. In six cases of untreated secondary and tertiary syphilis complete fixation was obtained at both incubation temperatures with 0.001 c.c. of the diluted extract of the guinea-pig's heart. In all of these cases a similar result was obtained with the ox-heart lipoids. Of twenty-six cases of tuberculosis, malignant tumor was nephritis, all denying syphilitic infection, three cases of tuberculosis reacted positively with as little as 0.02 c.c. of the diluted extract of the guinea-pig's heart, and nine cases of tuberculosis, one case of malignant tumor and the case of nephritis reacted positively with 0.1 c.c. All of these cases were negative with the isolated lipoids. In one case of chancre, and in one of tertiary ulceration, the reaction was distinctly positive with the isolated lipoids but it was completely negative with even 0.1 c.c. of the diluted extract of the guinea-pig's heart. In another case of primary syphilitic lesion the reaction with the isolated lipoids was strong but with 0.05 c.c. of the extract of the guinea-pig's heart it was weak.

34. **Hyperleukocytosis.**—Throughout all of McWilliams' experiments the results point to a leukocytic reaction of nonspecificity. Both normal and typhoid immune rabbits respond with a well marked leukocytosis to the intravenous injection of typhoid bacilli, but the response is not different in degree in the two instances. Typhoid immune rabbits show the same grade of hyperleukocytosis when injected with *B. coli* as when injected with *B. typhosus.* The same is true of rabbits immunized against *B. coli.* These results were obtained with killed and living vaccine, with an old laboratory strain of typhoid and a freshly isolated one, and with typhoid bacilli grown on plain nutrient agar and on rabbit blood agar. Hence no evidence has been observed in favor of the view that typhoid immune rabbits exhibit a specific hyperleukocytosis following the injection of vaccine.

38. **Grouping of Meningococcus Strains.**—By means of complement fixation the authors claim that the meningococcus may be differentiated from allied organisms. A differentiation of individual meningococcus strains is possible by the use of refined technic but the relationship of strains is so close that it is difficult to obtain absolutely clear cut and consistent results. Of the twenty-nine strains studied by the authors, fourteen seem to form one group and eight a second group. Three seem to be closely related to the first group but have acted so irregularly that they cannot be classed with it, two have shown a relationship with each other only and two have shown a relationship to no other strain.

39. **Bacterial Cultures of Human Spleens.**—Bacterial cultures were made by Sellards of human spleens removed for surgical purposes in ten cases. The cultures from four of these spleens remained sterile. In three instances, a micrococcus was obtained and in three other cases an anaerobic bacillus developed. The anaerobic bacillus in its morphology, in its cultural characteristics and in its serologic reactions resembled very closely the bacillus isolated by Plotz in typhus. The evidence which is at present available indicates that these anaerobic bacilli, isolated by Plotz from typhus and appearing also in cases of pernicious anemia, constitute essentially a single species. Sellards believes that the weight of evidence indicates that this group of organisms represents parasitic but nonpathogenic flora of the human body. There is not sufficient evidence to ascribe a specific etiologic rôle to members of this group of anaerobic bacilli in either typhus or in pernicious anemia.

Journal-Lancet, Minneapolis

October 1, XXXVI, No. 19

40 State and Medical Education. G. D. Head, Minneapolis.—p. 557.
41 Campaign for Conservation of Senses. J. H. Rindlaub, Fargo, N. D.—p. 561.
42 Puerperal Eclampsia; Report of Cases. O. R. Wright, Huron, S. D.—p. 567.

Kentucky Medical Journal, Bowling Green

October, XIV, No. 10

43 Lessons and Observations of Medicolegal Committee. J. J. Moren, Louisville.—p. 527.
44 Physician Considered as Business Man. G. Cowan, Danville.—p. 533.
45 Why Medical Society? L. D. Hammond, Irvin's Store.—p. 534.
46 Local Anesthesia. W. I. Hume, Louisville.—p. 536.
47 Emergency Cases Seen in Eye and Ear Practice. A. O. Pfingst, Louisville.—p. 538.
48 Gallbladder Surgery. J. R. Wathen, Louisville.—p. 541.
49 Symptomless Hematuria. H. J. McKenna, Louisville.—p. 543.
50 Eclampsia of Pregnancy. J. T. Reddick, Paducah.—p. 546.
51 Gastro-Intestinal Catarrh. R. Dade, Oak Grove.—p. 549.

Medical Record, New York

October 7, XC, No. 15

52 Problem of Rest or Exercise in Treatment of Pulmonary Tuberculosis; Plea for Less Ergophobia. C. L. Minor, Asheville, N. C —p. 617.
53 Histopathologic Changes in Five Cases of Myelitis. G. B. Hassin Chicago.—p. 619.
54 Brain-Tumor or Hysteria; Report of Case. J. V. Haberman New York.—p. 624.
55 Review of History of Chemical Therapy in Cancer. W. S. Stone New York.—p. 628.
56 Cystoscopy as Diagnostic Aid in Spinal Cord Diseases. G. Greenberg, New York.—p. 634.
57 Case of Thrombophlebitis in Tuberculous, with Necropsy. E. A Gray, Chicago.—p. 636.
58 Case of Pan-Sinusitis, Complicated with Acute Suppurativ Appendicitis and Acute Mastoiditis. J. E. Sheehan, New York —p. 637.

Michigan State Medical Society Journal, Grand Rapids

October, XV, No. 10

59 Papal Physicians. F. X. Barth, Escanaba.—p. 469.
60 Methods in Diagnosis of Surgical Diseases of Abdomen. J. MacMillan, Detroit.—p. 476.
61 Labyrinthitis — Report of Cases in Acute Suppurative Otitis Medi and After Operations. D. M. Campbell, Detroit.—p. 481.
62 Case of Abductor Paralysis with Removal of One Vocal Cor C. H. Baker, Bay City.—p. 485.
63 Poliomyelitis Situation in Detroit. G. Sewell, Detroit.—p. 48

64 Service De Santc, French Army, or Care of French Wounded. L. C. Donnelly.—p. 490.
65 Case of Hydrocephalus with Spinabifida and Complete Situs Inversus. L. L. Bottsford, Ann Arbor.—p. 492.
66 *Coley's Mixed Toxins in Four Cases of Osteosarcomas. H. de B. Barss, Ann Arbor.—p. 497.
67 Eight Years in Department of Internal Medicine. A. W. Hewlett, Ann Arbor.—p. 505.
68 Case of Lupus Vulgaris. U. J. Wile, Ann Arbor.—p. 508.

66. **Coley's Mixed Toxins in Sarcoma.**—Barss urges the use of Coley's mixed toxins. One patient with sarcoma of the antrum, patently inoperable, who had been given a course of Roentgen-ray treatments without improvement by a man who is acknowledged to be an expert in his line, is now well for over twenty months. Another patient with sarcoma of the head of the humerus, also clinically inoperable, is well a year later, apparently cured and still possessed of his arm. In the third case, the growth of the tumor in the internal condyle of the femur was delayed, the health of the patient was greatly improved and the subsequent operation was unusually well borne. In the fourth case, sarcoma of tibia, the patient is in good health more than a year later with no evidence of metastases. Unfortunately there is now distinct evidence of a local recurrence. But the general health of the patient is much improved, and if a second operation or if amputation even is indicated later, the chances for a much more favorable and permanent result have been increased.

Missouri State Medical Association Journal, St. Louis

October, XIII, No. 10

69 Anesthesia by Selection. H. C. Andersson, Kansas City.—p. 477.
70 *Transitory Cardiac Dilatation from Overstrain. E. P. Buddy, St. Louis.—p. 482.
71 *Diagnostic Value of Respiration Tracings (Pneumograms). G. Richter, St. Louis.—p. 486.
72 Tuberculosis and Abortion. G. C. Mosher, Kansas City.—p. 489.
73 Dysmenorrhea. G. D. Royston, St. Louis.—p. 495.
74 Bothriocephalus Latus Infection in Missouri; Report of Case. J. C. Kopelowitz, St. Louis.—p. 502.
75 *Interesting Findings as Regards Clothing Patient Wears when Roentgen-Rayed. J. S. Young, St. Louis.—p. 502.
76 Fakes and Efficiency in Medical Profession. C. S. Nelson, Harrisonville.—p. 504.

70 and 71. Abstracted in The Journal, June 24, p. 2119.

75. **Interesting Findings as Regards Clothing Patient Wears when Roentgen Rayed.**—Because silk is quite impervious to the Roentgen ray, Young urges that we be very careful to ask the patient about his or her clothing before giving an opinion on obscure shadows which are seen in very thin plates. He says that 1 mm. of silk will filter out as much short or soft rays as 1 mm. of aluminum as he showed to be the case by experiments. He has come to the conclusion that a glove can be made of silk, which may be heavily impregnated with lead, and owing to its weight and thickness one can, in a measure, feel what he is doing in an abdominal palpation. Silks may be graded by the use of the fluoroscope. Young has a thousand pieces of silk graded 0, 1, 2, 3, according to the amount of resistance they offer to the rays or the density of the shadows cast on a plate with a mild exposure, say about one-half X-unit, or what would be termed a one-half therapeutic dose to the skin. There are many varieties of silks. All resist the rays more than ordinary woolen or cotton cloth, but the cheaper silks seem to be more impervious to the rays, for the simple reason that they are weighted with different metals, and consequently the cheaper variety contains more of the metal than the higher qualities.

Modern Hospital, St. Louis

October, VII, No. 4

77 Hospital and Surgeon. S. S. Goldwater, New York.—p. 273. To be continued.
78 Metropolitan Life Insurance Company Tuberculosis Sanatorium. H. J. Howk and D. E. Waid, New York.—p. 278.
79 Owner, Architect and Engineer. O. E. Goldschmidt, New York. —p. 288.
80 New Bethany Hospital, Kansas City, Kan. J. M. Moulder, Kansas City, Kan.—p. 292.
81 Small Community Hospital—Constructing Building. J. A. Hornsby, Chicago.—p. 295.
82 Where Welfare of Employees Is Considered of Great Importance. M. C. Turpin, Pittsburgh.—p. 300.
83 Modern Hospital as Health Factory. F. D. Keppel, Cazenovia, N. Y.—p. 303.
84 Contagious Building, Memorial Hospital, New London, Conn. N. R. Burby, New London, Conn.—p. 306.
85 Disinfection and Other Practicable Methods of Preventing Spread of Infection in Hospitals. R. J. Wilson, New York.—p. 316.
86 Hospital's Obligation to Every Patient Who Enters Institution. J. T. Bottomley, Boston.—p. 319.

New Orleans Medical and Surgical Journal

October, LXIX, No. 4

87 Hay Fever in Louisiana. W. Scheppegrell, New Orleans.—p. 254.
88 Epidural, Caudal or Sacral Anesthesia. C. W. Allen, New Orleans. —p. 258.
89 Surgical Aspects of Infantile Paralysis. E. D. Fenner, New Orleans.—p. 284.
90 Treatment of Pneumonia with Phylacogen. J. B. Anderson, Yazoo City, Miss.—p. 291.
91 Occurrence in United States of Certain Nematodes of Ruminants Transmissible to Man. B. H. Ransom, Washington, D. C.—p. 294.
92 Studies on Trichomonas. N. Barlow, St. Louis.—p. 299.
93 Case of Diarrhea Apparently Due to Flagellate Parasites. J. B. Elliott, Jr., New Orleans.—p. 308.
94 Bilateral Distribution of Lesions in Leprosy in Relation to Bacteremic Nature of Disease. D. Rivas, Philadelphia.—p. 311.

New York Medical Journal

October 7, CIV, No. 15

95 Therapeutics of Hay Fever. A. P. Hitchens, Glenolden, Pa.—p. 673.
96 Acute Intussusception in Infants. B. T. Tilton, New York.—p. 681.
97 Roentgen Ray Therapy. A. J. Quimby and W. A. Quimby, New York.—p. 682.
98 Occupational Thecitis. A. Cohn, Philadelphia.—p. 685.
99 Psychology of Faddist. B. S. Talmey, New York.—p. 686.
100 Iritis and General Practitioner. W. L. Rhodes, Kansas City, Kan. —p. 690.
101 Labyrinthine Inflammation. C. B. Broder, New York.—p. 691.
102 Epileptic Syndrome and Glandular Therapy. J. L. Joughin, New York.—p. 693.
103 Chronic Gonorrhea. W. S. Barnes, New Haven, Conn.—p. 695.
104 Verify Your References. F. Place, Jr., New York.—p. 697.

Oklahoma State Medical Association Journal, Muskogee

October, IX, No. 10

105 Indications and Methods for Cesarean Section. E. E. Rice, Shawnee.—p. 313.
106 Extra-Uterine Pregnancy. M. Rogers, Clinton.—p. 318.
107 Indications and Use of Forceps in Obstetrics. J. M. Bonham, Hobart.—p. 322.
108 Twelve-Hundred and Thirty-Six Consecutive Operated Cases of Appendicitis. A. L. Blesh, Oklahoma City.—p. 324.
109 So-Called Chronic Appendicitis, Which is Located in Cecum. F. A. Hudson, Enid.—p. 330.
110 Medical Inspection of Schools. G. A. Morrison, Poteau.—p. 331.
111 Some Proctologic Don'ts. J. M. Cooper, Oklahoma City.—p. 335.

Public Health Journal, Toronto

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112 Retrospective and Prospective. W. H. Hattie, Halifax.—p. 403.
113 Federal Bureau of Public Health. J. B. Black, Windsor, N. S. —p. 408.
114 Some References to Practice of Medicine, Then and Now. G. E. DeWitt, Wolfville, N. S.—p. 411.
115 Disinfection. J. K. McLeod, Sydney, N. S.—p. 415.
116 Cerebrospinal Fever, from Standpoint of Epidemiology. A. G. Nicholls, Halifax.—p. 417.

Surgery, Gynecology and Obstetrics, Chicago

October, XXXIII, No. 4

117 Cystitis Senilis Feminarum; Report of Cases. F. R. Charlton, Indianapolis.—p. 371.
118 Spontaneous Exclusion of Kidney from Calculi. C. M. Harpster, Toledo, Ohio.—p. 375.
119 *Diverticula of Urinary Bladder. G. J. Thomas, Rochester, Minn. —p. 378.
120 *Treatment of Genital Tuberculosis in Male. J. H. Cunningham, Jr., Boston.—p. 385.
121 Treatment of Fatty Capsule and Ureter in Nephrectomy for Renal Tuberculosis. H. L. Kretschmer, Chicago.—p. 391.
122 Clinical and Pathologic Evidences of Possibilities of Spontaneous Healing of Renal Tuberculosis without Total Destruction of Kidney. E. L. Young, Jr., Boston.—p. 395.
123 One Hundred and Thirty-Three Cases of Gallbladder Surgery with Especial Reference to Postoperative Treatment. R. L. Rhodes, Augusta, Ga.—p. 399.
124 Preliminary Hemostasis in Goiter Operations. F. de Quervain, Basel, Switzerland.—p. 402.
125 *Relation of Arteriosclerosis and Other Anatomic Changes of Old Age to Development of Epithelial Malignancy. F. Warner, Columbus.—p. 413.
126 Rupture of Gallbladder; Report of Case. W. W. Grant, Denver. —p. 422.

127 Cases of Puerperal Gangrene of Extremities. A. Stein, New York. —p. 424.
128 Postoperative Heatstroke; Report of Cases. A. V. Moschcowitz, New York.—p. 443.
129 Perforation in Typhoid. I. H. Eddy, Chicago.—p. 451.
130 Delivery by Abdominal Section. E. P. Davis, Philadelphia.—p. 461.
131 *Diaphragmatic Hernia; Report of Case. O. J. Seibert, Cincinnati. —p. 465.
132 Carcinomatous Degeneration of Sebaceous Cysts. I. Seff and S. Berkowitz, New York.—p. 469.
133 Follicular Odontomata of Superior Maxilla. C. W. Waldron, Toronto, Canada.—p. 473.
134 Operation for Correction of Deformity Following Chopart's Amputation of Foot. J. F. Smith, Wausau, Wis.—p. 476.
135 Treatment of Fractures by Nail Extension. F. G. Dyas, Chicago. p. 478.
136 Continual Stomach Lavage and Continuous Hypodermoclysis in Peritonitis Persistent Vomiting with Dehydration and Dilated Stomach. A. B. Kanavel, Chicago.—p. 483.
137 Use of Electric Light and Hypochlorous Acid in Treatment of Wounds. G. W. Crile, Cleveland.—p. 486.
138 Application of Sewing Machine Stitch in Gastric and Intestinal Anastomoses. E. P. Quain, Bismarck, N. D.—p. 489.
139 Detachable Appliance for Conversion of Operating Cystoscope into Double Catheterizing Instrument. P. S. Pelouze, Philadelphia. —p. 490.

119. **Diverticula of Urinary Bladder.**—From January, 1908, to November, 1915, twenty-seven cases of diverticulum of the bladder had been observed in the Mayo Clinic. Fourteen of these patients were operated on; seven were not operated on, and six cases were found at necropsy. The average age of these patients was 51 plus years; the youngest 18, and the oldest 73. The average age at onset of symptoms was 43 plus years. Other than these, numerous cases were observed which were regarded as false diverticula, probably the result of mechanical obstruction or inflammatory changes. Previous disease: Of these twenty-seven patients, six gave a history of urethral infection and two had infection about the urethra associated with stricture. Five patients had had previous operations, two for prostatic obstruction, and three some operation on the bladder for drainage or exploration. Six had trauma of the bladder, suprapubic area, or of the perineum. The trauma to the perineum in two cases was the cause of obstruction which preceded the symptoms. The four remaining patients gave good histories of onset of symptoms immediately following the trauma of the bladder.

Difficulty of urination was present in nineteen instances and was noted in eleven as the first symptom. In nine there was retention and catheterization had to be resorted to before urine could be passed. In three there was incontinence. Frequency was a first symptom in nine and was the predominate symptom in twenty-two. Hematuria was the first sign observed by the patient in two instances while macroscopic blood was observed at some time during the history in eight. In two patients the symptoms began in childhood. A suprapubic tumor was palpable in three cases; in none was a flank or rectal mass observed. In eleven cases a noticeable loss in weight was reported and this seemed to be the most common clinical finding. In six the general loss of strength was graded as three on a scale of four. The opening of the diverticulum was found near the meati in six of the twenty-seven patients, on the right side in two, and on the left in four. In six others the opening was found on the floor of the bladder; in two near the urethra; in four on the posterior wall; in two in the dome; in three the lateral walls were involved; in one an hour-glass condition was found. In the three remaining cases the opening was on the posterior wall or base. In four cases there was more than one diverticulum. In thirteen cases generalized trabeculation of the bladder was present.

In fourteen cases some type of operation was performed. In six the diverticulum was resected. The extraperitoneal operation was done four times and the intraperitoneal two. A preliminary drainage was done in two cases preparatory to a resection. In six instances a drainage operation only was done or the diverticular opening was enlarged. In one case a septum was removed and in one a diverticulum was dissected loose and its opening enlarged so that the drainage was improved or complete. In three instances cancers were removed; stones were removed in three patients, two having stones in the diverticula. It was necessary to remove the prostate in six instances. Dilatation of the ureter was found in one. In only one case was there evidence of perforation or of peritonitis. Evidence of peridiverticulitis with resultant adhesions was present in every patient.

120. **Treatment of Genital Tuberculosis in Male.**—Postmortem and clinical findings show that the great majority of cases of genital tuberculosis have active tuberculosis elsewhere in the body, the infection in the genito-urinary tuberculosis being a secondary infection. The majority of cases of tubercular epididymitis have tuberculosis of the vesicles and prostate on the corresponding side, whether the condition can be demonstrable by physical examination or not. Cases of genital tuberculosis often have associated tuberculosis of the bladder and kidney, and a cystoscopic examination with catheterization of the ureter should be a routine procedure, in each case, before the possibility of such associated infection can be eliminated. In Cunningham's opinion the best treatment for the local condition, in most instances, is to remove the scrotal focus by epididymectomy or castration, and this should be followed by injecting the vas with a drachm of crude phenol, with the hope of eradicating the disease from the genital tract. The destruction of the local focus by this procedure is but the first step in the process of immunizing the patient against fresh outbreaks of the disease; and that hygiene and tuberculin should be made use of indefinitely, as they serve further to aid, in a rational way, the immunizing power of the body against remaining lesions.

125. **Relation of Arteriosclerosis to Epithelial Malignancy.** —Of 206 cases of carcinoma of all organs and regions examined by Warner, 105 showed arterial obstructive changes. Fibrotic changes were present in 118 cases, 57 per cent. Lymphocytic infiltration was present in eighty-five cases, 57 per cent. That endarteritis and the anatomic changes of old age cannot be looked on as a constant factor in the production of cancer is shown by the fact that normal vessels were present in almost half the cases. The same holds true of fibrosis or even acellular connective tissue without fibrosis. Lymphocytic infiltration, while present in less than half of the cases, plays a rôle that is protective rather than etiologic. Warner suggests that certain biochemical factors of a local or internal and general type are probably responsible for some cases of cancer.

131. **Diaphragmatic Hernia.**—In Seibert's case the stomach had herniated through an enlarged esophageal opening. The entire stomach was found in the posterior mediastinum, directly behind the heart. Dense fibrous bands of adhesions were holding the pylorus directly to the margin of the ring. These bands were so dense and firm that they had to be cut. After this was done the stomach could readily be pulled through into the abdomen.

Texas State Journal of Medicine, Fort Worth

October, XII, No. 6

140 Provision for Medical Care Under Health Insurance. A. Lambert, New York.—p. 249.
141 Male Climacteric. J. S. Turner, Dallas.—p. 251.
142 Differential Diagnosis and Treatment of Convulsions in Infancy. C. G. Grulee, Chicago.—p. 254.
143 Bacteriology of Operating Room Air and Its Possible Relation to Wound Infection. W. L. Brown and C. P. Brown, El Paso.—p. 256.
144 Handling of Eye Cases in Railroad Practice. J. L. Scales, Shreveport, La.—p. 259.
145 Congenital Umbilical Hernia; Report of Cases. E. G. Mathis, Austin.—p. 261.
146 Does Administration of Pituitary Extract to Mother Produce Diffuse Nervous Lesions in Infant? A. G. Heard, Galveston.—p. 264.
147 Report of Dermatologic Cases. J. B. Shelmire, Dallas.—p. 267.
148 Lung Inflator and Aspirator for Resuscitation of Newborn. E. A. Cayo, Beeville.—p. 269.

West Virginia Medical Journal, Huntington

October, XI, No. 4

149 Some Experiences with Fractures and Conclusions Drawn. C. S Hoffman, Keyser.—p. 113.
150 Tetanus, with Special Reference to Treatment with Antitetani Serum; Report of Cases. W. J. Judy, Belleville.—p. 115.
151 Essential Purpose of Hospital. C. Wingerter, Wheeling.—p. 119
152 Backache Among Railway Employes. W. E. Vest, Huntington.—p. 121.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

September, XXI, No. 4

1 Renal Calculi in Rudimentary Kidney. F. Lemon.—p. 107.
2 Roentgenography of Gallbladder. N. Macleod.—p. 117.

Bristol Medico-Chirurgical Journal

July, XXXIV, No. 130

3 Reduction of Disabilities from Wounds in War. W. Gordon.—p. 1.
4 Work of Military General Hospital in Egypt. E. H. Groves.—p. 11.
5 Technic of Sphenoidal Sinus Exploration for Meningococcal and Other Infections. P. Watson-Williams.—p. 21.
6 Experiences of Ear, Nose and Throat Specialist at One of Bases. J. P. I. Harty.—p. 39.
7 Some Neuroses of War. J. M. Clarke.—p. 49.
8 Enteric Group of Diseases as Seen in Isolation Hospital in France. J. M. Fortescue-Brickdale.—p. 72.
9 Forensic Examination of Blood Stains in Tropics. F. S. Smith.—p. 82.

British Medical Journal, London

September 16, II, No. 2907

10 Gas Gangrene as Seen at Casualty Clearing Stations. C. Wallace.—p. 381.
11 *Direct Transfusion of Blood. A. Primrose and E. S. Ryerson.—p. 384.
12 Trench Fever: Field Vole Possible Origin. W. J. Rutherfurd.—p. 386.
13 *Case of Ulcerating Granuloma Successfully Treated by Intravenous Injections of Antimony. G. C. Low and H. B. Newham.—p. 387.
14 Lamblia Infections in Men Who Have Never Been Out of England. A. M. Smith and J. R. Matthews.—p. 389.
15 *Case of Intra-Uterine Scarlet Fever. R. M. Liddell and C. E. Tangye.—p. 389.

September 23, No. 2908

16 Weil's Disease (Spirochaetosis Icterohemorrhagica) As It Has Occurred in British Army in Flanders. A. Stokes and J. A. Ryle.—p. 413.
17 Heart Affections in Soldiers. J. C. Meakins and others.—p. 418.
18 An Antenatal or Pregnancy Clinic at Edinburgh Royal Maternity Hospital. J. W. Ballantyne.—p. 420.
19 Some Principles of Investigation in Blood Pressure Problems in Health and Disease. J. M. McQueen.—p. 421.
20 Septic Endocarditis; Intravenous Injection of Eusol; Recovery. J. A. Powell.—p. 422.

11. **Direct Transfusion of Blood.**—Cases illustrating the beneficial effect of the direct transfusion of human blood in hemorrhage are cited by Primrose and Ryerson. No harm resulted to the donors from the withdrawal of seemingly large quantities (815:1,000 c.c.) of blood. They complained of little or no discomfort, and were able to return to duty after a brief interval.

13. **Ulcerating Granuloma Treated by Injections of Antimony.**—Fifty-three and one-half grains of antimonium trataratum in from 1 to 2½ grains doses were injected intravenously by Low and Newham during a period of three and one-half months at four-day intervals. As a result of the injections the course and progress of the disease were arrested.

15. **Intra-Uterine Scarlet Fever.**—During a recent small village outbreak of scarlet fever, a case of rather unusual interest was observed by Liddell and Tangye. Four of five children developed scarlet fever and were removed to the isolation hospital on May 26. The mother was expecting to be confined at any time, and was therefore warned to keep away from the children as soon as the first suspicion arose as to the nature of their illness. Her child was born June 6, and after a thorough washing, which removed all traces of lanugo, was found to be desquamating freely over the whole of the trunk and limbs. The desquamation continued for several days, and the urine showed distinct traces of albumin. Apart from these two features, the child appeared perfectly healthy and is now quite normal. The mother had been rather unwell during the last week or so of her pregnancy, and complained of a "burning pain inside." She had no sore throat or rash, and her temperature was normal. She is positive that she had a severe attack of scarlet fever when about 10 years old, and describes the desquamating stage vividly.

Dublin Journal of Medical Science

September, CXLII, No. 537

21 Fractures and Fracture Dislocations. J. S. McArdle.—p. 145.
22 Acute Appendicitis with Peritonitis; Their Relation and Treatment. J. W. Long.—p. 148.
23 Diagnosis in Uveitis. E. Maxwell.—p. 158.

Glasgow Medical Journal

July, LXXXVI, No. 1

24 *Case of Congenital Heart Disease—Patent Foramen Ovale—Patent Interventricular Septum. L. Findlay and W. B. M. Martin.—p. 1. To be continued.
25 *Experimental Study of Extirpation and Transplantation of Thymus. J. M. Renton.—p. 14.
26 Etiology and Treatment of Gastric Ulcer. H. Morton.—p. 23.

August, No. 2

27 Case of Hernia into Paraduodenal Fossa. J. H. Pringle.—p. 65.
28 Disease and Domesticity. J. Craig.—p. 73.
29 *Cases of Congenital Heart Disease. L. Findlay and W. B. M. Martin.—p. 84. To be continued.

September, No. 3

30 *Ulceration of Small Intestine with Formation of Indol Derivatives and Indigo-Uria. D. R. Adams.—p. 129.
31 *Case of Ectopic Pregnancy which Had Gone Beyond Full Time. R. Jardine.—p. 137.
32 *Cases of Congenital Heart Disease. L. Findlay and W. B. M. Martin.—p. 140.

24. **Congenital Heart Disease.**—In the case of patent foramen ovale reported by Findlay and Martin the following conditions were found at necropsy: hypoplasia of eyes with corneal opacity, coloboma and congenital cataract, ventral hernia, fetal lobulation of spleen and kidneys, patent foramen ovale, catarrhal bronchitis with early pneumococcic bronchopneumonia, much collapse of lung and slight compensatory emphysema, and venous congestion of organs. In the case of patent interventricular septum the necropsy disclosed a defect of interventricular septum at pars membranacea, with normal great arterial trunks, closed foramen ovale and obliterated ductus arteriosus. Partial collapse of lungs, with terminal very early streptococcal bronchopneumonia.

25. **Transplantation of Thymus.**—In transplantations of thymus from one guinea-pig to another Renton found healthy thymus tissue up to fifty-three days after transplantation. The thymus was rapidly absorbed when transplanted to the peritoneum (abdomen and tunica vaginalis) or under the skin, but grew in the subperitoneal tissue. No symptoms were caused by transplantation of the thymus. It was impossible to determine if the thymus transplant functionated even when it grew well. Total removal of the thymus did not cause apparent symptoms in young guinea-pigs and rabbits.

29. **Congenital Heart Disease.**—The first case was one of congenital stenosis of pulmonary tract with atresia of orifice—incomplete interventricular septum, patent ductus artriosus and patent foramen ovale. Extensive pneumococcic bronchopneumonia—venous congestion of organs. Death occurred at the age of 3 months. The second case was one of congenital stenosis of pulmonary tract, with defect of intraventricular septum at pars membranacea, widely patent foramen ovale and duplication of vena cava superior. Partial atelectasis with emphysema and marked congestion of the lungs. Death occurred at the age of 2 months.

30. **Ulceration of Small Intestine.**—The main points in Adams' case were: death was due to peritonitis and perforation of the ileum following on multiple ulceration of the greater part of the small intestine. This ulceration process had been going on for at least a week before death. The liver activities were to some extent in abeyance. The ulcers of the small intestine were associated with marked invasion of the alimentary tissue by an organism similar to the *Bacillus coli* which, as is well known, can produce indol from proteid and its derivatives. At one stage complete oxidation of the amino-acids into indigo and skatoxyl pigments took place in the body, causing indigo-uria. At a later stage this oxidation was less complete, and indican appeared in the urine.

31. **Ectopic Pregnancy.**—When full time was supposed to have been reached in Jardine's case, labor pains came in with a slight discharge of blood, but they ceased on the expulsion of a mass which the attendant pronounced to be a bit of placenta. One month later Jardine examined the patient

under an anesthetic. The top of the tumor was close up to the diaphragm. The fetal parts could be palpated, the head being felt high up. There were no fetal heart sounds and no movements, although the patient had stated that she felt movements on the day of admission. The nonpregnant uterus was pushed to the left side. It was enlarged, and the cervical canal would admit a finger. The cavity was empty, but through the right side pressing it inward a mass could be felt which was evidently the breech of the fetus. The diagnosis was an extra-uterine gestation which had gone beyond full time, and the fetus was dead. Jardine made a central incision fairly high up and cut through the outer layer of the sac, but not through the amnion. The sac was everywhere adherent to the parietal peritoneum and the bowels. The child was turned out of the abdomen, and as it came out the amnion ruptured, and some turbid liquor amnii escaped on to the table. The placenta, which was in the lower part of the abdomen, was easily lifted out. It looked like a flattened out mass of gingerbread. There was no bleeding from the site. Recovery was uninterrupted. The child had apparently reached full time. It was beginning to macerate, so it probably had perished about the time of the spurious labor.

32. **Congenital Heart Disease.**—In this case the necropsy disclosed congenital syphilis, patent foramen ovale and patent ductus arteriosus and venous congestion of organs. The child was 1 month old at the time of death.

Journal of Laryngology, Rhinology and Otology, London

September, XXXI, No. 9

33 Centrally Caused Bilateral Laryngeal Abductor Paralysis in Tabes; Report of Postmortem Examination. E. D. D. Davis.—p. 361.
34 Epidemic Nasal Sinus Disease. J. J. Kyle.—p. 367.
35 War Deafness from Lesion of Internal Ear. Got.—p. 374.
36 Two Cases of Referred Sensation (Arnold's Branch of Vagus Nerve). T. A. MacGibbon.—p. 380.

Lancet, London

September 16, II, No. 4855

37 How Septic War Wounds Should Be Treated. A. E. Wright.—p. 503.
38 *Differential Leukocyte Counts in Enteric and Dysenteric Convalescents. I. W. Hall and D. C. Adam.—p. 514.
39 Vaccination of Guinea-Pigs with Bacillus Perfringens. M. Robertson.—p. 516.
40 Infective Jaundice (Spirochaetosis Icterohemorrhagica). N. B. Gwyn and J. J. Ower.—p. 518.
41 *Pneumococcal Meningitis with Recovery Following Vaccine Therapy. A. C. Brown.—p. 519.
42 Crossed Hip Reflex in Enteric Fever. E. B. Gunson.—p. 520.
43 Case of Threadworms in Appendix Simulating Acute Appendicitis. S. G. Papadopoulos.—p. 521.
44 Case of Ruptured Ileum and Bladder; Operation; Recovery. C. P. G. Wakeley.—p. 521.
45 Ground Level Latrine. F. E. Fremantle.—p. 530.

September 23, No. 4856

46 *Cerebral Embolism Consequent on Gunshot Injury to Carotid Arteries. G. H. Makins.—p. 543.
47 *Agglutination Reactions with Oxford Standard Agglutinable Cultures. R. Donaldson and B. Clark.—p. 546.
48 Application of Drop Measuring to Widal Technic. E. W. A. Walker.—p. 552.
49 New Remedy for Syphilis, Luargol or "102." N. S. Bonard.—p. 554.
50 Use of Perforated Celluloid in Dressing of Certain Wounds. S. R. Douglas.—p. 558.
51 Case of Foreign Body in Rectum. J. F. Peart.—p. 558.
52 *Ligature of Right Internal Iliac Artery for Secondary Hemorrhage from Buttock. R. L. Scott and A. R. McLachlan.—p. 559.

38. **Leukocyte Counts in Enteric and Dysenteric Convalescents.**—The blood films from convalescent cases of amebic and bacillary dysentery, typhoid and paratyphoid were examined by Hall and Adam. The figures yielded by seventy-one successive cases of men whose blood contained typhoid agglutinin only, and who had not manifested any enteric symptoms, were within normal limits. In the paratyphoid A convalescents the counts from men who had returned from the Mediterranean area were different from those received from French sources. The former show a larger percentage of polynuclears and a smaller lymphocyte content. In paratyphoid B there was hardly any difference. In posttyphoid conditions, however, there was persistence of low polynuclear and high mononuclear content, long after the pyrexia and acute conditions had subsided. This feature stands out in strong contrast with the differential count of the typhoid inoculated men. The content of agglutinin in antityphoid inoculated men does not appear to influence appreciably the polynuclear or the lymphocyte proportions. Neither does it affect the differential percentages in the paratyphoid A and B convalescents, although in those from the adjacent war zone there is the suggestion of a tendency toward the normal status of the polynuclears and mononuclears in the paratyphoid A cases. The mixed infection of entameba histolytica and paratyphoid B fever appears to be associated with a decreased eosinophilia and a comparatively normal cell count otherwise. In jaundice and frost bite, in which evidence of protozoa or paratyphoidal bacilli was not forthcoming, there is a distinct polynuclear leukocytosis. In heavy lamblia infections eosinophilia is not a definite feature, and the cell counts are within average limits. After the sixth week the counts made on the typhoid films show that the relative mononuclear increase and the polynuclear decrease persist for a considerable period; the same applies to the cases of paratyphoid A from the near war area. The paratyphoid cases from the distant war zone exhibit what are practically normal figures.

41. **Pneumococcal Meningitis.**—The symptoms in the case reported by Brown were those of cerebrospinal meningitis. Lumbar puncture was performed and a rather thick, opaque fluid was withdrawn with difficulty. The pressure was not increased. He was then given, into the abdominal wall, an injection of antimeningococcal serum and the fluid was sent for bacteriologic examination. Until the bacteriologic report was available treatment was symptomatic and consisted largely of frequent doses of hyoscin. When it was known that the cerebrospinal fluid contained not meningococci but pneumococci, vaccine therapy was commenced. Lumbar puncture was again carried out and once more seemed to cause some lessening of extreme restlessness. The reaction to the first dose of vaccine was marked. He became less rigid and more sensible and his headache was less. There was a fall of temperature after each injection. At first the fall was temporary, but after the third injection he seemed, although still very ill, to be definitely on the mend and only two other injections were given. He made a complete recovery.

46. **Embolism and Gunshot Injury to Carotid Arteries.**—The group of fourteen cases cited by Makins consists of a series of injuries to the great vessels of the neck. They illustrate the whole subject and offer special interest from the fact that embolic obstruction of even minor cerebral vessels may produce more serious effects and is more readily recognized than the blocking of vessels supplying small areas of the limb where arterial anastomosis is freer and where degeneration of the tissues concerned is less important in its effects. The presence of a definite perforating wound of the artery has been assumed from the existence of obvious signs. Thus, a systolic arterial bruit, an arteriovenous murmur and purring thrill, the detection of a pulsating swelling in the course of the vessel, or the occurrence of secondary hemorrhage demanding surgical intervention. In one instance also the locality of the injury and the probability of an obliterated opening was indicated by a small circumscribed induration in the course of the vessel. A nonpenetrating injury has been assumed when none of the above signs could be detected, while diminution or abolition of the carotid or superficial temporal pulses has been regarded as evidence of obstruction or complete obliteration of the arterial lumen.

47. **Agglutination Reactions.**—This paper is based on the serum reactions of 275 patients, of whom 184 were soldiers. The tests were carried out on the principle recommended by Dreyer and his colleagues. Donaldson and Clark used a volumetric method, delivering the fluids from accurately graduated pipets. The great majority of the cases arrived with a diagnosis of "enteric," whereas out of 115 cases only 13 per cent. at the outside could be claimed as true typhoid. The mortality among these typhoid cases was nil, and offers a marked contrast to the 15 per cent. mortality among 53 uninoculated civilians. Out of the 115 cases examined twice, 71.6 per cent. contained agglutinins for paratyphoid bacilli,

and out of the whole number of military cases 111, or 60.3 per cent., agglutinated paratyphoid organisms. Paratyphoid infections raise the T. (typhoid) titer in inoculated persons. The authors emphasize the need for repeated agglutinations at intervals in the case at least of persons previously inoculated. They do not think that any diagnostic inference can be drawn from a consideration of the titer in inoculated persons, in cases in which only one examination has been made, as individuals vary so diversely in their agglutinin response to infection or inoculation. The authors have found no evidence to support the view advanced by Tidy that marked pyrexia for some days is associated with diminution or disappearance of T. inoculation agglutinins. None of 38 uninoculated controls showed any trace of agglutinins for T., A. or B., except 4. In one of these there was a definite history of contact and in another a strong probability. Two only could not be accounted for.

52. **Ligature of Right Internal Iliac Artery for Secondary Hemorrhage from Buttock.**—This patient was suffering from a large shrapnel wound of the right buttock, considerable bleeding had occurred, which had been treated with gauze plug and pressure. An operation was performed with the intention of securing the bleeding point. The track was explored, clots were removed, but no definite bleeding vessel was discovered, merely venous ooze, which stopped after the track was thoroughly washed out. Later a slight hemorrhage occurred, and the same day a second severe hemorrhage took place and his condition became serious. A further operation was decided on and the question arose as to the advisability of ligating the internal iliac. The abdomen was opened. The right sacro-iliac synchondrosis was then defined and the ureter and common iliac vessels localized. The posterior layer of the peritoneum was then picked up with forceps, incised, and with blunt dissection the internal iliac artery was defined and the vessel ligated in continuity. The slit in the peritoneum was sewn up and the abdomen was closed. The patient made an uninterrupted recovery, with no further hemorrhage.

Medical Journal of Australia, Sydney

August 26, II, No. 9

53 Cardinal Ligaments; Their Genesis. A. J. Nyulasy.—p. 151.
54 Surgical Experience in Great Britain. R. Bowman.—p. 153.
55 Farm Colony for Consumptives. A. A. Brown.—p. 155.
56 Treatment of Coccal Infections by Creosote. J. F. Merrillees.—p. 157.
57 Depressed Fracture of Skull, with Localizing Signs. D. I. Smith.—p. 158.
58 Case of Pancreatic Suppuration Simulating True Diabetes. D. I. Smith.—p. 158.

Journal de Chirurgie, Paris

XIII, No. 5, pp. 441-644

59 *Fixation of Spine in Good Position by Hibbs' Method in Vertebral Tuberculosis; Three Cases. (Le traitement du mal de Pott par la méthode de Hibbs.) M. Guillot and G. Dehelly.—p. 441.
60 *Lumbar Puncture after Wounds of the Skull. (Valeur de la ponction lombaire dans les plaies du crâne par projectiles de guerre.) R. Leriche.—p. 451.

59. **Hibbs' Operation for Pott's Disease of the Spine.**—Guillot and Dehelly have operated by R. A. Hibbs' method in three cases and state that in all a solid fixation of the spine in a good position was realized and during the twelve and thirteen months to date there has been no indication of new curvature. The children were between 4 and 15. The operation ensures fixation but does not correct preexisting curvature nor cure the disease except by providing better conditions for spontaneous cure. They give six illustrations showing the various procedures which comprise the operation, and they expatiate on the advantage of the child's being up and about in a few weeks, instead of being imprisoned for long months in plaster. A cold abscess accessible from the abdominal wall calls formally for operative treatment of this kind. The only contraindications they recognize are concomitant tuberculous lesions in the lungs or elsewhere, or a posterior cold vertebral abscess or one with a fistula.

60. **Lumbar Puncture After Wounds of the Skull in War.**—Leriche analyzes here the lumbar puncture findings in 121 cases of wounds of the skull, comparing them with the clinical course. His conclusion is that lumbar puncture is of little if any value for the diagnosis and prognosis, but as a therapeutic measure it renders immense service in cases of injury of the skull by a projectile. After trephining, lumbar puncture aids by reducing excessive pressure, thus providing better conditions for recuperation. He repeats it every two or three days when there are extensive lesions and all is going well. If not, he punctures oftener. He has often done lumbar puncture to relieve intense headache of men on their way to a home hospital after an operation near the front. It always relieved the men. One of his own patients had lumbar puncture done twelve times in one month before recovery. There was no retention of urine except for the first afternoon. He warns that lumbar puncture is beneficial in these cases only when the pressure is above normal. When it is low, withdrawal of even a small amount of fluid is liable to bring on headache. He warns further that in case of hernia of the brain, lumbar puncture may cause the hernia to subside spontaneously and this be followed by a slight infectious process.

Journal de Médecine de Bordeaux

September, LXXXVII, No. 11, pp. 211-228

61 Value and Technic of Artificial Pneumothorax. E. Leuret.—p. 211.
62 *Iodin Internally after Injury from Gases. (L'iode et les gaz asphyxiants.) L. Boudreau.—p. 214.
63 Alcohol of Not Much Use for Sterilization of the Hands. (L'alcool employé au lavage des mains en chirurgie.) L. Barthe.—p. 218.
64 Case of Inherited Cerebellar Ataxia. Richaud.—p. 219.

62. **Iodin Internally in Treatment of Injury from Asphyxiating Gases.**—Boudreau's endorsement of iodin internally as a potent means to hasten restoration of living tissues has already been mentioned in these columns, March 4, 1916, p. 775. It has been found particularly useful in pulmonary tuberculosis to promote rapid repair, and he here announces with special stress that injury from the asphyxiating gases calls for iodin internally. He gives the iodin in the form of the tincture. (The French tincture is the one meant. One part of iodin dissolved in 12 parts 90 per cent. alcohol.) A drop or two of the tincture is added to each glass of water, milk, tea or other beverage taken during the day, so that from five to seven doses are thus taken. The dose is increased by 1 drop each day until some of his patients reached 300, 400 or even 600 drops a day, and kept this up a long time. "The disease does not sleep or rest, and the treatment should be correspondingly continuous." The lungs suffer from intoxication with gases, industrial or military, and this intensive iodin treatment is a potent aid in the recuperation of the lung tissue.

Paris Médical

September 9, VI, No. 37, pp. 225-240

65 Filiform Drainage in Prevention and Treatment of Suppuration Around Purulent Focus in the Knee. (Les abcès périarticulaires compliquant les arthrites purulentes du genou.) H. Chaput.—p. 225.
66 *Causes of Sudden Death after Removal of Tracheotomy Cannula. (Mort subite d'un soldat atteint d'une blessure au larynx après enlèvement d'une canule à trachéotomie.) M. Courtois-Suffit and R. Giroux.—p. 227.
67 *Local Anesthesia for Operations on the Skull. (L'anesthésie locale en chirurgie d'ambulance, particulièrement en chirurgie cranienne.) J. Quénu.—p. 229.
68 Electric Device to Detect Deception in Respect to Nocturnal Incontinence of Urine. Uteau and E. Richardot.—p. 233.
69 *Condensed Milk in Rice Water in Treatment of Diarrhea. (Nouveau traitement des diarrhées par le lait condensé dilué dans de l'eau de riz.) P. Lassablière.—p. 235.

September 16, No. 38, pp. 241-256

70 *Biologic Study of Gangrenous Wounds Treated by the Carrel-Dakin Method; Two Cases. N. Fiessinger and P. Moiroud.—p. 242.
71 Uselessness and Dangers of Early Tube Drainage for War Wounds. P. Bertein.—p. 248.
72 Extraction of Projectiles by Modern Technic. Phocas.—p. 251.
73 *Fracture of the Body of the Second Cervical Vertebra. (Fracture de l'apophyse odontoide et du corps de l'axis.) G. Réchou and H. Bichat.—p. 253.

66. **Sudden Death After Removal of Tracheotomy Cannula.**—The necropsy described showed that the irritation from the cannula had caused proliferation of tissue to form a polyp-like excrescence from exuberant granulations. This dropped down into the trachea, obstructing it completely after the

cannula had been removed. Moure and others have noticed proliferation of the laryngeal mucosa in these circumstances, and the possibility of suffocation from this cause after detubation should be borne in mind. It may explain many cases attributed to nervous inhibition.

67. **Local Anesthesia in Treatment of War Wounds.**—Quénu refers in particular to multiple wounds, citing a number of typical cases of shell wounds at various points. By using local anesthesia for some, spinal anesthesia for others, with possibly a few whiffs of some general anesthetic, it was possible to give operative treatment to all the wounds without depressing the patient's vitality too much. General anesthesia alone would be too prolonged for safety with wounds at many different points.

69. **Condensed Milk in Rice Water in Treatment of Diarrhea.**—Practically this same article has already been summarized as it appeared elsewhere. One part of condensed milk in four parts of rice water is the formula, and with 1 or 2 quarts of this a day Lassablière has obtained most excellent results in 256 cases of acute enteritis and also in three cases of confirmed bacillary dysentery. No medication was given in seventy-two of the cases, the men getting nothing but the condensed milk in rice water although they were having from six to thirty stools a day, with colics and sometimes pronounced tenesmus. On the milk-rice water they recovered completely in five days on an average. In a similar series of thirty-two cases treated with the usual other measures, recovery was not reached under twenty-six days.

70. **Biologic Study of Gangrenous Wounds Given Continuous Treatment with Hypochlorite Solution.**—Fiessinger and Moiroud state that the extensive and deep shell wounds of the forearm were gangrenous, both aerobic and anaerobic germs being found in them. The infection was localized, there being no closed cavity, and under the influence of the continuous moistening with the sterilizing fluid the mortified tissues lining the wound melted off, as it were, no eschar forming. By the sixth or seventh day the red granulating surface was exposed, repair proceeding vigorously. This rapid detergent action was the most striking feature of the treatment, the gangrenous wound showing active repair by the eighth day at longest. It removes the conditions which favor proliferation and spread of bacteria, and the process remains strictly localized while the hypochlorite after dissociating the proteic medium reaches the microbe and has a sterilizing action on it. But the main importance of the Dakin fluid kept in constant contact with the wounded tissues is its chemical detergent action, melting the devitalized tissues and thus facilitating their exodus. They add that a 5 per cent. solution of sodium chlorid checks the dissolving action of hypochlorites and is used in tanneries for this purpose. Applied around the wound it prevents caustic action from the hypochlorites, without the macerating influence of petrolatum.

73. **Fracture of the Axis.**—In the case reported only the odontoid process was fractured while the whole vertebra was slightly dislocated. The fracture occurred from a fall down stairs and entailed hemianesthesia but there were no motor disturbances. Treatment was by extension in plaster; the outcome of the case is not known.

Presse Médicale, Paris

September 14, XXIV, No. 51, pp. 405-412

74 *Subperiosteal Removal of Splinters of Bone after Fractures. (L'esquillectomie sous-périosté large primitive.) R. Leriche.—p. 405.

75 Dysentery and Dysenteriform Diarrhea. L. Giroux.—p. 408.

74. **Subperiosteal Removal of Sequesters After Fractures.**—Leriche gives twenty-two illustrations of war fractures and the preferable technic for treating them. For twenty-three months he has made a practice of removing sequesters while leaving the periosteum. In some cases he had to perform a secondary operation as sequesters, in the vitality of which he had trusted, were finally cast out. A more complete primary operation would have saved this. In three cases there was exuberant callus, the periosteum having become infected. If the focus of the fracture had been opened up more freely, this might have been avoided. In all the other cases the fracture healed simply and completely, and in his 230 cases there never was a pseudarthrosis from loss of the sequesters. In short, he declares, sequestrectomy when surgically indicated is physiologically permissible. If done subperiosteal, it can be extensive and thorough, the intact periosteum promptly undertaking the work of repair. The aim should be to ensure an aseptic immediate and definite course of the healing at the focus of a fracture by a projectile. This provides conditions for aseptic repair of the solution of continuity, which is of primordial interest for the future of the wounded.

The dread of pseudarthrosis should be supplanted by the just fear of subacute and chronic osteitis. The latter is what renders so grave the outlook for fractures given inadequate operative treatment, all of which can be easily avoided by prompt and thorough sequestrectomy, removing all scraps that may ever need to be cast off, not only the free sequesters but those discovered after removal of the adherent sequesters masking the intramedullary focus of contusion. A well opened up wound continues to suppurate only when there is something still left there to be eliminated. The sacred dogma of always leaving adherent sequesters in place has been overthrown by the experiences of the war. But the periosteum must all be preserved. It must be gently and patiently detached from the bone; any haste is liable to leave the osteogenic layer clinging to the bone, while this is the essential tissue that ensures repair. Twenty-two illustrations show the sequence of the processes of repair and the fine functional outcome. Gaps of 5, 6 or 7 cm. fill up with new bone and stumps are solidly bridged.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 9, XLVI, No. 37, pp. 1153-1184

76 Simple and Rapid Method for Estimating the Hardness of Roentgen Tubes. (Ueber eine einfache und rasche Bestimmung der Röhrenhärte bei Röntgenaufnahmen.) G. Perlet.—p. 1153.

77 *Dietetic Treatment of Deficient Gastric Secretion. (Die Achylia und Hypocholia gastrica incl. den achylischen Darmdyspepsien und ihre diätetische Therapie.) A. Fischer.—p. 1157. Commenced in No. 36, p. 1121.

78 Health Insurance of the Soldiers in Switzerland. (Militär-Versicherung und Tuberkulose.) F. Gehrig.—p. 1166; (Erwiderung). R. Staehelin.—p. 1169.

77. **Dietetic Treatment of Gastric Achylia and Resulting Intestinal Disturbance.**—Fischer is chief of a Swiss sanatorium and in this long article he emphasizes the importance of dietetic treatment of secretory insufficiency of the stomach. To make up the deficit in hydrochloric acid and pepsin is by no means all that is required. We should aim to influence and restore to normal the fine functional interplay of the digestive organs, as the manifold manifestations resulting from achylia include not only metabolic disturbances but also nervous symptoms impairing the general health. He reviews the history of achylia, saying that there is evidence to prove that it may occur from functional disturbance alone, especially in young persons with a neuropathic or other constitutional predisposition. One of his patients with achylia at 25 and during the ten years since to date, has never menstruated since puberty. Most of those who present gastric achylia are of low-powered constitution. The physical inferiority may be congenital or the result of debilitating illness. Depressing nervous influences or abnormal composition of the blood may be responsible. Treatment should aim to supply ample nourishment while sparing the stomach or leaving it at rest as much as possible. Otherwise, food not getting digested irritates the stomach, and this sets up a vicious circle, a chronic gastritis developing from what was purely functional achylia at first. The symptoms of achylia may be insidious or may simulate hyperchlorhydria disturbances, or achylia diarrhea may be the first warning symptom. The bowel troubles with gastric achylia need not entail diarrhea. There may be severe constipation or this may alternate with diarrhea.

The intestinal digestion of fat, of albumin or of carbohydrates may be defective, but as a rule all three suffer, and the bowels must be spared as much as possible. Buttermilk, whey, kefir, and milk sugar render good services here when individualized, as also massage, hydrotherapy, oil enemas, etc. The meals should be smaller and more frequent, whether the motor functioning is exaggerated or insufficient. Milk may cause digestive disturbance with achylia, for reasons which he enumerates. Buttermilk, yoghurt and whey are borne better. As Pawlow has shown that lactic acid, butyric, acetic and citric acid all stimulate secretion of pancreatic juice, the use of milk in these forms is logical. The teeth should be put in order and hygiene of the table enforced, with scrupulously complete mastication. The diet should aim to keep up the strength while sparing the heart and kidneys to the utmost. When the achylia is due to constitutional physical inferiority, special care must be taken not to overtax the inferior organs in giving tonics, etc. Even when achylia results from a physical defect beyond our power to correct, yet we can adapt our measures to this and strive to compensate for the lacking secretion by calling on the intestinal functions and giving the food in small and frequent meals, mostly in fluid form or soft mashed, with very little if any meat, and this, tender or chopped fine. Tapioca, rice and meringues may be used to give variety. For beverages he allows only tea when the motor functioning is insufficient, and orange flower tea when it is normal, linden flower tea when there is gastrogenous diarrhea, and yoghurt when there is constipation. These beverages are allowed only once a day, at afternoon tea, according to a series of daily menus given.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 7, XXXVII, No. 72, pp. 1121-1136

79 *Puzzling Cases of Pleurisy. (Considerazioni su alcune cause di dubbi diagnostici nella pleurite degli adulti e dei bambini.) A. Sofia.—p. 1127.

79. **Differentiation of Pleurisy.**—Sofia comments on the puzzling syndrome liable to be presented by inflammation of the pleura in the heart region. The palpitations, dyspnea and precordial pain spreading down the left arm suggest heart or coronary trouble, when in reality there is merely precordial pleuritis without effusion. He has encountered a number of such cases, and others in which inflammation in the pleura of the posterior mediastinum simulated a new growth or glandular trouble or ectasia of the aorta. Another cause of error may be when an encysted interlobar pleuritis perforates into a bronchus. The diagnosis of galloping consumption is almost certain to be made if the disturbances keep up for any length of time. The pleuritis may irritate the phrenic nerve and cause pain localized at a distance. Gerhardt has reported four cases of pain in one shoulder for which pneumonia of the lower lobe, chronic pleurisy without effusion, or pleurisy following an infarct in the lower lobe was responsible. The phrenic nerve was sensitive to pressure in all the four cases. The pain was most severe at the outer rear aspect of the shoulder joint; in two of the cases rheumatic arthritis had been erroneously diagnosed.

Sofia calls attention in particular to the pleuritis accompanying hydrothorax in heart disease, and pleuritis of the diaphragm. With the latter affection, the downward displacement is a differential sign, but when the pleuritis is restricted to the left side there are no objective symptoms although the functional disturbances are pronounced. There is persistence of the vesicular murmur down to the base of the thorax and complete absence of dulness, and exploring the phrenic nerve along its course may suggest the true cause of the disturbances. The pleura may be affected on both sides when only one side is causing symptoms. Bilateral trouble is rendered manifest by Remond's sign on both sides. This is the apparently paralyzed condition of the lumbar muscles where they stand out in relief along the side of the spinous processes, from the twelfth rib to the crest of the ileum. With unilateral pleurisy this lumbar muscular mass seems stretched and does not alter when the trunk is bent over. The ileocostal muscle is contracted and there is no groove as normally between the muscles. He discusses further the differentiation of tuberculous pleurisy from the nontuberculous, and reports the case of a child of 5 taken very sick, presenting vocal tactile fremitus even more pronounced than normal, with an area of dulness at the back in the lower left half of the thorax, and bronchial respiration in this area, fever, vomiting and continuous coughing, all coming on in twenty-four hours. Pneumonia was the presumptive diagnosis at first, but the discovery of the Grocco triangular dulness on the opposite side, and the reduced width and augmented resistance in the intercostal spaces on the affected side, soon revealed that the pleura was the seat of the trouble. The intercostal muscles contract when the pleura is inflamed and this narrows the interspaces. The prompt recovery after exploratory puncture and withdrawal of a few c.c. of a fibrinous serous fluid confirmed the diagnosis of pleurisy.

Policlinico, Rome

September 10, XXIII, No. 37, pp. 1095-1118

80 *Why a Patient with Acute Ataxia is Able to Swim. (Ancora sulla questione perche un ammalato di atassia acuta abbia potuto nuotare benissimo.) A. Marina.—p. 1095.

80. **Swimming Possible with Ataxia.**—In Marina's case, and also in Luciani's dogs, after removal of the cerebellum complete ataxia rendered walking difficult if not impossible, but swimming was done without effort. Marina's patient was a boy of 13 left with aphasia, chorea and other nervous disturbances after typhoid. By the end of three months there was some improvement but the ataxia had grown more pronounced and affected the entire body. No signs of a cerebellar lesion could be detected. The boy's father had a sea-bathing establishment, and when the boy was placed in the water he swam perfectly. This case has aroused much discussion in Italy, various explanations being advanced.

Brazil Medico, Rio de Janeiro

August 15, XXX, No. 33, pp. 257-264

81 Three Alleged New Species of Flukes. (Trematodeos novos.) L. Travassos.—p. 257.

August 19, No. 34, pp. 265-272

82 Organization and Management of the System of Hospitals and Dispensaries at Rio. (Assistencia publica no Rio de Janeiro.) L. Barbosa.—p. 265. Commenced in No. 30, p. 233.

Semana Medica, Buenos Aires

XXIII, No. 30, pp. 81-106

83 Catarrhal Jaundice. (Ictericia catarral.) C. P. Mayer.—p. 81.
84 Normal Goat Serum in Treatment of Lupus after Curetting. (Sobre el empleo del suero normal de cabra en el lupus vulgar.) A. S. Lagomarsino.—p. 86.

No. 32, pp. 129-150

85 The Tuberculosis Problem in Argentina. (El problema de la tuberculosis. (Antecedentes y observaciones. Intensidad del mal en el país.) J. Penna.—p. 129.
86 The Biologic Rôle of Filotion. J. de R. Pailhade.—p. 134.
87 Synthetic Biology. (Apuntes de Fisiologia.) T. E. Kundig and A. B. Rillo.—p. 135.
88 Acetonemia Following General Anesthesia in Adults; Three Cases. (Existen crisis acetonemicas?) F. Corredor.—p. 144.

Russkiy Vrach, Petrograd

XV, No. 30, pp. 697-720

89 Historical Sketch of the Evolution of the Conception of Functional Neuroses. (Razvitie ucheniya o funkt. neurozakh.) N. P. K. Trirodoff.—p. 711.
90 Treatment of Fracture of the Hard Palate. (O liechenii oslozhnennikh perelomov tverdago neba.) G. B. Berlatski.—p. 714.
91 Chronic Traumatic Edema of Hands or Feet. (O chron. traumaticheskom otekie konechnostei.) S. M. Rubasheff.—p. 715.

No. 31, pp. 721-744

92 Maternal Impressions, Telegony, etc., from Scientific Standpoint. (Zagadochniya formi nasliedstvennosti.) A. T. Brandt.—p. 721. Commenced in No. 30, p. 697.
93 *Changes in the Leukocytes under the Influence of Repeated Injections of Antityphoid Vaccine. V. I. Glinchikoff.—p. 726. Commenced in No. 30, p. 703.
94 First Aid after Poisoning with Asphyxiating Gases. (O proiskhozhdenii oteka legkikh pri otravlenii udushlivimi gazami.) T. A. Andreeff.—p. 732.
95 Iodin in Internal Treatment. M. A. Germovich.—p. 741.

93. **The Changes in the Blood Picture After Repeated Injections of Antityphoid Vaccine.**—No knowledge of Russian is required to understand at a glance the fifteen comprehensive tables reproducing the rows of figures representing the various elements of the blood picture as examined from day to day and even from hour to hour on certain days during a thorough course of vaccination against typhoid. The curves show unmistakably that the human organism responds

to every injection of the vaccine with, at first, a reduction in the total leukocyte figure and then a rise which thereafter gradually subsides. This reaction occurs the same whether given amounts of killed typhoid cultures are injected or the living filtrates of the cultures after the bacteria have been strained out. This reaction is the same, further, that is observed after injection of living cultures of staphylococci, diplococci, etc. The wave of leukocytosis is most pronounced after the first injection; it reaches its highest point in about four hours on an average, the increase being proportionally largest in the lymphocytes and neutrophils. Glinchikoff queries whether there is any relation or parallelism between these blood changes and the general reactive phenomena. In some of the cases a parallelism between the clinical manifestations and the blood findings was evident, but in others not.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 9, II, No. 11, pp. 901-988

96 *Medical Education. V. (Voortzetting van het praeclinisch onderwijs in de clinische jaren: clinische physiologie.) G. van Rijnberk.—p. 903.
97 *Importance of Castration in Treatment of Myoma of the Uterus. (De waarde der castratie bij myomen der baarmoeder.) M. A. Mendes de Leon.—p. 906.
98 The So-Called Intracorpuscular Conjugation of the Malaria Parasite. (Over de zoogen. "Intraglobulaire conjugatie" van den tropicaparasiet: Laverania malariae.) N. H. Swellengrebel.—p. 914.
99 Success of Emetin in Treatment of Abscess of the Liver; Two Cases. G. J. van Thienen.—p. 930.
100 Rubeola. (Roode hond.) M. W. Scheltema.—p. 924.

96. **Continuance of Preclinical Instruction Into the Clinical Years.**—Van Rijnberk here summarizes and reviews Lee's article on this subject in The Journal, Feb. 26, 1916, p. 639, continuing his discussion of the readjustment needed in medical education. (The four previous instalments have been reviewed here week by week.) He quotes with approval Lee's remark that the average physician does not know enough physiology and does not have enough of the habit of regarding his patients from the standpoint of physiology, adding, "This may be true of American physicians in particular, but it certainly applies to some extent to the physicians in every land. The physician, Lee says, is much more inclined to think anatomically than physiologically. When he is thinking of an organ, it is its structure, more than its special performance, that springs up in his mind. But what the organ accomplishes is the main thing; medical problems are principally dynamic, not static. They require knowledge of what the organ, tissue or body can accomplish so long as it is healthy. As the physician does not regard things from the physiologic point of view as much as he should, Lee protests against the too exclusive teaching of anatomy, and insists that the teaching of physiology should be continued into the clinical years of the medical course.

"Lee's proposal to continue the teaching of physiology into the clinical years, I regard as extremely important and practical. Whether it is practicable, however, is another question, at least in the Netherlands. But it can do only good to discuss the question. There are three main reasons that may be advanced in favor of this continuation of the teaching of physiology into the clinical years. One reason is that, however much the clinical professors themselves may be impressed with the preeminent importance of the physiologic mode of thought in obtaining a grasp of a morbid syndrome, and however much they may strive to impress this on their hearers, yet the students are attracted so much more by the manifold new things they are learning in regard to diagnosis, therapeutics, etc., that physiology is crowded out. A special course which, as clinical physiology, would keep before their minds the physiologic mode of thought would certainly be of great value. The second reason is that for many facts in pure physiology the conception cannot be complete unless the abstract is supplemented by a concrete example—the conception of ataxia, for instance. An atactic animal does not arouse the same keen and lasting conception of the condition as the sight of a human being with locomotor ataxia. Whole series of researches, demonstrations and tests in the field of physiology would be far more instructive and fruitful than is now the case, if they could be applied and practiced in the clinical years.

"My third reason is that physiology as taught in the preclinical years is mainly the physiology of laboratory animals. Only a few simple tests are made on man, the blood count and hemoglobin test and estimation of the blood pressure. The reason for this is self-evident. Before a test can be applied on a living human subject we must first catch the living subject, and, out of all creation, the one creature that is the hardest to secure for a physiologic laboratory is a human being. The students can apply to each other in the class room only a few simple procedures that do not take much time nor require exposure of the body. Persons who make a business of submitting to tests are hard to get, exacting and troublesome, and hence tests which would prove so much more enlightening when done on man are done merely on cats and rabbits. A course of clinical physiology held in a hospital, where some of the inmates, to pass away the time or for a slight remuneration, would gladly submit to simple tests that do not cause pain, would be a magnificent supplement to the animal physiology that has been taught.

"However odd Lee's words may seem at first, they yet contain valuable seed. Some lecturer, specially trained in physiology and with some practical clinical experience, connected with the clinic for internal diseases could hold a course in clinical physiology. This would have the special advantage that physiology would be more intensively studied—two years is but a short time to glean over this vast field, and a little further training in biologic and clinical physiology would be of great benefit to the future physician."

97. **Castration for Myoma of the Uterus.**—De Leon relates that he has applied castration in treatment of the myomatous uterus in 114 among his 800 patients in this category since 1892. He always examined microscopically scrapings from the uterus when there was the least suggestion of possible cancer, and he excluded from this method of treatment all cases in which the myomas extended to the umbilicus. These very large myomas seldom retrogress completely, and the disturbances are more from compression than from hemorrhage. Three of the women succumbed to the by-effects of the operation, acute peritonitis or pulmonary embolism. In the latter case the very large myoma extended beyond the umbilicus and its torsion had interfered with the circulation. In future he would do hysterectomy in such a case. Omitting cases before 1905, the mortality thus has been 1.58 per cent. In six cases he found it impossible to remove the ovaries when the abdomen was opened, but the results of the castration were entirely satisfactory in 96 of 104. The outcome in eight cases is not known, but as the patients have not returned for further treatment it may be assumed that conditions are satisfactory in them also. In a few cases there were slight and transient hemorrhages from the uterus and a small number continued to menstruate irregularly for a few months. The uterus atrophied in from six to eighteen months; small myomas retrogressed more rapidly in proportion than large ones. There were no serious deficit phenomena in any case, almost all the women being at or near the menopause age. Only a few had headache, congestion and hot flashes, and these soon subsided under sedatives or a little ovarian extract. His experience further confirms Lawson Tait's statement in regard to removal of the ovaries that these organs have as little to do with a woman's sexual appetite as her front teeth have. De Leon never thinks of applying castration in small myomas or those causing no disturbances. He restricts the measure to cases in which either the uterus or the ovaries have to be removed, preferring the latter to myomotomy and to roentgenotherapy. It has the advantage over the latter in being more certain and requiring less time and expense. Only when some organic defect contraindicates castration, he resorts to Roentgen treatment.

Ugeskrift for Læger, Copenhagen

August 31, LXXVIII, No. 35, pp. 1489-1526

101 Papillomatous Growths in the Larynx, Cancerous and Noncancerous. (Papilloma malignum laryngis.) E. Schmiegelow.—p. 1489.

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THE INFECTIOUS DISEASES AS A FIELD OF INVESTIGATION IN PATHOLOGY *

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When we consider that the science of pathology is seventy years old and that its object and scope were stated in its inception as fully and accurately as the most modern of us today could desire, it seems strange that a restatement of its essential purpose should be periodically required. There is at least one assertion that all of us concerned directly or indirectly with the study of disease are prepared to admit; pathology as a separate science was born with Virchow, and its birth was signalized by the publication in 1847 of the famous *Archives* of Virchow and Reinhardt.

The significance of the title of this publication has not perhaps always been appreciated. "The archives for pathologic anatomy and physiology and for clinical medicine," it runs. Virchow's introductory article in the first number, "Ueber die Standpunkte in der wissenschaftlichen Medizin," is today as pertinent and as explanatory of the purpose of our science as when it was written. Its reperusal is particularly to be recommended to those who think that in clinging to the purely morphologic type of pathology they are carrying out the ideals of our illustrious predecessor.

Virchow's conception of the scope and possibilities of pathology was far broader than present-day standpatters would have us believe. His vision was far from restricted to the microscopic field that encircles some obvious structural change that may or may not bring to our minds some conception of the functional disorder that has preceded. Virchow's editorial introduction, to which I have referred, is notable in several particulars. In the first place it states clearly the duty and privilege of pathology in respect to clinical medicine, namely, that it serves as an intermediary between the more fundamental sciences and practice. These fundamental sciences are justifiably self-sufficient and introspective; they determine certain utilizable facts, but bear no direct message to the practitioner. It remains for pathology to apply these facts toward the understanding, the diagnosis and the treatment of disease. It is interesting to find that Virchow lays principal emphasis on the development of pathologic physiology as the greatest aid to the healing art; in no uncertain terms he states that the prime object of pathology is the study of disordered function.

You may ask how we can reconcile this creed with the master's own performance, with his own personification as a father of cellular pathology. There is nothing simpler. Virchow was a great scientist not simply because through assiduity and keen perception he established a great point of view, solved a major problem, but because he recognized a problem which at this particular epoch was capable of solution. In 1850 the stage was set for the working out of the structural alterations in disease. Anatomy and histology had progressed so that the recognition of cell types and cell structure was possible. The methods of physiology and biochemistry were not, however, as yet utilizable for the study of disordered function. The science of bacteriology, destined to throw the greatest light on both the cause and the evolution of disease processes, was as yet unknown. It was obvious, then, that Virchow, although keenly aware that the logical goal of pathology is the study of disordered function, should have devoted his own lifetime to the more accessible study of altered structure.

An overemphasis for sixty years on the residual aspects of disease has not been without effect on the philosophy and mode of thought of the pathologist himself. A consideration of fixing fluids, of methods of embedding, of the action of dyestuffs on coagulated proteins, the purely observational and statistical attitude inherent in collectors of chance and uncontrollable material, have produced an essentially static point of view of disease. The confirmed morphologist is suspicious of anything in the making, he is bewildered by anything that may represent the essentially dynamic conditions of the living body.

If the object of pathology is to aid preventive and healing medicine, we must understand the causation and the course of disease rather than its results — must be interested in the forces engaged and the battle itself, rather than the appearance of the battlefield after the fight is lost.

The delayed development of experimental pathology is to some extent due to the arresting tendency of overemphasis on structure, but largely to the necessarily delayed development of methods of attack on problems of this sort. It is natural, however, that some investigators could not remain simple collectors of necropsy material, satisfied with deductions and retro-active judgment between demonstrable effect and presumable cause. Purely statistical methods of investigation must in more alert minds yield to comparative studies. Simple deductions from observed phenomena must be followed by inductive experimentation. To those who look for the explanation of disease in the resultant lesion, successful experimentation means the reproduction of similar lesions rather than the reproductions of such conditions as give rise to them. Chronic nephritis, retraction of the heart valves, arteriosclerosis, embolism, infarction, are all lesions, the experimental production of which has interested pathologists since Cohnheim. How little explanation such studies have yielded as to the causes underlying the original diseases as they occur; how little they have aided in their prevention and cure! It is true that the grosser mechanical methods of Cohnheim, such as instrumental destruction of the heart valves to produce insufficiency, and the injection of poppy seeds into the circulation to produce emboli and infarction, have given way to more refined methods of experimentation. A choice of chemicals may determine a lesion of the kidney confined to the glomerulus or the tubules, and careful study of coincident metabolism may parallel human nephritis. And yet the method of attack is still as blundering and empiric as ever, and mere striving for a closer similarity of lesion will never explain to what conditions the original disease is due. We have tried in vain to reason back from effect to cause; the tail has tried too long to wag the dog. It would seem as if the successful results obtained in the study of the acute infections should have led more morphologists to be born anew, to strive to experiment and reason from the beginning toward the end in spite of their predilection for the reverse process.

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* Chairman's address, read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The successful experimental study of the infectious diseases has been possible through the determination of specific causative agents. The separation of the animate inciting factor of a given infection renders the study of that disease not only relatively simple but also logical, in that one proceeds from cause through progress to result produced. A lesion, when it occurs, assumes its proper terminal and subsidiary position. Many infections, indeed, though violent or even fatal, are not signalized by striking morphologic changes in the fixed tissues; and even in those cases in which profound structural changes ensue, they are at best no certain index of the conflict that has taken place in the body. The lesions of Peyer's patches and endothelial proliferation give little suggestion of typhoid fever as primarily a septicemia; the degree of the involvement of the lungs in pneumonia bears little relation to the outcome.

It is curious how the peculiarly fixed habit of thought of the morphologist renders him uninterested, inexpert and skeptical of experimental data, even when they are so peculiarly sequential and complete, as in bacterial infections. A leading histopathologist has recently prefaced his textbook with the statement that experimentation leads only to confusion. Such confusion, of course, is dependent on the type of mind of the would-be experimenter. Static pathologists of this type unfortunately still dominate our science. "Pathology" is still used to mean morbid anatomy rather than the natural history of disease. Would-be experimentalists have, at best, not been encouraged to relegate tumor diagnosis and necropsies to their proper place as routine. The clinicians, of course, prefer that type of pathology with which they are familiar, and pretend to regard it purely as ancillary to the medical art. Pathology is no handmaiden but an inspiring goddess, showing the way to more scientific methods of diagnosis and cure, instead of simply confirming or gently disagreeing with bedside opinion.

When of late years some of the younger pathologists have turned to experimental fields, they have naturally chosen those diseases which have been impressed on their minds during their morphologic training; they have investigated the chronic or the metabolic diseases. It is now possible to attack these problems with the aid of chemical and physiologic methods. I do not wish in any way to minimize the value of the laudable attempts that are being made, although these problems do not appeal to me as the timely ones. Their solution would seem to wait on the discovery of essentially new methods of attack rather than the simple applications of methods of use in the fundamental sciences, as is the present tendency.

I believe the experimental study of the infectious diseases is still, in spite of thirty years of increasingly successful endeavor, the greater field of promise for the investigating pathologist. Let me consider briefly the relative importance of the infectious diseases, and my reasons for belief in the timeliness of the problems they present.

I was led a few years ago to estimate certain numerical relations between infectious and noninfectious diseases, since no collected data were to be found for my purpose. A careful summary of the disease entities treated in Osler and McCrae's "System of Medicine" (first edition) from the standpoint of etiology was first made. Decision as to what constitutes a disease entity and what are simply varying manifestations of a given disease is in the nature of things somewhat arbitrary. And again it is difficult to estimate in some instances whether the evidence for a parasitic cause is as yet fully acceptable. In spite of these causes of error the findings are judged worthy of presentation. Three hundred and sixty-nine separate disease entities was the total obtained; and 144 of these (39 per cent.) were recognized to be due to infectious agents alone; another thirty are at least in part infectious in origin, and fourteen more are probably of similar nature. The total of the infectious diseases is 52 per cent. In a similar way and on the basis of the first classification, 40 per cent. of all the deaths in California in the year 1911 were directly or indirectly of infectious cause. Any subconscious prejudice which may have affected the gathering of these data is probably more than balanced by the truth that will eventually be learned concerning the causation of certain diseases that are here included under other headings. At least we may assume that the infections form a large and probably the predominating group of human maladies.

The infectious diseases, apart from their numerical and actual importance, afford today the problems of greatest interest and promise in medicine. In spite of the relatively great emphasis that has been laid on these diseases in the last twenty years, many questions of etiology, and still more of specific diagnosis, prevention and therapy, remain to be solved. Further concentration on these problems is recommended because, even with the methods so far developed, most tangible and practical results have been obtained. We may look forward confidently to the eventual clearing up within a finite period of the etiology in diseases of which the parasitic nature is at present only suspected. We may expect to develop more or less perfect specific methods for the diagnosis and evidence of protection against these diseases, and may anticipate relatively certain means for their prevention and cure. Every effective blow delivered against the infectious diseases will in turn diminish such chronic diseases as nephritis, endocarditis and arteriosclerosis, the initial infectious nature of which is in many instances recognized.

The study of the infectious diseases will, at least for the present, continue more timely and profitable than similar effort expended on metabolic or chronic diseases, owing to certain qualities inherent in their causation and the methods of investigations involved.

The parasitic disease is due to a single cause with predisposing factors of minor importance, whereas the other diseases are probably due to the operation of a number of causes or predisposing factors. The single parasitic cause is not only separable from the body of the host, but also capable of reproducing the disease under a relatively wide range of conditions, and frequently in a number of different animals. Apart from the handiness of a single separable factor, the study of an experimentally reproduced disease from its real beginning is probably of greater logical advantage than has been generally appreciated. The type of pathology which follows forward rather than looks backward has already been sufficiently emphasized. The methods of experimentation that have grown up in connection with bacteriology and immunology are successful in part because they are distinctive and original in development, and do not consist primarily in adaptations of the methods of other sciences.

And lastly, the study of the infectious diseases has yielded the greatest practical results to clinical medicine, owing to the facts that not only is their cause specific, but also, in each instance the body of the host is likewise stimulated to a characteristic response. On this specific reaction of the animal body to an infecting agent depends the striking diagnostic tests and all vaccine and serum therapy.

GRIP IN CHILDREN *

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NORFOLK, VA.

The syndrome commonly called grip is endemic throughout the entire cold weather months of the year, its curve presenting waves of greater or less severity during the course of a single season. The annual curve presents periodical elevations a number of years apart, the number of cases in certain years being so large as to reach the proportion of an epidemic, at which time there is also a marked increase in the severity of the disease. Such prominence as this was acquired during the past winter (1915-1916). There can be no doubt that grip is a general infection, presenting systemic manifestations of greater or less severity. I do not know whether or not all the conditions I shall describe are due to the *Bacillus influenzae,* but I have so classed them because they have appeared in the course of a general epidemic of grip, and are apparently of the same infectious origin.

Common Type.—The prevailing type during the past season was that most commonly encountered. It was characterized by a sudden onset with prostration of greater or less severity, and a rise in temperature lasting from two to five days. The height of the temperature varied widely, from one to two degrees' elevation to a temperature of 105 or 106. Generally speaking, in those cases in which the temperature became suddenly and extremely high, but of short duration, the prostration was most marked. This type of the disease was frequently difficult to distinguish from pneumonia. The physical signs of pneumonia were not present, but this is of course frequently the case in the early stages of pneumonia itself, and the pulse-respiration ratio was not interfered with. When the temperature was of longer duration (from three to six days), even if moderately high, the prostration was usually, less marked.

Older children were subject to pain in various regions, such as the head, arms, legs and abdomen. These pains were sharp and violent or boring in character. In infants high temperature and severe prostration were the chief symptoms. A considerable number of these patients had short attacks and speedy convalescence; frequently, however, the convalescence was long drawn out, the patient regaining strength slowly, while death occasionally followed after two days' illness. A marked feature in these cases was an irregularity of the heart's action.

Catarrhal Type.—The main difference between this and the type just described is that bronchitis and coryza were prominent symptoms. The lacrimation and coryza and the injection of the eyes were so severe as to remind one of measles. The bronchitis was so severe that it closely resembled the capillary bronchitis of older writers. This bronchitis was generally of short duration, but it was naturally in this type that pneumonia was the most frequent sequel. The type of pneumonia of course varied, but in spite of the generalized bronchitis, the lobar type of pneumonia predominated, the cases of bronchopneumonia having been comparatively few. Naturally, the greatest mortality came from this complication.

Gastric Type.—In many instances vomiting was so violent and persistent at the onset that the term "gastric type" seems justifiable. This vomiting was so severe at times that the patient appeared sometimes to be in danger of dying from exhaustion. So prevalent was this type that a number of physicians thought they were dealing with cases of cyclic vomiting. I do not think they should have been confused because the vomiting was of shorter duration than usually occurs in cyclic vomiting; also, some of these cases occurred in children who were accustomed to have recurrent vomiting, and even they realized the difference between the nature of the attacks.

The evidence of diacetic acid in the urine, which usually appears before the onset of vomiting, in these cases was entirely absent at this time.

Diarrhea.—This is frequently described as a complication or sequel of grip, and, in fact, in children it is an accompaniment of almost any condition, but the number of cases of diarrhea complicating this epidemic was an entirely new experience to me. These cases differed in no way from the infectious diarrhea so common in summer. The stools passed through the usual stage of fecal, mucous, pus and blood. I regret that I did not have an opportunity to study their bacteriology. This diarrhea came on immediately after an attack of high temperature and prostration, and did not follow the catarrhal type in a single instance. Its duration was one week.

Convalescence.—This was variable. In some of the most severe cases, the patient convalesced with remarkable rapidity, while some of those cases which appeared mild were long drawn out, the patient remaining quite weak for a long time. The convalescence I refer to is that in cases without complications; complications, of course, made convalescence tedious.

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Exacerbations.—Among the most usual complications and sequelae may be mentioned exacerbations. In a number of instances there was noted an exacerbation or reinfection, I do not know which. These were sometimes as much as two weeks apart, and as far as severity is concerned, they bore no relation to each other. In many instances two such recurrences were observed.

Pulse.—I have noted several cases of irregular pulse. Some of these were simple arrhythmia, while others were of varying degrees of weakness. This may have been merely toxic, but I have suspected that there was really a myocardial involvement.

Otitis Media.—This was most frequently observed in those cases in which catarrhal symptoms predominated.

Pyelitis.—This has been quite common as a sequel. I am not prepared to explain this, unless there was a low-grade infection existing previously, not sufficiently severe to cause attention to be attracted to it, but brought out by the lowered resistance of the patient. The infection was due to the colon bacillus.

Pneumonia.—This has already been mentioned as a complication, but during the past year there were noted several cases of what has been described by several authors as recurrent pneumonia, that is, several attacks of apparent lobar pneumonia, with perhaps as much as a week intervening between attacks.

Cough.—One of the most troublesome sequelae was persistent cough. This might follow a simple bronchitis or a pneumonia. This cough was at times harsh and distressing and its persistence exceedingly discouraging. At times it was indistinguishable from whooping cough. The exact nature of this complication was sometimes difficult to explain. In a number of cases, however, I was able to elicit D'Espine's sign, and this condition led me to the conclusion that it might be due to enlarged peribronchial glands.

Prolonged Temperature. — Another troublesome sequel was prolonged fever, ranging from normal to 100 or more and persisting apparently indefinitely. Some of these cases gave no evidence of a rise of temperature unless the thermometer was used, while in other instances the child became drowsy and cross with the rise of temperature. The cause of this prolonged rise in temperature was as difficult to find as was that of the cough, but, as in the case of cough, I was frequently able to elicit D'Espine's sign. This brings me to the same conclusion, that the rise in temperature was quite frequently caused by enlarged peribronchial glands.

Von Pirquet Reaction.—In cases of cough and rise in temperature, as just described, I have not infrequently secured a positive von Pirquet reaction. This may be a coincidence, the reaction not having been tried before, and possibly would have been positive previously, but I think from my histories in cases of tuberculosis that grip ranks second only to measles and whooping cough as an antecedent of tuberculosis.

Meningitis.—Pure influenza meningitis is a clinical entity, though rare; I have never seen a case, but I think pneumonia meningitis following grip is slightly more common than after primary pneumonia.

Skin Eruptions.—During this epidemic there was a number of skin manifestations, such as simple erythema, scarlatiniform, morbilliform, urticaria and sudamina.

A point well worth emphasis is that nursing infants are by no means immune from grip.

TREATMENT

I shall outline treatment very briefly. By far the most important part of treatment is prophylaxis. This is particularly important in young infants, since the mortality among them is very high; therefore, when any member of the family has grip, or even a bad cold, which may be a mild grip, he should be kept away from the younger members of the family. In the case of breast-fed infants the mother who has grip should be instructed to keep her nose and mouth tied up with a handkerchief while nursing or when caring for the infant. This is equally important in the case of any attendant who is compelled to go very near the infant. Large crowds or places of general gathering should be avoided. On the other hand, children should be kept in the open air as much as possible, except in dry windy weather, the dust under such conditions tending to spread the contagion, or at least to irritate the nasal passages to such an extent as to make them susceptible.

In the usual type my main reliance has been on sodium salicylate. I think that my best results have been with this drug, and I still prefer the natural to the synthetic product. Occasionally the aching is so severe as to require opium. An initial dose of Dover's powder is desirable, and of course a purgative should be administered. Regardless of how mild the attack may be, the patient should be confined to bed.

In the catarrhal type I use nose drops of menthol and camphor in liquid petrolatum. This is not only antiseptic, but makes the patient decidedly more comfortable, and I am quite certain it tends to prevent middle ear infections.

The bronchitis is treated as any other bronchitis. In the tight stages wine of ipecac may be given to promote an outflow of mucus, and after this has been accomplished, ammonium chlorid may be used advantageously. At times the cough is so severe as to require opium, which should not be withheld if there is constant racking, since the strain on the heart is too great. The general principles of pneumonia treatment are used.

The gastric type presents difficulties, since the child can take nothing while it is vomiting. Keeping the infant absolutely quiet is about all that can be done until the vomiting ceases. In these cases the bowels must be moved by means of enemas.

The cases of diarrhea are treated as its analogue, summer diarrhea. An initial colon flushing, carbohydrate diet and small doses of salines have been most satisfactory in my hands.

The irregularity of the heart calls for absolute rest until all arrhythmia has ceased. This may suffice, but in some instances digitalis must be administered.

Otitis calls for the usual treatment. Personally, I favor early incision of the membrana tympani in cases of otitis rather than waiting for the bulging of the membrane.

The cases of persistent cough are exceedingly troublesome. Fresh air, tonics, such as cod liver oil, and systematic rest in the recumbent position are most beneficial. Occasionally, the severity of the attack calls for opium. Unfortunately, many of these cases persist until the advent of warm weather. The same may be said of prolonged fever.

Grip should be a quarantinable disease. Especially is this true of schools, from which teachers and pupils afflicted with grip or "colds" should be excluded.

ABSTRACT OF DISCUSSION

Dr. Isaac A. Abt, Chicago: If one asks, What is the etiology of grip; what have the studies of grip shown? he finds there is a great deal of confusion. Bacteriologists find every organism. It makes us think that the grip infection is very elusive and difficult to find, or else the bacteriologists have not solved the question. The seasonal occurrence is another thing. Why does it begin to disappear when the sun appears, being practically absent during summer and early fall. They tell us that even in California and Florida grip epidemics occur during the winter, so that it is apparent that so-called grip is a disease of the winter time. We are apt to overdo the matter of sending children out of doors in all kinds of weather. I know babies who are taken out doors when I would not drive my horse out of doors. Babies are frequently taken out and allowed to remain an excessively long time until they are chilled and uncomfortable. We fear the effects of heat but absolve excessive cold from all harm to the baby. Extremes of either heat or cold probably lower the little baby's resistance. I have known babies convalescing from grip and progressing favorably when kept indoors, and when taken out and exposed to the cold and wind have come back with severe exacerbations. The seasonal occurrence indicates that the weather conditions in some way or other bear casual relation to the grip. Very often, I think, vomiting is not an expression of gastro-intestinal infection but of general toxemia. In case after case the first thing noted is that the baby vomits incessantly, and in those babies who are subject to cyclic vomiting it seems to me the vomiting is brought on by this so-called grip infection. These babies, in addition, often have an acute swelling of the adenoid tissue in the nasopharynx, and manifestation of acute inflammatory conditions in the tonsils. These conditions very soon lead to complications in the middle ear. As to the cough, I quite agree with Dr. Royster that this is sometimes out of proportion to the rough breathing. I think it is often due to pharyngitis, and often to infection of the mediastinal or bronchial glands. A roentgenogram made of these chests will show enlarged bronchial glands. When there is no von Pirquet reaction and no other reaction to tuberculin it may be assumed that the cough is probably due to grip infection of the mediastinal glands. In relation to pyelitis, this seems to occur frequently following grip. It seems to me there is more nephritis produced by excessive use of hexamethylenamin than we commonly think, and many cases of acute hemorrhagic nephritis are not so much due to the organisms and toxins of grip as to this drug.

Dr. J. P. Sedgwick, Minneapolis: I was very much interested in what Dr. Abt said in regard to vomiting. Several years ago I called attention to the relation of infection of the upper respiratory tract to a certain type of recurrent vomiting. Sometimes these cases are relieved by treatment of the respiratory tract. Dr. Smith afterward independently found this same condition. I am sure there is a connection between them. This winter we have been following this grip epidemic very closely, and I believe by following these cases with a flouroscope and plates we will get a great deal of instruction. I know we have been greatly instructed and have found some of our older ideas incorrect. As to treatment, in some of these cases in which nasal obstruction in younger children is pronounced, the careful use of epinephrin is very beneficial.

Dr. Frank S. Churchill, Chicago: We should be more careful in our description of these cases. We have all been treating them this winter. We had an epidemic of what looked like grip in Chicago, but in most cases—practically all of my own and most of those of others—the bacillus of influenza was not found in the nasal or pharyngeal secretions, but a form of streptococcus was present. If we are to adhere strictly to the use of the term "grip" for infections with the bacillus of influenza then these cases were not "grip." They acted like grip, but in reality they were not. I would like to ask Dr. Royster if in his respiratory cases the bacillus of influenza was found.

Dr. G. H. Fellman, Milwaukee, Wis.: During the month of December we had 150 cases of this so-called grip at the Milwaukee County Dependent Home for Children. At that time the days were cold and the roads very dusty, as very little snow had fallen. Examination of smears from the throat and nose showed the presence of a small diplococcus, streptococci and a very few Weeks' bacilli. Pneumonia developed in about 10 per cent. of the cases. It was of a mild type, running its course in from three to ten days.

Dr. Harry Lowenburg, Philadelphia: I would like to ask Dr. Royster if he found leukocytosis present. It occurred in all of my cases.

Dr. Joseph Brenneman, Chicago: There is a difference between "grip" and "grippe." I think grip is a very useful word to designate these periodic epidemics, while "grippe" is synonymous with influenza. It is very interesting when we observe such an epidemic as we had in the last winter to find that in North Carolina and New York they have had the same epidemic. It must be the same organism. Of the symptoms, I would say we found almost the same as described by Dr. Royster, except that two stood out conspicuously. One was abdominal pain. If a mother said her child had stomach ache, I would look in the throat. If I could not determine a definite infection there I would look in the ears and I would often find an otitis. That would tell me that the child had had a throat infection previously. I know of at least three patients operated on for appendicitis in which the appendices were found perfectly normal. One of those cases showed enormously enlarged mesenteric glands, suggesting the possibility of glandular infection. In two other cases there were hemorrhages into the intestinal walls. In one most interesting case that I saw with Dr. Krost, the child had a sore throat, very much swollen, with spots, then a hemorrhagic urticaria, and then a very decided abdominal colic with a palpable lump in the abdomen, and the abdomen was much distended. In other words, the child began with sore throat, and then had all the other symptoms of a typical Henoch's purpura, with final recovery. I think there is no question that the child had in its intestinal wall a hemorrhage. The tendency to hemorrhage was very common in these cases. I saw one patient who had an inflamed throat, then a hemorrhage on the eyelid, and in the hand, then an exsanguinating hemorrhage from the bowels, and afterward the urine for two months looked like pure blood. This hemorrhagic nephritis lasted for over two months and then cleared up. I would estimate that over 30 per cent. of our cases had abdominal pain as a decided symptom; that was helpful in diagnosis. Another thing is the relation of these cases to certain exanthems. In the same hospital ward I have seen a child with sore throat, another with an indefinite eruption, and then another with typical scarlet fever. It has been a very unhappy winter for us, especially in hospital work, because in many cases it was impossible to tell whether certain cases were scarlet fever or not. The mortality of less than one out of three or four hundred cases as reported by the health department made us think it was not scarlet fever that we had to deal with in most of these cases, but the type of infection described by Dr. Royster, with a scarlatiniform eruption. One almost wondered whether the early typical "grips," the late "grips" with indefinite rashes, and later in the season, the many very mild scarlets, were not all the same, bacteriologically.

Dr. V. W. Turner, Des Moines, Iowa: The treatment we usually used was salicylates, but we found a large percentage get well without treatment.

Dr. J. I. Durand, Seattle: We had the same epidemic in Seattle. It is a clear-cut clinical entity, and the name grip is as good as any for the condition. There is one point I want to make, and that is in regard to infection. I think it is purely a respiratory infection and contaminated air must be inhaled to produce the disease. Every child in the ward of a hospital, or every member of a family will generally become infected, and yet I have seen children with cases within three feet on each side of them without infection, merely by putting a double wall of gauze between the beds and absolutely preventing drafts which might sweep the organism from one bed to the other. The same nurses, without any special precaution as to changing gowns, took care of all the children.

Dr. Eleanora S. Everhard, Dayton, Ohio: We had much the same kind of an epidemic in Dayton. As to treatment, following the theory that the body cells as soon as they become excessively acid swell up and cause congestions, many of us treated our patients with large doses of alkalies. In children the vomiting very promptly subsided with potassium citrate. They could take that when they could take nothing else. We got much better results with potassium citrate and could give it in heavier doses than the salicylates.

Dr. G. N. Ryan, Des Moines, Iowa: Considering these cases from the standpoint of infection, we should bear in mind the necessity of keeping the respiratory tract clean by the use of sprays of some alkaline solution; also of administering alkaline solution, sodium bicarbonate and glucose with a small catheter in the bowel for four hours slowly, then abstaining for four hours, and then giving it again. By using minute doses of atropin you can prevent this weakened condition of the heart and irregular heart that you find without stimulation. Creosote in vapor form seems to have considerable effect on the respiratory tract. The acid condition will soon disappear.

Dr. Meredith Johnston, New York: I thought I was having many cases of influenza until I had a large number of cases of otitis media. Twenty-two were examined by a bacteriologist, and in not one was the influenza bacillus found.

Dr. Lawrence P. Royster, Norfolk, Va.: I plead guilty to the use of the nonscientific expression "grip." I emphasized the fact that I was using the term because of an epidemic of supposed grip. I regret I was not in a position to make bacteriologic studies at the time, except of a single case of pyelitis I mentioned. We are dealing with a general infection, and that is as far as any one can go at this time. Dr. Abt spoke of the gastric type being an initial manifestation. I do not know but that it is part of a general toxic condition. It may be merely one of the predominant symptoms of this particular epidemic. The seasonal development of it is about as interesting as the so-called seasonal diarrhea; one occurs at one time of the year and the other another. That is all we know. I do not approve of sending children out of doors in bad weather. Generally speaking, fresh out-door air is better than closed houses. I did not make blood tests nor any bacteriologic tests for the reason that the cases occurred in very rapid succession in the course of a rather busy season and in a house-to-house practice. Unless the bacteriologic examination is undertaken under the most approved conditions no one can state what it is; there is so much contamination. Most of these cases are due to streptococci implanted on a mucous membrane of lowered vitality from some other condition. I find that these patients have abdominal pains, as they have pains in various parts of the body. I do not claim any treatment as being a specific.

Restriction of Investigation in Hospitals.—If one wishes to gain an idea of the reason why medical science advances so slowly and haltingly one has but to look at those who are at present the investigators and to consider their opportunities. To prevent or combat disease it is necessary to know its origin and its progress; and one has but to ask what opportunities our investigators have of seeing the disease invade the body, and of observing its progress, in order to estimate the amount of knowledge likely to be acquired by them. Investigation is chiefly carried on in the laboratories and in the wards of hospitals. No doubt in both places observations of the utmost importance are made; but what opportunities have these investigators of seeing disease in its early stages and during its progress? In the wards of the hospital, as you know, disease is not presented in its early stages, and the opportunity of watching its progress is limited to the short time the patient spends in the hospital. It is true that in the out-patient department many cases of disease in its early stages may present themselves, but here again the difficulty of following cases is well-nigh insuperable.—Sir James Mackenzie.

THE ULTIMATE RESULTS IN THE TREATMENT BY ARTIFICIAL PNEUMOTHORAX *

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During the past four years there have been published in America numerous reports on the treatment of lung tuberculosis by artificial pneumothorax. These have proved beyond doubt the value of this procedure so far as the early symptomatic results are concerned, provided properly selected patients are operated on. It is well established that in induced pneumothorax, most remarkable and almost immediate symptomatic improvement will be brought about. High fever will be brought to normal, sputum is greatly reduced or abolished, cough disappears, the patient gains in weight and strength, and in many bilateral cases the râles in the working lung will soon disappear. This is certainly well established, but the question that has troubled every one of us who have used this procedure, I am sure, is whether the final result would be in any way comparable to the early improvement.

So far there has been practically nothing published on this, owing largely to two facts: First, there are only a few American operators who have used the procedure for any considerable time, and second, of the few who have, the majority have kept up collapse for long periods, fearing to let the lung reexpand.

In studying the discharged patient the points of most interest to me have been: the permanency of results, the patient's working ability, the condition of the reexpanded lung and the amount of contraction of the chest wall on the collapsed side. The study of these cases also does much to clear up what has been to all of us, I am sure, a most perplexing question: that of the time necessary to keep up the collapse.

Before taking up my own results I will as briefly as possible summarize the little that is to be found in the literature regarding discharged patients. Spengler,[1] reporting on eighty-two patients operated on by Brauer and himself previous to 1909, sets the following standard for a clinical cure: complete absorption of the pneumothorax for more than nine months, disappearance of fever, cough, bacilli and expectoration, and resumption of normal work. He finds fifteen cases meeting these requirements among the eighty-two. Saugman[2] reports as clinically cured fifteen patients who went without treatment for periods varying from one to seven years. Zink[3] reports thirty-one patients out of 110 treated as fully capable of working, and nine clinically cured and with the pneumothorax absorbed "for a long time." Wolff and Ehrlich[4] report four cases clinically cured and two without treatment for from three to fourteen months, respectively. They had treated forty-four cases altogether. Burnard[5] cites two or three cases without treatment for periods of six months, one year and two years to prove that clinical cures can result. Schertenberg[6] reports eight cases in which treatment has terminated for "several months." Most of the patients have resumed work without inconvenience.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Spengler: München. med. Wchnschr., 1911, lviii, 460.
2. Saugman: Beitr. z. Klin. d. Tuberk., 1913, xxxi, 571.
3. Zink: Beitr. z. Klin. d. Tuberk., 1913, xxviii, 155.
4. Wolff and Ehrlich: Fortschr. a. d. Geb. d. Röntgenstrahlen, 1915, xxii, 518.
5. Burnard: Rev. méd. de la Suisse romande, 1915, xxxv, 256.
6. Schertenberg: Russk. Vrach, Nov. 2, 1913.

To obtain data from American operators, I wrote to some twenty who had used the method for a considerable period. The difficulty of keeping in touch with the discharged patient probably explains why only a very few could give actual results, though as Brauer has said, it is particularly hard to tabulate results in pneumothorax work, and each case should be studied by itself.

Floyd,[7] in 1913, said:

> Two years ago, in conjunction with Dr. Robinson, I reported twenty-eight cases treated by artificial pneumothorax. Of these some eight cases had either shown an entire arrest or were approaching that condition. Of these arrested cases six are in excellent condition today. One has died through no fault of the method, and one has within the past year shown an extension of the old process into the previously collapsed area of the lung.

Under date of May 21, 1916, Dr. Floyd writes me regarding those cases that "of the six I think at least three are in good condition still. The others I do not know about."

E. R. Baldwin has four patients who have been without treatment for periods varying from six months to two years and discharged as apparently arrested. All these are doing well.

Webb and Gilbert have eight patients who have been discharged with absence of symptoms, the periods varying from two months to twenty-seven months. None of these have relapsed.

Maurice Fishberg reports two deaths and three who have relapsed among seventeen considered well at time of discharge.

Drs. Ralph and Ray Matson write me that they have discharged eighteen patients between the dates of July 2, 1913, and May 15, 1916. Four were discharged as clinically well, nine as ambulant arrested, three favorably influenced, and two as relapsed. Three of these are now working.

There is great diversity of opinion in the matter of the time of collapse necessary for good results. Of course, this depends on the amount of involvement, whether there is a cavity, etc.; but assuming that practically all the patients operated on are third stage cases, the average time should be somewhat similar with all operators.

Spengler,[1] in reporting on fifteen cases showing clinical cure, gives the following time for treatment: one case two months, one case five months, six cases seven and one-half to ten months, three cases ten to sixteen months, and four cases eighteen to twenty-four months. He thinks the time required depends largely on the presence or absence of pleural adhesions and the occurrence of complications during treatment.

Saugman[2] reports that of twenty patients showing clinical cure, he treated one case less than one-half year, four cases one-half to one year, five cases one year to one and one-half years, eight cases one and one-half to two years, one case two to three years and one case three to four years.

Forlanini has written extensively on induced pneumothorax, but has said little that I can find on the subject of the length of time that collapse should be maintained. That he maintained collapse for long periods, however, is evident, for Balboni[8] quotes him as treating a woman for ten years, and in a paper[9] in 1910 he mentions five cases in which he had maintained collapse for periods varying from two to six years.

Dumarest and Murard,[10] reporting on thirty-eight cases for from six months to five years, say there are three cases of complete recovery, but the treatment had to be maintained five years. Wolff and Ehrlich[4] give the average time of treatment one year. Schertenberg[6] gives the average time of treatment as one to one and one-half years. Zinn and Geppert[11] report the average time one year or more.

Of American operators, Baldwin gives the average period that his patients were under treatment at approximately one and one-half years; Fishberg at nine months, and Francine and Klein at six to eight months. Webb and Gilbert's cases varied from one of only six months to one of forty-one months, but averaged nineteen months. They add, however, that "our best cases wish to continue the treatment indefinitely and we have seen no reason in our experience to advise them otherwise."

E. A. Gray gives the average time in successful cases at from one and one-half to two years.

In the matter of reexpansion and physical signs, Dr. Baldwin writes that reexpansion was complete in three cases but he had not seen the other case for over a year. The three cases had plenty of crepitant râles; he did not know about the fourth. Dr. Gilbert reported reexpansion complete or nearly so in all their patients, and that "râles and rhonchi return with the reexpansion of the lung in practically all cases we have studied."

Dr. Gray reports that some of his cases reexpanded and others remained permanently collapsed.

Certainly reexpansion is largely dependent on the amount of pleural involvement, and to a less degree on the amount of pressure used and the length of time collapse is maintained.

As stated, the purpose of this paper is to study the discharged patient. However, for the hearer properly to appreciate the results in the cases we have treated, a brief review of the cases treated would be desirable.

I shall deal with only 104 cases, the first of which began treatment in May, 1912, last in August, 1914. Twenty-five of these cases are to be eliminated as they proved inoperable, and are of interest only in showing that almost one case out of four had such extensive adhesion that operation was impossible. This leaves seventy-nine cases that allowed of sufficient collapse to produce therapeutic effects. Of the seventy-nine patients, thirty-five are dead; two were apparently made worse; eighteen were improved, and twenty-one were discharged and treatment stopped as being symptomatically cured.

Twelve of the eighteen marked "improved" are still under treatment.

Coming now to the twenty-one patients discharged as symptom free, nineteen were third stage, two were second stage cases, seventeen were progressive and four were stationary. Sputum was positive in all. All were febrile cases and all had tried the usual rest cure and climatic treatment. The majority were sanatorium cases and all had failed.

These patients have now been without pneumothorax treatment for the following periods: two over three years; four over two years; five over one and one-half years; six over one year, and four for six months or over. There are only three of these cases that I have not heard from within six months, and as best I can learn, of the twenty-one cases the following describes their present conditions: Two have relapsed and died; one, a physician, gave up treatment earlier than we advised and returned to Connecticut and plunged into a heavy country practice. He got on well for about a year. The other went six months after treatment was stopped before having a hemorrhage that after about a week resulted in his death. This patient led what would be a very strenuous life for any well man. Of the remaining nineteen, fifteen are well and working, and three others were when last I heard of them; one is now ready for employment.

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[7] Floyd: Boston Med. and Surg. Jour., 1913, clxix, 713.
[8] Balboni: Boston Med. and Surg. Jour., clvii, 761.
[9] Balboni: Riforma med., 1910, xxvi, 555.
[10] Dumarest and Murard: Bull. méd., Paris, 1914, p. 15.
[11] Zinn and Geppert: Beitr. z. Klin. d. Tuberk., 1915, xxxiii, 111.

Of the nineteen patients living, six show rhonchi and râles after cough. Seven are negative; six I do not know about. Of thirteen cases I have measured for contraction on the collapsed side, it varies all the way from 2¾ inches to 1 inch, averaging about 1½ inches. All of our cases except three of the more recent ones have fully reabsorbed, as we have demonstrated both by physical examination and by the fluoroscope. Seven have no sputum whatsoever, two negative sputum and four positive; of the others I do not know. The apex beat in thirteen cases showed a displacement to the left averaging about 1 inch. In all these the left lung had been collapsed.

In the important matter of the time required for treatment, ours have varied from one who received gas for thirty-four months to one who took it for only four months. They have averaged fifteen and one-half months. Besides our twenty-one patients discharged as symptom free, there were six who were discharged very much improved and able to take up some employment. Of these six, three are still working and in good shape physically, though, of course, showing marked physical signs on examination. One has died and two are in poor shape physically.

SUMMARY

Out of seventy-nine patients receiving lung collapse, nineteen are today working and in good shape physically; a number of these are symptom free. Three others discharged as improved are working but show marked involvement of the lung. To the layman this may not appear as a brilliant result, but I am sure it will to any one who has treated third stage consumptives. A good proof of the class of patients operated on is afforded by the fact that of the twenty-five patients who proved to be inoperable on account of adhesions, sixteen are dead, and seven are living but in bad shape physically. Only two are working and only one is really any better. He was perhaps the most favorable case of the 104 patients that I attempted to operate on, and I attempted it only as he had been a long time on the cure and his finances were at a low ebb. In other words, of the inoperable patients only two, or 8 per cent., are working, and only one, or 4 per cent., is improved; while of the patients operated on, twenty-two, or about 28 per cent., are working and nineteen, or 25 per cent., are in good shape physically.

Our results appear to be much better than those of other operators. I can ascribe this only to the following factors:

1. Most of our patients have been treated in our sanatorium, where the complete rest so essential to good results can be enforced. I often feel with Saugman that the procedure should not be undertaken outside an institution.

2. Our patients have been largely of the more intelligent middle class, with sufficient funds to afford proper living conditions and with sufficient brains to lend intelligent cooperation.

3. They were all treated in a very favorable year-round climate.

4. This I consider important: They received small insufflation of gas, never exceeding 500 c.c., and as a rule 250 to 350 c.c. The habit of introducing 800 to 1,000 c.c. at one operation is always sufficient explanation to me why a given operator has not had success with artificial pneumothorax.

I should add that in two cases reported on, the collapse was started by other physicians, and in one it was maintained for the last few months by another operator.

In the treatment of all patients during the last three years, my co-worker and associate, Dr. LeRoy S. Peters, has had an equal part, and such success as we have had should be credited to him quite as much as to myself.

DUODENAL ULCER

REPORT OF A CASE IN WHICH OPERATION WAS FOLLOWED BY IMPROVEMENT *

H. M. McCLANAHAN, M.D.
OMAHA

A. D., girl, aged 7 years, came under my observation, Oct. 19, 1915. Three other children in the family were all well. This child was well until 5 years of age, never having had any acute disease. In September, 1913, she was taken acutely sick with severe pain in the stomach and persistent vomiting, first of the food contents, later of green mucus, very sour. The attack subsided in two days. The child was fairly well for six months, when she was taken with a similar attack. Then there followed another period of six months of fair health. Then in October, 1914, there was another severe attack, and this was followed on the second day by a very profuse bloody discharge from the bowels. The mother said the stool was black and she was entirely certain it contained blood. There was no tenesmus associated with this. Again the child recovered. The parents noticed that she was weak for a considerable time. During the year preceding my examination, there were four separate attacks of gastric pain and vomiting. The vomited matter after every attack consisted, first, of the undigested food, and later of green mucus. During the last attack—about three months before the child came under my observation—there was again considerable dark blood in the stool, one movement containing many small dark blood clots. In the intervals of all these attacks her appetite was fairly good and the bowels were regular. Sleep was good. The parents said that while they knew the child was growing in height, she had lost about 5 pounds in weight during the year. The weight at my examination was 42 pounds.

The child was thin. The skin was soft and fair and free from blemishes. Heart and lungs normal. Liver not enlarged. No evidence of organic nervous disease. Reflexes normal. Abdomen flat; no tenderness except in the region of the pylorus. Here there could be palpated a doughy mass slightly movable, irregular in outline but no nodules and tender on pressure. There was no icterus. The most interesting symptom was a distinct peristaltic wave, or rather a series of waves passing across the stomach from left to right. This symptom was readily induced by drawing the finger across the stomach. Parents stated they had often observed this symptom. It was not attended by pain. There was a slight secondary anemia, but no leukocytosis. The urine was normal except that it con-

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* This article is abbreviated in The Journal by omission of a review of the literature. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

tained indican. No test for free hydrochloric acid in the stomach was made. Dr. John D. Reid, in his letter to me accompanying the patient, said he first noticed the peristaltic wave one year previous, but he could make out the pyloric mass before that time. I wrote Dr. Reid and I quote from my letter as follows: "From the history, presence of a mass at the pylorus, the fact that the child passed blood freely a year or more ago, and again recently, and the peristaltic wave, lead me to believe that we have a partial stenosis of the pylorus due either to an ulcer or malignancy. I told the parents that after what you had done I would advise an operation." The parents decided to wait, but returned to Omaha, Oct. 27, 1915, and the child was operated on, Oct. 28, 1915, by Dr. A. F. Jonas. I quote from Dr. Jonas' report to me of the operation as follows:

"The patient was placed under the influence of ether and the usual aseptic precautions were carried out.

"The abdominal walls were quite thin and a peristaltic wave, beginning over the left costal arch and extending toward the right and ending over the right rectus muscle, could be easily excited by tapping the abdominal wall in the epigastrium.

"A small mass could easily be felt about two fingers' breadths below the right costal arch and over the rectus muscle. A median incision disclosed a largely dilated stomach which crowded into the wound and could be lifted out on the abdominal surface.

"At the pylorus, there appeared a round circular thickening which involved the entire pyloric circumference. It was thick and firm and evidently was composed of a dense mass of connective tissue. It occupied the site of a healed duodenal ulcer.

"An attempt to invaginate the stomach, so as to enable the index finger to be pressed into the pyloric opening, indicated that the orifice was exceedingly small. The pyloric ring could not be stretched, and we evidently had a pathologic partial obstruction which retarded the escape of the gastric contents.

"A local plastic operation, at the pylorus, was out of the question on account of the large mass of new connective tissue; therefore, a posterior gastro-enterostomy was done. The operation was an easy one and involved no difficulties or complications. The patient made a good recovery."

She remained in the hospital ten days and returned home. During the first month, under a careful diet, she gained 9 pounds in weight. Then she was permitted to eat when and what she pleased and as a result she had four attacks of vomiting each lasting not more than twenty-four hours. Then, March 6, 1916, the parents wrote me that they were discouraged. I replied, telling them to put the case under Dr. Reid's care. I again wrote the doctor as to her diet, etc. From March 6 to June 1, 1916, she has been entirely free from any further symptoms and has made a steady gain in weight. Dr. Reid reported to me, June 1, that he had carefully examined the child, that the mass about the pylorus had entirely disappeared as far as he could determine by palpation, and that there was no tenderness on pressure.

COMMENT

After looking through the literature, my case seemed unusual in two particulars, namely, the appearance of the peristaltic wave and the tumor mass at the pylorus. Dr. Jonas informed me that, when he examined the mass, just beyond the pylorus, he could see radiating white lines showing through the adherent peritoneum, and at this point there was decided induration. From his extended experience he had no doubt that this was the site of a healed duodenal ulcer. The presence of the wave was to me evidence of spasm of the pyloric ring. Another evidence that the ulcer was duodenal, rather than gastric, was the clear history of intestinal hemorrhage and no evidence of hematemesis. The tendency to relapse in this case is evidence that recovery from operation does not mean recovery from the effects of the disease, that after operation medical treatment is important, indeed, essential to complete recovery. This thought has been well brought out by Dr. Sippy of Chicago. The steady improvement in the child's general health and the disappearance of the inflammatory mass is positive evidence that we were dealing with an ulcer and that the mass was not malignant.[1]

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ABSTRACT OF DISCUSSION

DR. E. E. GRAHAM, Philadelphia: Pyloric stenosis in children is not so uncommon as is ordinarily supposed. Some years ago I saw my first case of pyloric stenosis in an older child, and since then I have seen several cases of this type, some with, and some without, a tumor. Pyloric stenosis associated with duodenal ulcer may or may not be common; but I recall at least one series of cases of gastric ulcer. Dr. McClanahan's case is of unusual interest.

DR. C. G. KERLEY, New York: The peristaltic wave is a frequent indication of pyloric stenosis in infants but it is rarely found in older children. Dr. McClanahan was fortunate in that his case showed both the presence of a palpable tumor and the peristaltic wave. In my most recent case of hypertrophic stenosis in an infant aged 6 weeks, neither the operating surgeon nor I could feel a tumor through the abdominal wall. Nevertheless, on operation a pyloric tumor was found one inch in diameter. The difficulty that surrounds abdominal palpation in little children is considerable and because a tumor cannot be felt, it does not mean that such a tumor does not exist.

DR. JOHN ZAHORSKY, St. Louis: I recently had a case, a child four weeks old, which for several weeks vomited a great deal and complained of pain in the stomach. Once a little blood was demonstrable in the stool. Roentgen examination was not positive. We finally made diagnosis of duodenal ulcer. The boy got well. Most of the positive ulcer-diagnoses except those made from Roentgen examination, have been made postmortem. The chances are that these ulcers are comparatively common, but we do not diagnose them. If the ulcer is near the pylorus and involves the pyloric ring, stenosis will follow. If it does not involve the ring, we may have no further symptom, as in my case treated only a few months ago.

DR. HARRY LOWENBURG, Philadelphia: The peristaltic wave in Dr. McClanahan's case can be explained by the fact that he evidently was dealing with pyloric obstruction from some cause or other, either spasm, hypertrophy, or as he says, duodenal ulcer. I think it would be very interesting if he could make roentgenograms to find out whether the pylorus is functionating or not. In one of my earliest cases of pyloric stenosis a gastro-enterostomy was performed. Later I had roentgenograms made and they showed that the pylorus was not functioning, that the artificial opening was doing the work. This child, at the age of 8 years, is living and in good health. I probably have seen about thirty or forty cases of pyloric obstruction of one type or another. I have had about nine operated on. All had gastro-enterostomies done. I understand that of late pyloroplasties are becoming more popular—the Ramstedt operation as modified by Strauss of Chicago, for instance. Dr. Strauss reports very good results, but pediatrists and surgeons whom I have spoken to feel that it is a difficult operation, except when performed by Strauss himself, perhaps. Surgeons generally seem to feel that the Ramstedt operation is not the thing to do. I saw one about two weeks ago in which the operator, instead of going down to the mucosa, included the mucosa in his incision. In that case gastro-enterostomy had to be done anyway. From results in my own cases I should be led to prefer posterior gastro-enterostomy.

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[1] The following articles on gastric and duodenal ulcer in children will prove of interest:

Friedenwald, Julius: Am. Jour. Med. Sc., August, 1912.
Borden, Veeder: Am. Jour. Med. Sc., November, 1914.
Schmidt, W.: Berl. klin. Wchnschr., March, 1913, abstr., Arch. Pediat., xxx, 383.
Flesch, Herman: Jahrb. f. Kinderh., 1912, xxvi, No. 5; abstr., Arch. Pediat., June, 1913.
Bichat and Imfeld, in Cheinisse: Sem. méd., September, 1913; abstr., THE JOURNAL A. M. A., Oct. 4, 1913, p. 1332.
Holt, L. E.: Duodenal Ulcers in Infancy, Am. Jour. Dis. Child., December, 1913, p. 381.
Gerdine, Linton, and Helmholz, H. F.: Duodenal Ulcer in Infancy an Infectious Disease, Am. Jour. Dis. Child., December, 1915, p. 397.
Cackovi, M. V.: Arch. f. klin. Chir., June, 1912; abstr., Arch. Pediat., xxix, 630.
Lansier: Thèses de Paris, 1908, 1909; abstr., Brit. Jour. Dis. Child., October, 1909.
Zentralbl. f. d. ges. Therap., September, 1909; abstr., Arch. Pediat., May, 1910.
Lockwood: Pediatrics, March, 1914.
Smithies, F.: Gastric Ulcer Without Food Retention, Am. Jour. Med. Sc., March, 1913, abstr., THE JOURNAL A. M. A., March 29, 1913, p. 1025.
Sippy, B. W.: Gastric and Duodenal Ulcer, THE JOURNAL A. M. A., May 15, 1915, p. 1625.

Dr. Collins H. Johnston, Grand Rapids, Mich.: Last fall Dr. Richard Smith did the Strauss operation on a four months' old baby, the first case that ever lived in our city. The operation is not especially difficult and there was not much shock following it. We think Strauss' method is a very good one.

Dr. J. H. Hess, Chicago: In our own hospital we have had very hard luck with gastro-enterostomy, and this led Dr. Strauss to undertake his work on the pylorus. I think we have had twelve operations to date, of which ten were done by Dr. Strauss, and in six of these operations I was present. He usually has a physician present to wash out the stomach, which accounts for my presence. His patients, with one exception, are all living. The operation itself, when understood, I think is a fairly simple one. The advantage it has over the Ramstedt operation is questionable in possibly 50 per cent. of the cases; in the other 50 per cent. it has a real advantage, because he reduces the size of the tumor, and at the same time enlarges the pyloric orifice.

Dr. H. W. McClanahan, Omaha: Much of the discussion applies to another condition. In the case I have reported, the peristaltic wave was to me an unusual symptom as the mass was no doubt an inflammatory exudate. As soon as the source of irritation was removed, the exudate was absorbed. We did not have a roentgenogram made because so long as the little girl was quite well, the father did not see any reason for making it.

DEATH RATE IN ACUTE INFECTIONS

A STUDY OF THE MORTALITY IN PHILADELPHIA DURING 1911-1915 FROM MEASLES, PERTUSSIS, DIPHTHERIA, SCARLET FEVER AND TYPHOID FEVER *

EDWIN E. GRAHAM, M.D.

PHILADELPHIA

Through the courtesy of the bureau of health, I have secured a record of the deaths from these acute infections during the past five years; and, while this record may possibly be incomplete, owing to the failure of physicians to recognize or report some cases, yet the study of these statistics will lead to several interesting conclusions.

In one or two diseases the conclusions arrived at on comparing the number of deaths from these diseases will differ from the general opinion concerning the mortality from these maladies. The most effective method of demonstrating this mortality is to group the fatalities according to the ages at which they occur.

In considering the deaths among infants less than 1 year old, we find that pertussis was responsible for the greatest number, this having caused more fatalities than measles, diphtheria or the dreaded scarlet fever. Measles shows the next highest mortality, although the number of deaths does not greatly exceed those caused by diphtheria in infants of this age. Excepting typhoid fever, which is rare in infants, scarlet fever caused fewer deaths in this period of early infancy than any of the acute infectious diseases in this series.

In later infancy, also, scarlet fever caused but few deaths, for the mortality among babies from 1 to 2 years of age was only 10 per cent. of the mortality from scarlet fever at all ages, while the actual number of deaths from scarlet fever was less than from any of the other acute infections excepting typhoid fever.

During the second year, diphtheria showed a uniformly high mortality, and caused more deaths than either measles, pertussis, typhoid fever or scarlet fever. More deaths occurred from measles among infants from 1 to 2 years of age than at any other period of life, a fact which should make us more careful to protect the younger children of the family in which this disease appears. Pertussis, while not as fatal after the first year, also showed a high mortality rate — higher, perhaps, than is generally appreciated — and indicates the gravity of this disease, which is too often spoken of as harmless.

TABLE 1.—DEATHS FROM SCARLET FEVER, MEASLES, DIPHTHERIA, WHOOPING COUGH, AND TYPHOID FEVER AT DIFFERENT AGES

	1911	1912	1913	1914	1915
Under 1 year:					
Scarlet fever	7	3	3	4	1
Measles	72	7	49	19	45
Diphtheria	33	26	22	19	24
Whooping cough	41	53	51	135	18
Typhoid fever	0	0	0	0	0
From 1 to 2 years:					
Scarlet fever	19	8	13	0	0
Measles	104	19	86	32	81
Diphtheria	93	77	87	72	70
Whooping cough	37	18	25	74	17
Typhoid fever	4	3	2	1	0
From 2 to 5 years:					
Scarlet fever	85	55	71	60	8
Measles	96	21	53	20	38
Diphtheria	229	163	152	141	119
Whooping cough	32	22	22	45	10
Typhoid fever	10	7	10	5	2
From 5 to 10 years:					
Scarlet fever	39	34	54	34	4
Measles	20	2	7	4	4
Diphtheria	100	79	79	70	68
Whooping cough	5	6	8	10	2
Typhoid fever	14	7	13	8	5
From 10 to 15 years:					
Scarlet fever	7	6	9	5	3
Measles	4	0	1	1	0
Diphtheria	10	12	8	9	10
Whooping cough	0	0	0	1	0
Typhoid fever	15	18	17	12	13
From 15 to 20 years:					
Scarlet fever	7	1	2	4	2
Measles	4	1	0	0	1
Diphtheria	2	5	1	1	4
Whooping cough	0	1	0	0	0
Typhoid fever	24	29	26	17	19
All ages:					
Scarlet fever	179	113	162	129	25
Measles	305	50	199	77	167
Diphtheria	481	388	361	323	188
Whooping cough	116	100	106	266	67
Typhoid fever	223	200	255	124	109

Typhoid fever, which caused no deaths in infants under 1 year of age, showed the lowest mortality of all the acute infections in infants from 1 to 2 years of age, the total number of deaths recorded being but ten. The number of deaths from typhoid in infants of this age has steadily decreased for the last five years, having dropped from four in 1911 to none in 1915.

From the second to the fifth year, diphtheria caused more deaths than all of the acute infections in this series combined. Scarlet fever showed the next highest mortality at this age as compared with the number of deaths caused by the other acute infections in this series; it also caused more deaths among children between 2 and 5 years of age than at any other period of life. The total number of deaths from scarlet fever between 2 and 5 years of age does not, however, greatly exceed the mortality from measles at this period;

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hence we must conclude that measles is a serious disease in children from 2 to 5 years of age.

Whooping cough caused almost as many deaths in children between 2 and 5 years of age as in those under 2 years of age; therefore it must be regarded as serious during the first five years of life. Typhoid fever presents an ever-increasing mortality as the child grows older; hence we find that the number of deaths in children from 2 to 5 years exceeds the number of deaths in infancy, and each year shows a greater mortality until early adult life, when the greatest number of deaths from typhoid occur.

Between 5 and 10 years of age, diphtheria caused more deaths than all the other acute infections together, so that from the second to the tenth year the mortality from diphtheria is higher than that of all the other acute infections combined. The mortality from scarlet fever in children of this age is less than half that of diphtheria during the same period, but greatly exceeds the mortality from either measles, pertussis or typhoid fever at this age.

Typhoid fever stands third in the mortality lists of children at this age, although this mortality is but slightly higher than in the preceding period. Measles loses its virulence as the child grows older, causing less than 20 per cent. of the number of deaths in children from 5 to 10 years of age as compared with children from 2 to 5 years of age. The mortality from whooping cough also decreases steadily after the fifth year, and in children from 5 to 10 years old is less than one fourth of that in the preceding period (from 2 to 5 years).

In children from 10 to 15 years of age the mortality from these acute infections forms a striking contrast to the mortality from the same diseases in infants under 1 year of age. Whooping cough, which leads as a cause of death before the first year, causes practically no mortality in children over 10 years of age, only one death in five years being recorded in children from 10 to 15 years of age. On the other hand, typhoid fever, which caused no deaths in infants under 1 year of age, shows a higher mortality rate in children between 10 and 15 years than any other of these acute infections.

Deaths due to diphtheria, among children of this age, rank second, and more than equal the number of deaths from scarlet fever, measles, and whooping cough combined. The mortality at this time of life from scarlet fever is very low, and but slightly exceeds that of measles, while the number of deaths from pertussis is practically nil, only one fatality being recorded in five years.

Between the fifteenth and twentieth years there was an appreciable increase in the number of deaths from typhoid fever, and but one fatality due to whooping cough. Scarlet fever caused the second highest number of deaths, and diphtheria ranked third, while measles for the five years of this period showed but six deaths. Fatalities from the acute contagious diseases are very few after the fifteenth year, and the mortality from all of them combined does not equal that of typhoid fever in young people of the same age during the five years which these records cover.

I wish particularly to call attention to the number of deaths due to scarlet fever during these five years from 1911 to 1915, inclusive, at the different ages. The total number of deaths from scarlet fever at all ages for the five years was given as 608, but is slightly more, since the records for 1914 and 1915 of fatalities in children between 1 and 2 years of age are incomplete. Of these 608 deaths, 279, or 45 per cent., occurred between the second and fifth years, and the next highest number, 185, or 30 per cent., occurred in children from 5 to 10 years of age. In the first year of infancy, the mortality from scarlet fever, compared with the mortality from scarlet fever at all ages, is 3 per cent.; from the first to the second year it is about 10 per cent.; after the tenth year it drops to 5 per cent., and after the fifteenth year it is only 2.6 per cent.

Comparing this total of 608 deaths from scarlet fever in children of all ages for the five years, 1911 to 1915, inclusive, with the total mortality from all of the other acute infections, at all ages and for the same period of time, we find it less than any one of them, notwithstanding the dread of scarlet fever in the public mind. The deaths from pertussis, which is looked on in an entirely different light, number 655 for all ages during the five years, which is slightly more than from scarlet fever.

According to Dr. Paul Luttinger, of the Bureau of Laboratories, New York City, in pertussis the highest incidence and mortality — 56 per cent. — have been observed among females, the incidence and mortality in males being 44 per cent. This has been attributed to anatomic differences in the construction of the larynx, and is, perhaps, also due to a nervous system which is more susceptible in girls than in boys. The influence of sex is apparent at all ages, and it would appear from our present knowledge that it becomes more evident the older the girls are.

It is difficult to state positively what the true case incidence mortality is. All cases of pertussis are not reported, especially the mild and atypical ones. The law, in Pennsylvania, placards the house, but excludes from school only the children who actually have the disease, allowing the other children to go to school if they are free from symptoms. If this law were better understood by physicians and the laity, more cases would undoubtedly be reported.

The true case mortality, when one includes the mild and atypical cases, is certainly much less than statistics ordinarily indicate.

Diphtheria is in reality the most fatal of the acute infections in this group, since it caused approximately twice as many deaths as any of the others, the total number being 1,741 for all ages during the years 1911 to 1915, inclusive. Typhoid fever caused the next highest number of deaths for all ages in this group; but the fatalities probably do not now rank second, as the mortality dropped during the years 1914 and 1915 to one half of the rate for the three preceding years, and it is only reasonable to assume that it remains at this low figure.

The fact that measles at all ages during this period of five years caused more deaths than either scarlet fever or whooping cough would, perhaps, if more widely known among the laity, tend to prevent the spread of the disease, and do much to break up the popular habit of allowing children to contract measles at the first opportunity "because they are sure to get it sometime, anyway."

For the fuller comprehension of the mortality returns in the acute infections with which this paper deals, it seems advisable to compare the number of deaths with the number of cases of these diseases which were reported, as in Table 2.

During the five years from 1911 to 1915, there were 50,715 cases of measles reported; that is, more than one and a half times as many cases as of pertussis, typhoid fever, scarlet fever and diphtheria combined; yet of all these diseases, measles ranked only third in the number of deaths it caused, the mortality, 798, being only 1.1 + per cent.

Next in the largest number of cases was diphtheria, 14,720 cases being reported for these five years, with 1,741 deaths, which gives a mortality of about 11.8 per cent. The bureau of health, in its annual report for 1914, states that during the last ten years the case death rate of diphtheria has not changed more than 1 per cent., notwithstanding the use of antitoxin, and the bureau of health attributes this to the late recognition of the disease by the parents rather than to a lack of efficient treatment by the medical profession.

Scarlet fever was the third most prevalent disease in this series, 11,216 cases being reported, although the number of deaths resulting was less than from any of the other diseases. The bureau of health makes the observation that in the years when there were most cases of scarlet fever the mortality was lower; but when the number of cases was fewer, the mortality was higher. The total number of deaths, 608 among 11,216 cases reported, gives a mortality rate of 5.4 per cent.

There were 9,461 cases of whooping cough reported during these five years, or nearly 2,000 less than the number of scarlet fever cases; yet the number of deaths, 655, was greater, and the mortality rate slightly less than 7 per cent.; that is, 1.6 per cent. higher than for scarlet fever during this same period.

TABLE 2.—PERCENTAGE OF DEATHS TO TOTAL NUMBER OF CASES OF MEASLES, DIPHTHERIA, SCARLET FEVER, WHOOPING COUGH, AND TYPHOID FEVER FROM 1911-1915, INCLUSIVE

	1911	1912	1913	1914	1915	Number of Cases	Number of Deaths	Percentage of Deaths to Cases
Measles..........	11,640	2,279	15,611	7,096	14,089	50,715	798	1.1+
Diphtheria.......	3,792	3,080	2,623	2,610	2,615	14,720	1,741	11.8
Scarlet fever.....	1,928	2,872	3,400	1,944	1,072	11,216	608	5.4
Whooping cough	1,410	1,369	1,438	4,152	1,092	9,461	655	7.0—
Typhoid fever...	1,382	1,514	1,698	793	787	6,174	911	14.5
Totals.......	.....	....	.....	....	.....	92,286	4,713	

The number of cases of typhoid fever reported from 1911 to 1915, inclusive, was 6,174, and the number of deaths 911, giving a mortality rate of over 14.5 per cent., which is higher than that of any of the other acute infections that we have considered. In our discussion of the number of deaths from typhoid and the ages at which they occurred, we noted the fact that the number of deaths decreased to one half in the years following 1913, and in summing up the number of cases reported during these five years we find that in 1914 and 1915 only half as many cases were recorded as in 1911, 1912 and 1913. This is largely attributed by the bureau of health to the removal of the dual systems of water supply which existed in several manufacturing establishments in 1913, and the subsequent stopping of intermittent contamination of the city mains. The pasteurization of our milk supply has also been undoubtedly an important factor in diminishing the cases of typhoid fever during childhood.

Of all the diseases considered in this article, diphtheria caused the most deaths during the five years 1911 to 1915, inclusive, and typhoid fever, measles, pertussis and scarlet fever followed in the order named.

With respect to the prevalence of these diseases, measles led by a great majority over all the rest combined, while diphtheria, scarlet fever, whooping cough and typhoid fever followed in the order mentioned. The disease with the highest death rate was typhoid fever, while diphtheria, whooping cough, scarlet fever and measles showed the next highest mortality rate in the order given.

ABSTRACT OF DISCUSSION

Dr. Isaac Abt, Chicago: More children fall ill with measles than with scarlet fever—the chart shows 50,715 cases of measles to 11,216 cases of scarlet fever. My impression would be, the immunity against measles is less than the immunity against scarlet fever. I wonder if it might not be explained in this way. Many a child with sore throat may really be infected with the organism of scarlet fever, and yet not show skin reaction. Another point in reference to scarlet fever is, according to the geographers, epidemics both mild and severe occur. Year after year mild epidemics will occur, and then some year a severe epidemic, almost a panepidemic, will occur, the number affected is very large, and the mortality is very great. The point that I desire to make is that the severity of measles from year to year is uniform, that it makes definite symptoms and rarely remains unrecognized; whereas in scarlet fever the symptoms vary from mild to severe, and I am of the impression that scarlet fever occurs more frequently as an unrecognized disease than we commonly suppose. Just a word about diphtheria. It is a sad commentary, not only as to Philadelphia, but as to all of our cities, that a disease which can be cured by specific treatment should present such a high mortality. It seems to me we are partly responsible and the parents are partly responsible. Frequently we are not called to see the case until the disease is far advanced. Our responsibility depends on the fact that we do not make diagnoses earlier. We are prone to wait for the report from the bacteriologic laboratory; this is time consuming. The laboratory report itself may sometimes be fallacious. It not infrequently happens that the culture is positive for Klebs-Löffler bacilli on the second or third examination. I would make a plea for more careful and accurate clinical diagnoses of diphtheria. Our predecessors had definite ideas as to the clinical appearance of the membrane in diphtheria. Their diagnostic accumen on this subject was accurate, they recognized a diphtheritic membrane when they saw it. When the membrane is diffuse, pearly white, or in the later stages, of a cream color, encroaching on the midline of the pharynx or the uvula with beginning stenosis of the larynx or with nasal involvement indicated by a thick albuminous bloody discharge, under such circumstances a real clinician need not wait for a bacteriologic examination. The antitoxin should be administered forthwith. It seems to me occasionally we lose sight of the clinical signs and depend too much on the laboratory.

Dr. G. G. Copeland, Toronto, Canada: The points that should strike home are the frightful mortality of measles and whooping cough. That is not generally appreciated throughout the profession, either in Canada or the United States. I should like to ask Dr. Graham: What are the relative proportions of children under 1 year of age who have contracted these diseases that are breast fed, as compared with those artificially fed? I believe the mother's milk protects the infant.

Dr. Jessie M. McGavin, Portland, Ore.: I think it is especially important to give the antitoxin early, without waiting for the laboratory report. In Portland twelve hours elapse before we can get a report from the laboratory. In some cases we may have the clinical appearance and yet the laboratory report may be negative. I think antitoxin should be given on suspicion of diphtheria. In several instances lives were saved by the use of antitoxin when the laboratory reports at first were negative. Therefore I give antitoxin on the clinical findings.

Dr. C. F. Hoover, Cleveland: Recently I gathered statistics on the mortality of whooping cough and I found that, according to German statistics, it was 25 per cent. under 1 year of age. I believe statistics given from the California State Health Department recently show a death rate of 2 per cent. from whooping cough under 1 year of age. One other thing I noticed was that the locality had much to do with the mortality of whooping cough. In the higher altitudes it is much more fatal. For instance, in North Carolina the mortality of whooping cough is greater than of all the other infectious diseases combined.

Dr. L. T. Royster, Norfolk, Va.: I think delay on the part of the physician to obtain a positive culture undoubtedly is responsible for many deaths, and we should urge young medical men to base their diagnoses and beginning of treatment on clinical symptoms. Long before I was in the State Department of Health, when Dr. Dixon organized the department in Philadelphia, he declined to permit the use of the laboratory for the diagnosis of diphtheria. From 12 to 24 hours and in remote sections, 36 hours, elapse before the positive diagnosis is made. That very often means life or death to the patient. It is much wiser to administer the antitoxin early on a clinical diagnosis rather than to wait for the laboratory report. Another cause for the high mortality is the increasing number of various cults, practiced by people not trained in diagnosis, who are pretending to treat people for conditions they know nothing about. In Philadelphia at present they are having an extremely mild type of diphtheria with a low death rate. A few years ago, I think in 1910, we had an importation of a new strain—a type prevalent in southern Europe in the vicinity of Vienna and the Slavish sections of Europe for a number of years. Examination of the case records revealed that they were having a death rate in Vienna of 18 per cent., while we were having a death rate of only 7 per cent. I think our death rate in hospitals now is only about 2 per cent. I have been trying to determine whether the mixed streptococcic serum might be helpful in the treatment of these cases. In Vienna they got some improvement in cases treated with this serum. Scarlet fever does not yield to public health control at the present time as we would like to have it do. The case rate and mortality fluctuates in spite of all our present methods, just as the case rate and mortality rate in measles fluctuates. In diphtheria with the free use of antitoxin the death rate has steadily declined. Although I am much in favor of giving antitoxin and not waiting for laboratory diagnosis, I would like to put in a plea for the taking of cultures in every case of sore throat. It only takes four or five hours for the culture to grow. We can get the culture findings sometimes before we can get our clinical manifestations.

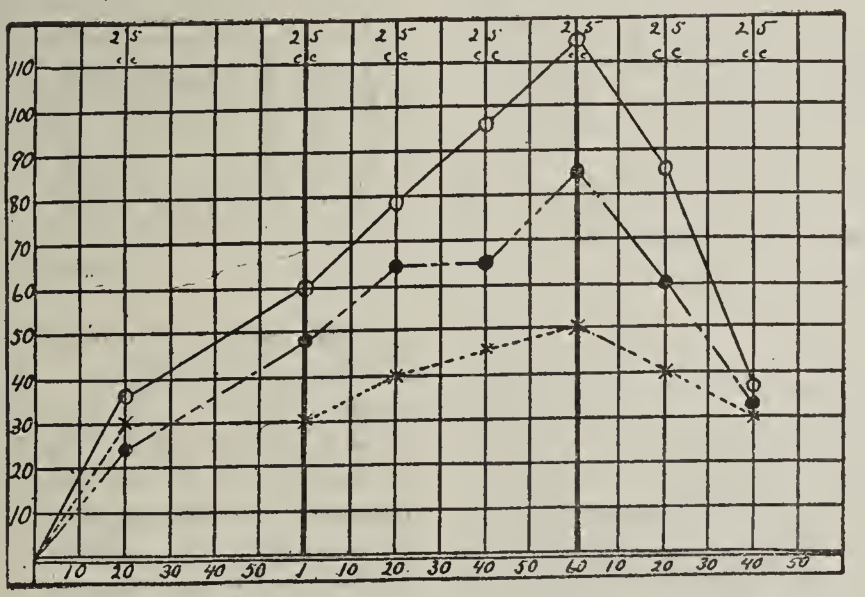

Chart 1.—Chart of Mr. R. L. S. In this and the following charts, unless otherwise noted, the hollow dots and solid line indicate total acidity; solid dots and broken line, free hydrochloric acid; crosses and line of dashes, pepsin, 10 = 1 mm.

Dr. C. G. Kerley, New York: The subject is a very large one and it is impossible to discuss it very fully. The work done by Dr. Graham is very complete and it will be a great advantage to our knowledge of the subject. I feel it would have been better if those between 15 and 20 years of age had been left out. After the fifteenth year, the individual is not a child and hardly should be included in statistics on children. The mortality from diphtheria is high as well as that of typhoid. The same trouble evidently exists in Philadelphia as in New York, namely, the impossibility of seeing cases of diphtheria early. The child not being particularly ill at the onset of the disease, renders the disease very dangerous. We are called to see our tonsillitis cases much sooner than we see those ill with diphtheria for the reason that in tonsillitis there is the high fever, prostration and symptoms of urgent illness, whereas in early diphtheria the child appears only slightly ill and he is often three or four or five days treated by home methods before the physician is called. The fatal issue among the poorer people is not at all unusual in children who have been in bed but a day or two.

Dr. F. D. Barker, Dayton, Ohio: I would like to emphasize one practical point referred to by Dr. Royster, the distressing persistence of scarlet fever in epidemics. In April more than 40 per cent. of cases of scarlet fever in Dayton were in families in which the scarlet fever was persisting or recurring. A careful study showed that they were not persons who had become infected at the same time as the first patient who had recovered. The source of infection evidently had been overlooked. The original patients were well and not included in these statistics, but the source of infection was persistent.

Dr. E. E. Graham, Philadelphia: I tried to emphasize the importance of treating diphtheria from a clinical rather than from a laboratory standpoint. Of course, we make our diagnosis in either laboratory or clinical study, but if the case were treated from a clinical standpoint rather than from a laboratory standpoint, the mortality would be much reduced. In regard to whether pertussis in the first year occurs more largely in the breast-fed or bottle-fed, I have no records. I should, however, suppose that, the breast-fed child being more robust and better able to resist infection, such a record would show fewer deaths in these than in bottle fed. To show just what relation they bore to childhood as well as to early adult life is the reason I included the patients over 15. The mortality of typhoid I do not believe is as high as that record would indicate. Mild cases are probably overlooked in children.

FRACTIONAL DETERMINATION OF GASTRIC SECRETIONS *

ERNEST C. FISHBAUGH, A.M., M.D.

LOS ANGELES

The fractional determination of gastric digestion had its inception among students of stomach physiology, and as early as 1895, Schüle[1] presented curves of gastric secretion. These were formulated by plotting the amount of acid, free, combined and total, found on the titration of gastric juice withdrawn at fifteen minute intervals during the cycle of digestion. From his observations on healthy persons he arrived at the following conclusions: 1. "Values of the free as well as the combined hydrochloric acid and of the total acidity differed considerably in the same individual and in different people, too, without demonstrable cause." 2. "Height of digestion occurs sixty minutes after the Ewald test breakfast, varying in individual cases from forty-five to seventy-five minutes."

Hayem[2] later did splendid work by removing specimens at intervals with the stomach tube. The procedure of frequent introduction of the stomach tube naturally caused a difficulty in securing subjects.

The excellent experiments of Pawlow[3] have for a number of years stood almost unquestioned as repre-

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* Read before the Southern California Medical Society, May 3, 1916, Pomona, Calif.

1. Schüle: Ztschr. f. klin. Med., 1895, xxviii.
2. Hayem: Maladies de la tube digestive, Brouardel and Gilbert, 1905.
3. Pawlow: The Work of the Digestive Glands, 1910.

senting clear evidence of the exact nature of gastric secretion. These experiments were performed on animals, chiefly dogs, and the digestive cycle observed has been almost unqualifiedly applied to man. This application does not seem justifiable since the functions recorded on a traumatized stomach must be more or less perverted.

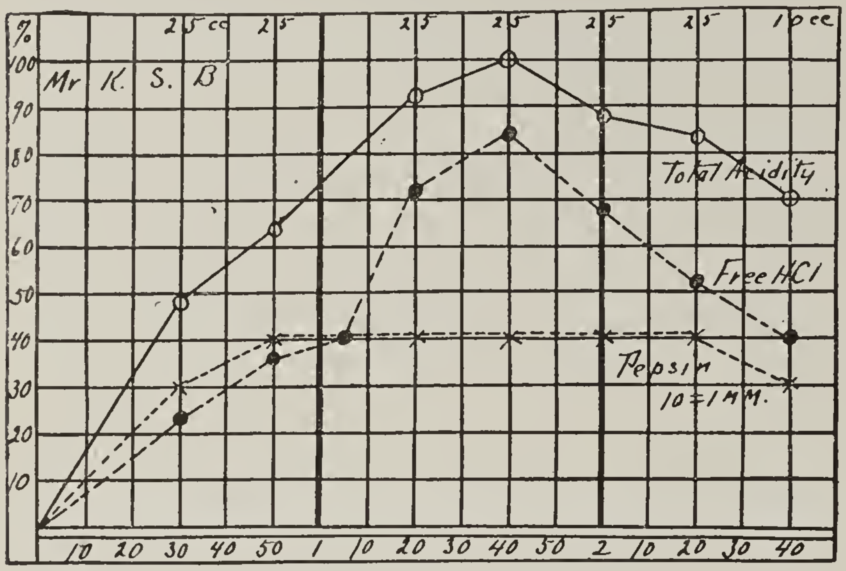

Chart 2.—Mr. K. S. B.

Even the well known observations on the famous case of Alexis St. Martin, as regards the cycle of digestion and gastric secretions, cannot be directly applied to the function of the nontraumatized human stomach.

Bourget[4] was not the first clinician to insist that the untraumatized human stomach must be studied directly and in a normal condition and that the universal application of animal experimentation to man must be modified; otherwise the physiology of the human stomach would not progress.

Until the last couple of years, little advance had been made in the study of the cycle of digestion, and this was chiefly due to the fact that there was no simple and practical method of obtaining interval specimens of a test meal except by the repeated use of the stomach tube. This, of course, was most objectionable to the patients. Rehfuss,[5] realizing the inadequacy of the ordinary stomach tubes, developed a tube of his own and has since presented many excellent studies in gastric physiology and pathology. The chief advantage of the tube which he devised lay in the fact that the metal tip contained slitlike openings, each of which was equal in width to the diameter of the small rubber tube. The increased size of these openings made aspiration somewhat easier than when the tip contained only small perforations. The Einhorn duodenal tube and many others of a similar type can be successfully used in the same manner, but with less ease than the Rehfuss tube.

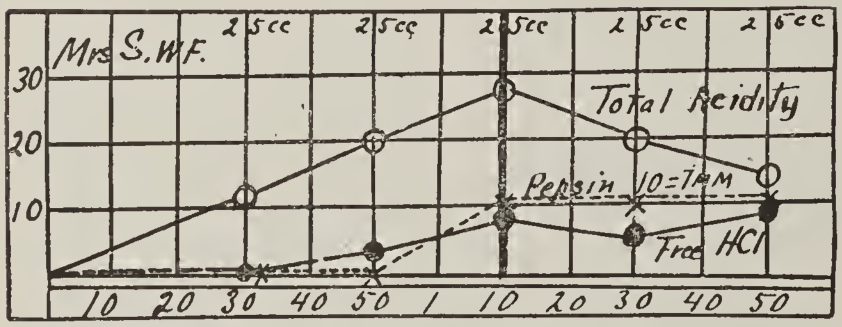

Chart 3.—Mrs. S. W. F.

Rehfuss, Bergeim and Hawk[6] found in healthy medical students that "each individual exhibits a certain tendency in the elaboration of his secretion, and this tendency is the same be the stimulus an Ewald meal, water or meat." They found that the acidity figures for the various stimuli were approximately the same. They found, furthermore, that even though there was a variation in the figures, the type of curve persisted in that individual.

The technic followed in this study has been, in the main, that of Rehfuss,[7] with variations in details only. Forty gm. of water crackers with 10 ounces of water, about 2 ounces of which were reserved to be swallowed with the tube, were given as a test breakfast. Usually about ten minutes were required for the ingestion of the crackers and water. Immediately the tube was swallowed with the remainder of the water. The excess of saliva which formed rapidly during the first few minutes was expectorated. If the saliva was swallowed, it interfered materially with the ease of the aspirations. After the first few minutes the patient suffered no inconvenience with the tube in his mouth. The patient was placed at ease—either sitting or lying down, and urged to read or otherwise divert his attention. At twenty minute intervals, from 15 to 25 c.c. of the stomach contents were withdrawn until the stomach was empty. The aspirations were made by gentle suction. When aspiration was not possible by gentle suction, it indicated that the tube was occluded, openings of the metal tip were covered by folds of mucous membrane, or the tip was above the fluid level in the stomach. These difficulties were as a rule overcome easily by forcing a little air into the tube, by varying the amount of tube swallowed or by changing the position of the patient. The stomach was considered empty when no more fluid could be aspirated with the patient placed in the dorsal, right and left lateral and often the knee-chest positions.

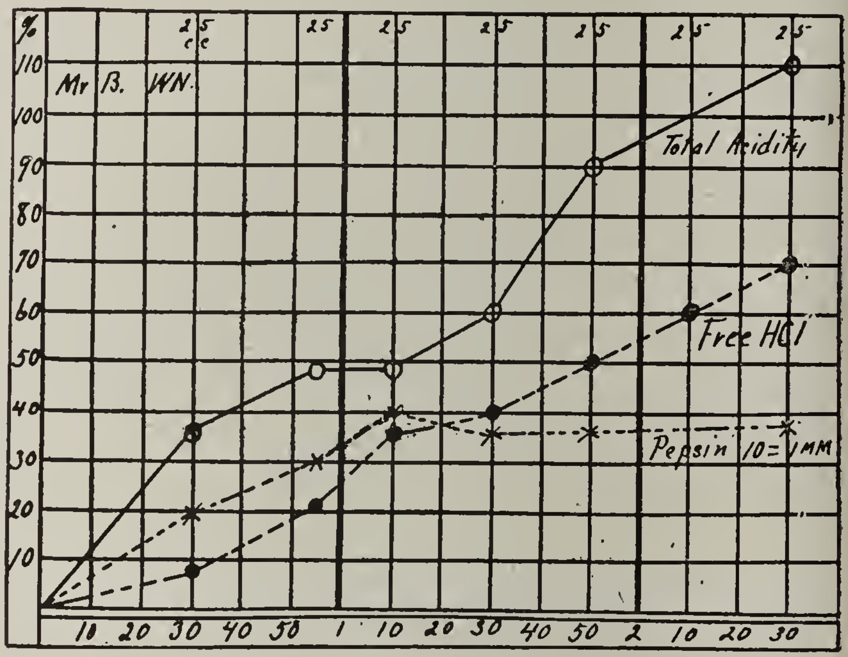

Chart 4.—Mr. B. W. N.

The material from each aspiration was filtered and measured off by means of a graduated pipet. Phenolphthalein was used as an indicator in determination of the total acidity, and dimethylaminoazobenzene for the free hydrochloric acid, and each titrated with tenth normal sodium hydroxid. The pepsin was determined by adding to an undiluted portion of each filtrate a Mette tube, and measuring at the end of twenty-four hours the amount of digestion, by means of a millimeter rule and a magnifying lens.

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[4] Bourget: Maladies de l'estomac, Ed. 1, 1913, p. 3.

[5] Rehfuss: Am. Jour. Med. Sc., June, 1914, p. 848.

[6] Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residium Found in the Empty Stomach, The Journal A. M. A., July 4, 1914, p. 11.

[7] Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, II, The Fractional Study of Gastric Digestion, with a Description of Normal and Pathologic Curves, The Journal A. M. A., Sept. 12, 1914, p. 909.

In reviewing the fractional studies of sixty-five gastric cases, the value of the interval method of stomach analysis becomes evident. The ordinary one hour examination evidences a single moment in an ever changing cycle of stomach activity. The one hour examination not only affords insufficient information but also gives data which frequently are misleading or entirely incorrect. Irrespective of symptomatology and physical diagnosis, it was noted that aside from emphasizing the value of the method, the curves of stomach secretions fell into three general classes.

1. Stomach secretions whose curves fall toward the end of gastric digestion.

2. Stomach secretions whose curves rise to the end of gastric digestion.

3. Stomach secretions absent or delayed.

Group 1. Stomach Secretions Whose Curves Fall Toward the End of Gastric Digestion: Of the sixty-five cases, twenty-six exhibited a fall in the secretory curves toward the end of gastric digestion.

Chart 1 represents this sort of curve. The secretions began early in the cycle, and at the end of one hour there was a free hydrochloric acidity percentage of 48 and a pepsin digestion which had gradually increased to 3 mm.; but the acidity as well as the enzyme continued to rise until at the end of two hours there was a free hydrochloric acidity of 85 and a pepsin digestion of 5 mm. During the next forty minutes there was a gradual fall in acidity and enzyme. In this case the enzyme digestion followed the acidity curve very closely.

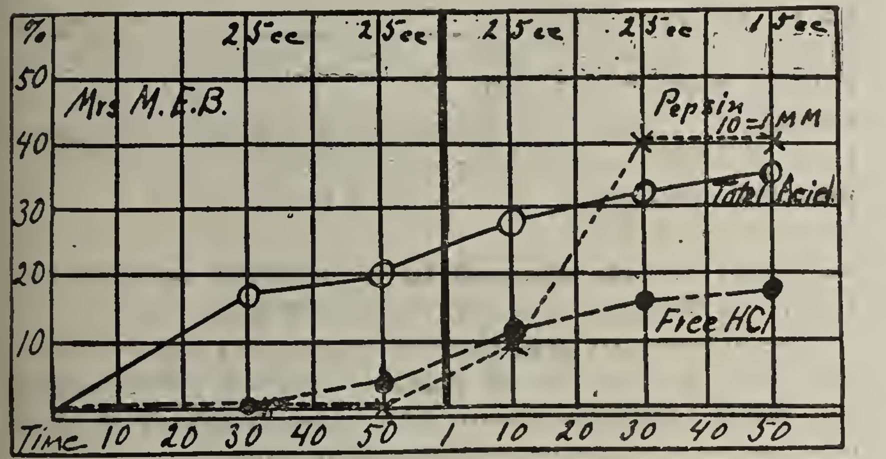

Chart 5.—Mrs. M. E. B.

Chart 2 shows a similar type of curve, the highest acidity figures being reached at the end of one hour and forty minutes. It differs from Chart 1 in that the pepsin does not follow the acidity curve. At the end of fifty minutes the pepsin digestion was 4 mm. and remained at that level, although in the next fifty minutes the free as well as the total acidity more than doubled in percentage.

In this group of cases the height of acidity varied from the high figures in the foregoing curves to the very low acidity and enzyme curves shown in Chart 3.

This type of curve is represented by all graduations from the hypacidity to the hyperacidity, and from the hyposecretion to the hypersecretion. In only four cases of the twenty-six was the free hydrochloric acid at its height within one hour after ingestion of the test breakfast. In the remaining twenty-two cases the height of the free hydrochloric acid curve was reached at varying lengths of time up to two hours and forty minutes after the breakfast. On an average of the twenty-six cases the height of the free acidity curve was reached one hour and thirty-one minutes after the meal, thereby showing that the height of secretion is missed by the one hour examination in a very high percentage of the cases. In this group the highest acidity percentage of free hydrochloric acid varied from 8 to 88, with an average of 52.2.

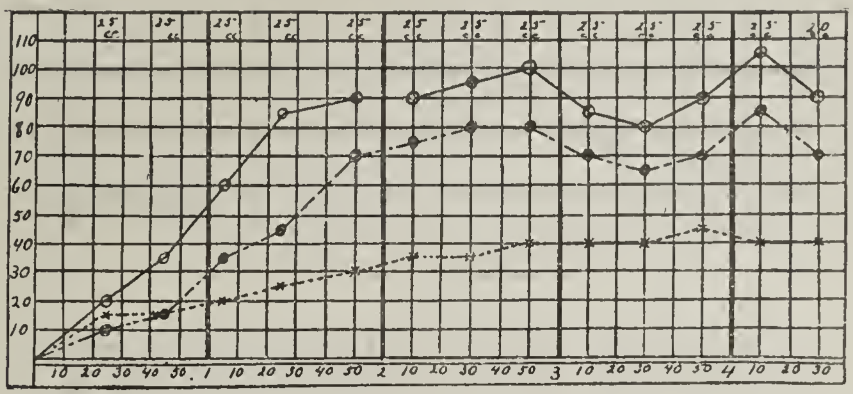

Chart 6.—Mrs. A. G. A. Crosses and line of dashes indicate pepsin digestion, 10 = 1.

A question naturally arising is, Why a fall in the secretory curve toward the end of gastric digestion? It would seem that two factors must be considered preeminently:

1. A portion of the acidity may be neutralized by the meal itself. A quantity of water crackers were well mixed with a standard solution of hydrochloric acid, tenth normal, and allowed to stand at room temperature for varying lengths of time when portions were filtered and the filtrate titrated against tenth normal sodium hydroxid. It was thereby found that this factor could be eliminated as a cause of the fall in the curve toward the end of digestion in the stomach.

2. During digestion the secretory activity in enzymes and acid is dependent on a stimulus, psychic, chemical or reflex, and as the stimulus disappears there would naturally follow a fall in the secretions. In this group of cases it would appear that such a condition was present and that toward the end of gastric digestion the glands of the stomach continued to secrete, but produced a juice decreasingly poor in enzyme and acid constituents, thereby diluting the once concentrated solution and producing a fall in the curves.

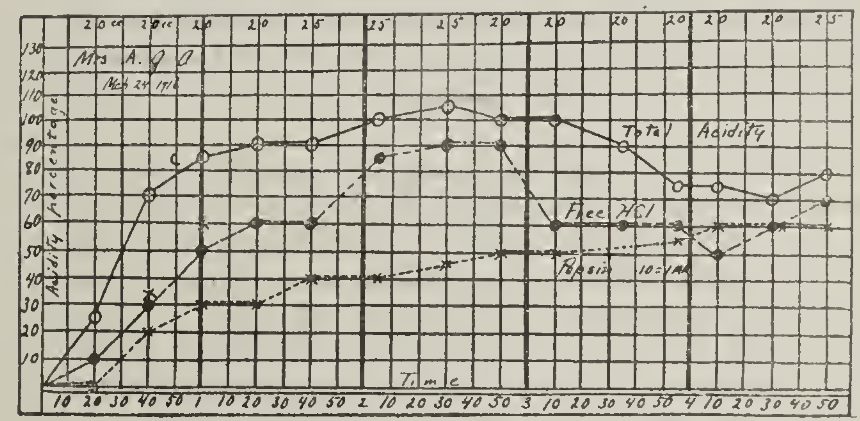

Chart 7.—Mrs. A. G. A., March 24, 1916.

Group 2. Stomach Secretions Whose Curves Rise to the End of Gastric Digestion: Of the sixty-five cases, twenty-four fell into a class where the acidity figures continued to rise until the stomach was empty. Chart 4 represents this type of curves with rather high acidity figures. At the end of one hour there was a free hydrochloric acidity of only 36 per cent., but by the time the stomach was empty the percentage of free hydrochloric acid had doubled and the total acidity had more than doubled. The pepsin reached its highest point at the end of one hour and ten minutes.

Chart 5 shows a similar type of curve, but with low acidity figures. The ferment pepsin did not appear until after the free hydrochloric acid.

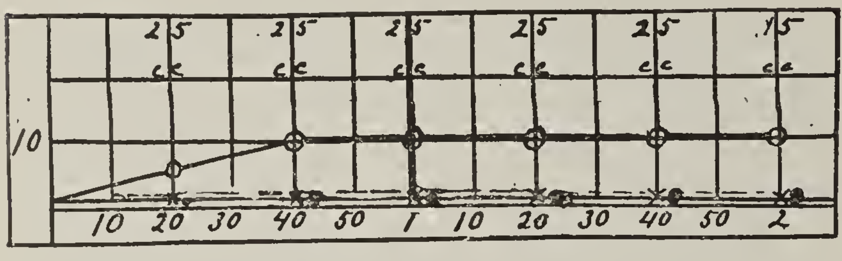

Chart 8.—Mr. A. C. E.

In this class of cases, as in Group 1, all gradations of secretion were noted from the hyposecretion to the hypersecretion and from the hypacidity to the hyperacidity. The emptying time varied from one hour to four hours and fifty minutes, with an average of two hours and seven minutes. The highest free hydrochloric acid figures varied from 16 to 90, with an average of 56 acidity per cent. The highest point in the free hydrochloric acid curve was reached at periods varying from sixty minutes to four hours and fifteen minutes, with an average time of one hour and fifty-one minutes for the twenty-four cases. In only two cases were the highest acidity figures found at the end of the first hour. So in only two instances would the one hour examination have given an accurate information regarding the highest acidity.

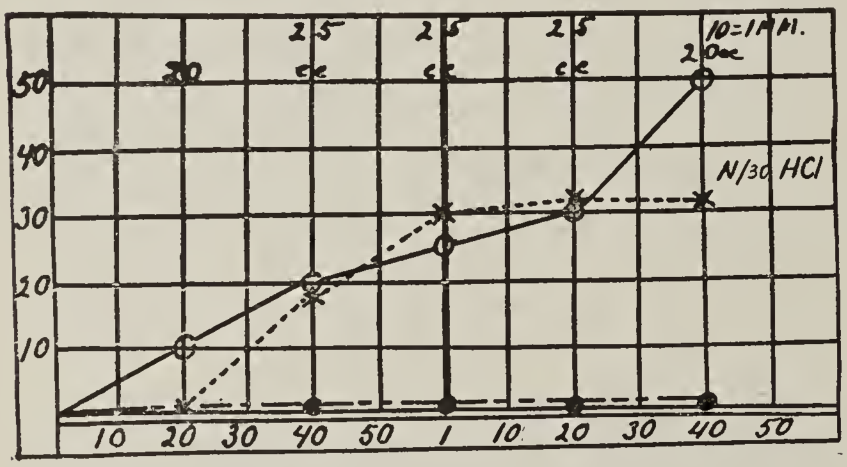

Chart 9.—Mrs. C. O. H.

Chart 6 is a case of continued secretion presenting a double curve. At the end of the first hour there was a free hydrochloric acid of only 35 acidity per cent., but it continued to rise, until at the end of two hours and thirty minutes it had reached 80. Then there occurred a gradual fall to 65 at the three hour and thirty minute interval, after which there was a rise to 85 in the following forty-five minutes. In the next twenty minutes there was a fall to 70. This case was examined one week later, and showed (Chart 7) a very similar type of curve. It is the only instance of a double curve in the sixty-five cases, and presents a most instructive hypersecretion and hyperacidity. The insufficiency of a single specimen at the end of one hour in this case is obvious.

In a class of cases in which there is a gradual rise of the curves to the end of gastric digestion, it would appear that there was a continued secretion of a juice which, at least, did not decrease in its acidity content but rather increased, thereby producing a fluid increasingly rich in enzyme and acid content.

Which type of curve is normal? From this review and also from Rehfuss, Bergeim and Hawk's[7] study on healthy medical students, there seems to be no type of curve into which all healthy and symptomless cases would fall. Each individual has his type of curve, and there is no means of knowing the type until he has been examined by the fractional method.

Group 3. Stomach Secretions Absent or Delayed: Before the introduction of the fractional method of gastric study there was perhaps no more frequent error in stomach diagnosis than that of achylia gastrica. It will be shown that the removal of the ordinary test breakfast at the end of one hour affords insufficient data for such a diagnosis. By the interval method of examination it was found that this group of cases fell into three distinct classes:

1. Absence of acid and enzymes.
2. Absence of acid, with enzymes present.
3. Enzymes and acid appearing late in the cycle of digestion.

The absence of acid and enzymes is a relatively unusual finding, and in only two cases out of a total of fifteen was this condition conclusive. Chart 8 represents such a case. This is true achylia gastrica. In addition to an absence of acid and enzymes, there was also a rapid emptying time.

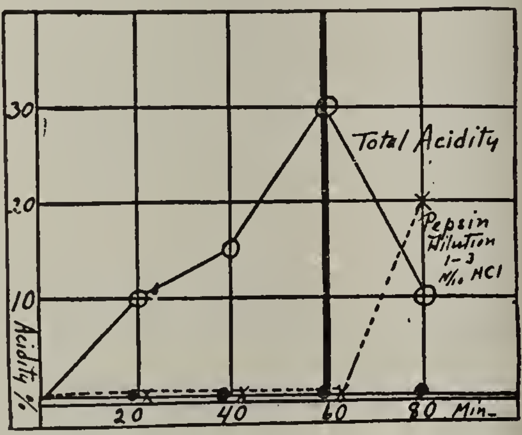

Chart 10.—Mrs. S. C. E.

The absence of acid during the entire cycle of digestion with a secretion of enzymes, pepsin and rennin is the more common condition. The enzymes may be present in normal or in decreased amount.

Chart 9 shows the curve of total acidity and pepsin in a case of this type. The enzyme may appear in the early part of the cycle or not until late, as in Chart 10. It is very evident that the case represented in Chart 10 would have been classed as an absence of both acid and enzymes at the end of one hour.

The third class is that in which the acid and enzymes appear late in the cycle of digestion. Three cases have been encountered in this series. Chart 11 presents the curve of a case in which the secretions were delayed for one hour and ten minutes. In the other two cases the free acid as well as the enzymes did not appear until after the first hour. In this type of cases the gastric glands are functionally active but their activity is much delayed. This marked retardation of secretory activity represents the true "chemical" stomach

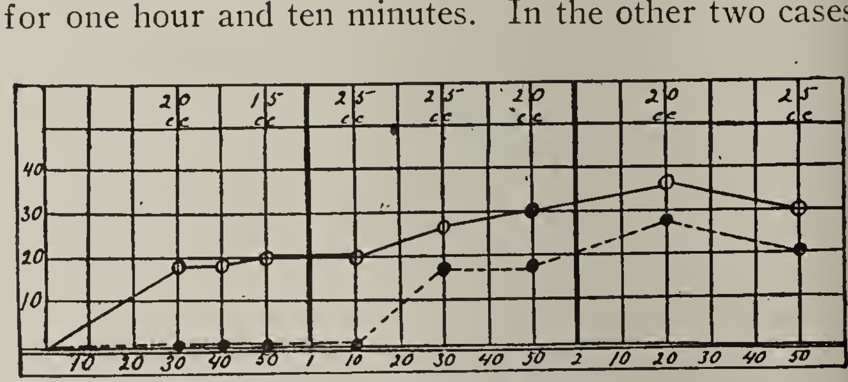

Chart 11.—Mrs. D. A. P.

secretion, the "psychic" secretion being absent. It is obvious that the one hour examination would have placed this class of cases as the true achylias.

SUMMARY

It has been the aim in this review to avoid a consideration of the diagnostic, prognostic and therapeutic possibilities suggested by the various curves presented, but simply to point out, as others have done, the value of interval examination of gastric secretions, and furthermore to emphasize the valuelessness of the ordinary one hour examination. The association of the various types of curves with symptomatology and therapeutic management have been purposely reserved until more extensive clinical data are at hand.

It would seem from an analysis of the fractional study of stomach secretions in this group of cases, that the following conclusions are justifiable:

1. One hour stomach examinations afford insufficient and often misleading information concerning the acidity and enzyme secretion. It gives no evidence of the secretory curve.
2. The fractional method of stomach examination follows the entire cycle of digestion, and supplies reliable information concerning the type of secretory curve, the degree of acidity, the ferment content and an accurate estimation of the emptying time.
3. By fraction study, stomach secretions fall into three groups: (*a*) stomach secretions whose curves fall toward the end of gastric digestion; (*b*) stomach secretions whose curves rise to the end of gastric digestion, and (*c*) stomach secretions delayed or absent.

412 West Sixth Street.

RADICAL OPERATIONS FOR THE CURE OF CANCER OF THE SECOND HALF OF THE LARGE INTESTINE, NOT INCLUDING THE RECTUM *

WILLIAM J. MAYO, M.D.
ROCHESTER, MINN.

The early period of abdominal surgery was concerned chiefly with the question of mortality. With modern methods, it had to be definitely shown that, other things being equal, the opening of the abdominal cavity was comparatively safe. Under the able leadership of Tait in England, who might be called the father of modern abdominal surgery, and Price in America, the mortality was reduced to a point well under 5 per cent., and today standardized and accepted technic has reduced it to about 2 or 3 per cent.

However, the average mortality is somewhat on the increase, owing to the fact, first, that many operations in which there was practically little or no danger, and the results of which served to dilute, so to speak, the mortality of the more necessary operations, are no longer considered advisable, and, second, that modern methods have made possible a successful attack on conditions which were previously considered inoperable and which contributed to the higher death rate.

From the early period in which everything was to be proved by the lowness of the mortality, we learned certain facts, among them, that even by the most careful methods of preoperative examination there is a percentage of error in accurate pathologic diagnosis not far from 10 per cent. This taught us that except in the presence of acute infections or other contraindications, a careful exploration of the abdominal cavity is necessary before operating. It is to be regretted that an accurate pathologic diagnosis cannot always be made; but if we succeed in making a surgical diagnosis and cure the patient, we have, at least, accomplished the main purpose of the operation. It is immaterial to the patient, provided he gets relief, whether that relief comes through the removal of the appendix, gallstones, or an ulcer of the stomach. Moreover, since a diagnosis brought up to the minute by exploration may reveal more than one lesion that can be relieved by a single operation, such exploration should be made unless there are definite contraindications. The patient who has had his appendix removed without an exploration and has been left with a duodenal ulcer or gallstones, the real cause of his symptoms, to be taken care of at a second operation after months of suffering, has justifiable cause for dissatisfaction.

This brings up another important consideration—the disability resulting from the operation itself, which must be reduced to a minimum. If there is more than one pathologic condition which only operation will relieve, the disability will be greatly reduced if the two operations can be done in one stage. If the operations are performed at different times, the multiple risk may be as great at least as that of a single operation. While mortality statistics are reduced one half when the number of operations is doubled, such an apparent reduction, obtained by doubling the number of operations performed on each patient, is misleading, and results only in prolonged disability. The two-stage operation, however, has great merit in a small group of cases in which the desperate condition of the patient justifies any maneuvers that will reduce the operative risk, and in which the question of disability becomes a secondary consideration.

In malignant disease, still another problem, which is worthy of our most earnest attention and is naturally associated with the question of mortality, is operability. Operability today is perhaps the most important consideration in connection with malignant disease. Low operability gives low mortality and high percentage of cures. An examination of the records of resections for malignant disease of the large intestine in our clinic definitely shows that when the disease was confined to the intestine and was movable, the mortality was well under 5 per cent., and the percentage of five-year cures above 60 per cent. Taken by itself, this certainly was a remarkable showing. When the operability was brought up to 62 per cent., the mortality trebled and the percentage of permanent cures markedly decreased, a most unfortunate showing; but when studied in the light of the entire group of cases, we had the paradox that more than twice the number of patients in each hundred were actually cured. This illustrates the fallibility of the view that operative mortality percentages prove correct any theories based on such statistics, and leads others to the trite remark that "Nothing lies like statistics." Statistical percentages of mortality and cure can be studied properly only in their relation to operability. In other words, the greater the number of patients operated on to the hundred examined, the greater the mortality, because it brings in a group of advanced cases in which the risk of operation is great and the percentage of cures small. On the other hand, it increases by a definite and incontrovertible percentage the number of persons who have actually been cured.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

From Jan. 1, 1898, to Dec. 31, 1915, 419 resections of the large intestine have been made in our clinic, with an average mortality of 14.5 per cent. In 184 of these cases, the left half of the colon, including the splenic flexure and not including the rectum, was resected, with an average mortality of 17+ per cent. In resections of the right half of the colon the mortality was 12.5 per cent. The difference of 5.5 per cent. between the two mortality percentages was due to the less septic character of the liquid contents of the right half of the colon as compared with the more solid contents of the left half of the colon, and the greater safety of ileocolostomy as compared with the methods of union following resections of the left colon. One hundred and thirty-one of the resections of the left half of the colon were for malignant disease. Of each hundred patients presenting themselves, sixty-two were subjected to resection. In the remaining thirty-eight the disease was considered inoperable at the time of examination, or proved to be inoperable on abdominal exploration. It is our earnest purpose to increase the operability, first, by endeavoring to secure the cases at an earlier date, and, second, by extending the limits of operability. Increasing experience shows that some of the cases, which at the time of examination we had considered inoperable, may be resected by modern methods with a prospect of permanent cure. In spite of the fact that this extension will add to the list many advanced cases, we should be able notably to reduce the death rate in the whole number by improvements in technic, and at the same time make the operation more radical.

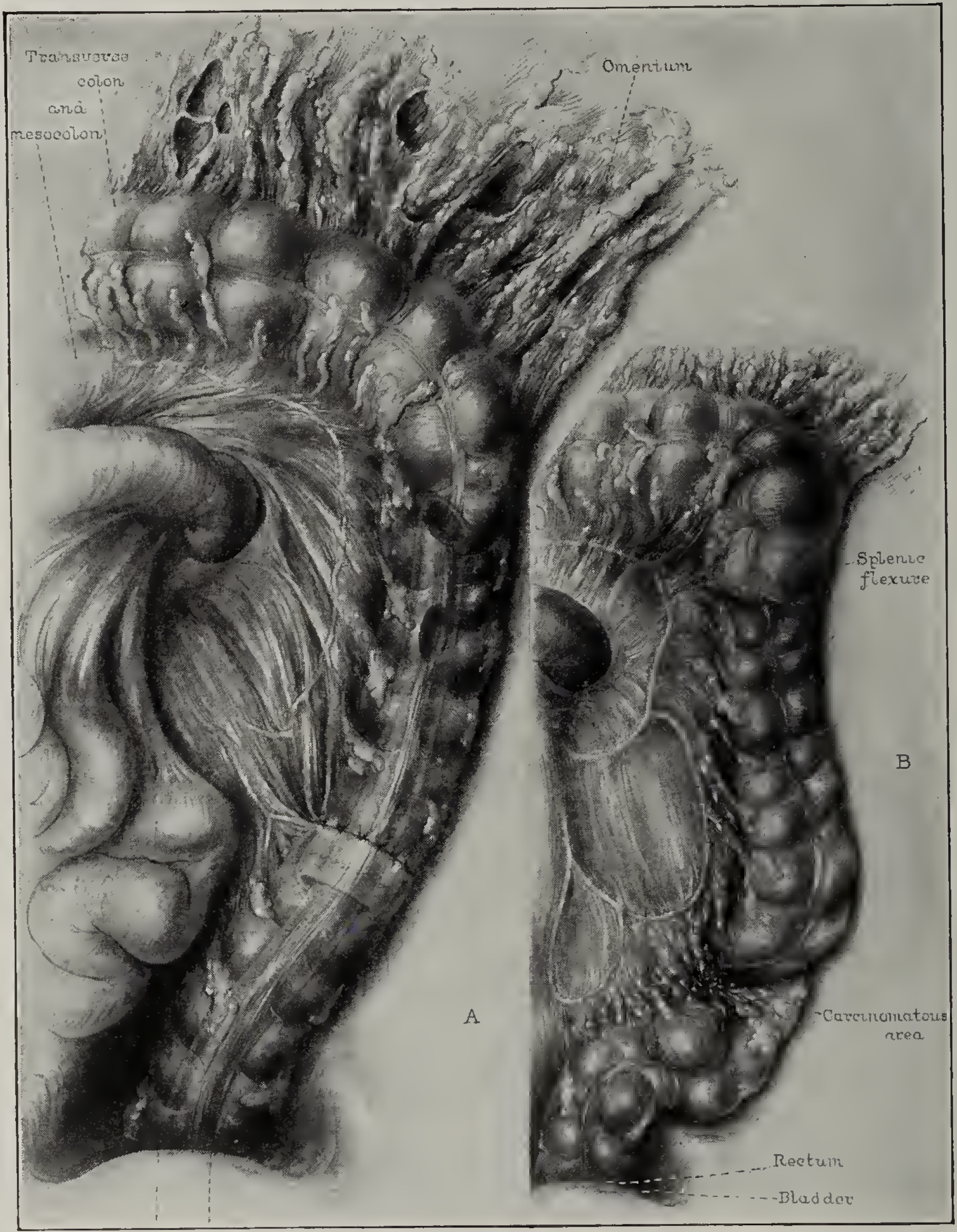

Fig. 1.—*A*, end-to-end tube resection completed; *B*, carcinoma of the pelvic sigmoid. Dotted line indicates the points of resection.

TECHNICAL CONSIDERATIONS

1. An ample working incision should be made in the middle of the left rectus muscle. It is best to ligate the deep epigastric vessel above and below, and to excise the intervening section.

2. A thorough exploration of the involved colon and abdominal cavity, especially of the liver and peritoneal tissues, should be made in order to discover possible metastasis or the direct involvement of other organs which would make a cure impossible.

3. *Mobilization.*—The most important consideration in resecting the large intestine is the detachment of the outer and posterior attachments of the colon so that it may be brought well out of the wound. If we remember that the large intestine has its origin on the left side of the body close to the midline and that it reaches its location around the outer circumference of the abdominal cavity comparatively late, we can readily understand that its outer attachments are in the general nature of holding bands and that they contain no structures of great importance. The splenic flexure is retained in position by the splenocolic ligament, which is derived from the omentum and contains a blood vessel which must be tied. The outer leaf of the mesentery of the pelvic colon in the female is closely associated with the left broad ligament, and here again are vessels which must be ligated.

Posteriorly, the left ureter must always be identified and separated. As a rule, in the operable cases it is possible to detach the ureter safely from the growth; but in several instances we have found it necessary to resect a portion of it, tying the ends with catgut, when it was involved in a situation in which it was impossible to reimplant it in the bladder or suture the ends together. This permanent ureteral obstruction has not been followed by any unfavorable results, and in no case has it been necessary to remove the kidney at a later date because of it. On one occasion close attachments to the left kidney in an otherwise operable case made it necessary to remove the kidney with the growth. The patient has now remained well more than three years. The right ureter should be identified, but will seldom be found involved.

Attachments to the abdominal wall from direct extension of the growth are not infrequent, and we have not hesitated to remove large sections of the involved tissues when necessary. These extensive dissections did not add greatly to the mortality of the operation, and some of the cases in which the growth was so fixed as to be apparently inoperable have been cured.

It has been found wise, therefore, to loosen the colon from its outer attachments and remove all of the involved tissues with it in a single piece. Among the most difficult dissections of this kind are those in which a previous exploration has been made, followed by a fecal fistula, or in which a colostomy has been performed for the relief of the obstruction. Even in these complicated cases, however, all the structures of the abdominal wall on the outer side can be freely dissected if necessary, turning the colon and involved tissue toward the midline. The bleeding vessels are caught and tied, and a large gauze pack placed in the cavity, which is left undisturbed until the operation is completed to check oozing from the cut surfaces.

When the colon containing the growth is drawn well out of the abdomen, it can be lifted up to the light and the blood vessels readily identified and tied. The lymphatic supply of this region is scanty, and herein lies the success of these operations. In 60 per cent. of the fatal cases, according to Butlin, the patients die from obstruction, local infection, etc., before the glands are involved with cancer. Frequently, after extensive dissections, we have examined enlarged glands microscopically, and have found that the adenopathy was the result of sepsis and not of carcinoma. In a number of instances I have resected the colon in patients who had been previously explored and who had been refused radical operation on account of glandular involvement supposed to be carcinomatous. On removal, no cancer was found in the glands.

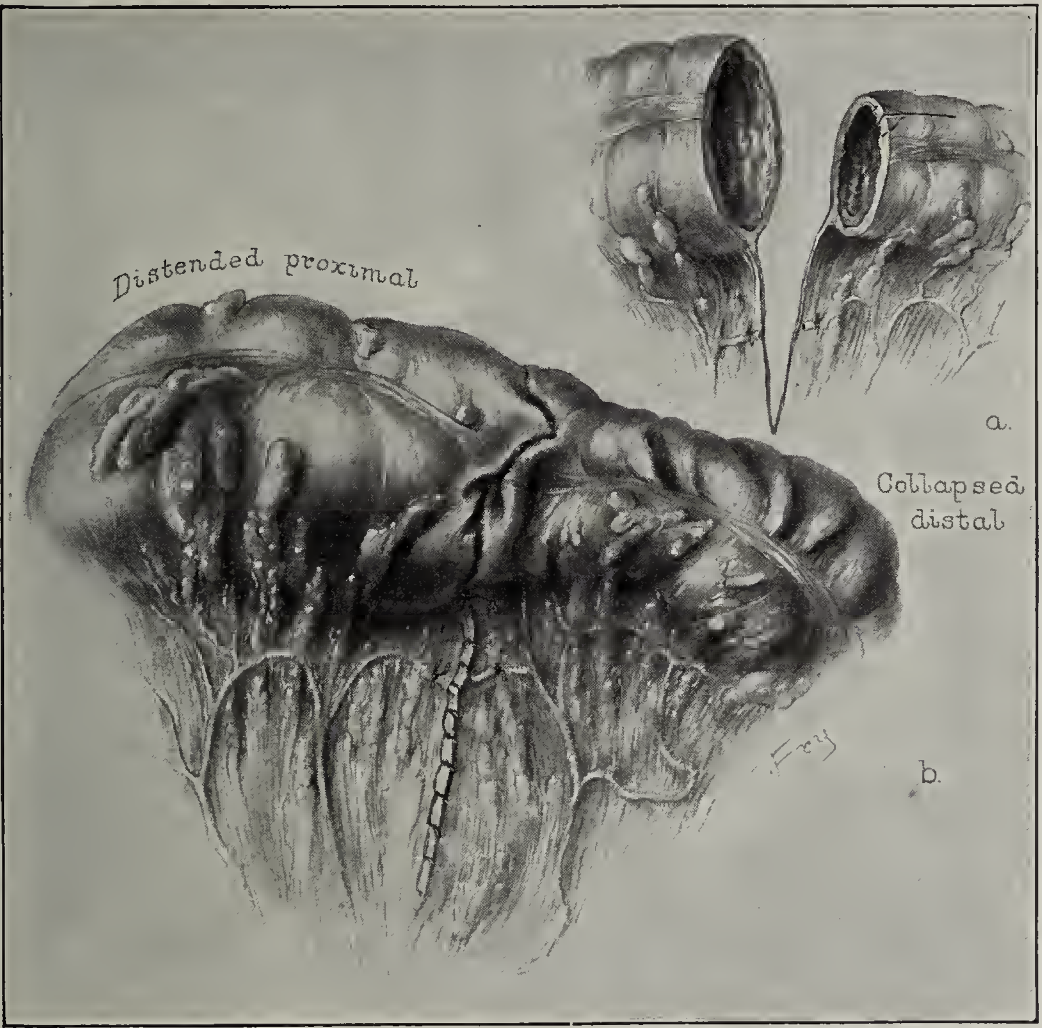

Fig. 2.—*a*, C. H. Mayo method of widening the distal collapsed bowel to meet the distended proximal bowel; *b*, operation completed.

Segregation of the Involved Organs.—Having briefly outlined the character of the task of mobilizing the colon from the outer side, we must take into account the fact that the small intestine frequently becomes adherent to the carcinomatous mass on the inner side and there is direct extension of the disease. As a rule, the extension is to the periphery of the small intestine, although at times it involves the lateral wall of the mesentery. This complication, which we have seen often, by no means renders the condition inoperable, as is so frequently thought. We have several patients who have remained well beyond the five-year limit, in whom from one to three separated loops of small intestine had been resected with end-to-end union, and finally the diseased portion of the colon removed with the attached loops of small intestine. Experience with such resections of the small intestine has demonstrated the fact that almost any reasonable method of anastomosis will be effective — lateral or end-to-end. The general tendency is to take up too much time with these resections and suture more than is either necessary or desirable. Of late we have been more inclined to the end-to-end union with a continuous through-and-through chromic catgut suture, protected by a few interrupted silk sutures in the musculoperitoneal coats.

The ends of the small intestine which are left attached to the colonic tumor are crushed, ligated, and sterilized thoroughly with the cautery to prevent soiling. In low sigmoid tumors, the bladder is not infrequently involved, and on a number of occasions we have removed a considerable portion of its posterior wall. As a rule, only the peritoneal and muscular walls of the bladder are involved, and the mucous membrane is left intact. By the use of chromic catgut sutures protected by a few interrupted sutures of the same character, union seems to be very certain. I have never known a bladder so treated to leak following the operation.

Involvement of the ovaries and tubes and uterus is of small consequence. We have usually made an incision through the peritoneum in front of the cervix, cut the cervix directly across, grasping the uterine vessels and dissecting the broad ligament from below upward on each side, and removed with the uterus the ovaries and tubes, so that the whole mass remains attached to the sigmoid tumor. This is a safe procedure and leaves the adherent uterus to block the point in the bowel weakened by penetration of the tumor, which might otherwise be opened up and flood the operative field with septic contents. The ovaries should always be removed if any involvement is suspected, as they are the most frequent seat of cancer grafting of any organs in the abdominal cavity, probably because each ovulation opens up an unprotected surface for cell grafting.

The appendix is rather frequently adherent to the tumor mass when the cancer lies low, and occasionally the cecum is attached. Removal of the appendix and the necessary amount of the cecum can be rapidly accomplished and does not seem to add greatly to the risk.

Excision of the Involved Colon and Restoration of Colonic Function.—In the manner briefly outlined, the colon and all the involved tissue are delivered outside the abdominal cavity. The further management will depend on how thoroughly we have been able to prepare the patients and whether or not there is obstruction. It has been shown that from one fourth to one third of the stool bulk is due to bacterial growth and that dry stool contains dormant bacteria, while liquid stools have most active organisms. It is undesirable that any attempt be made to evacuate the bowels by means of physic within twenty-four hours before the operation. This should be done at least forty-eight hours before, as liquid contents are difficult to control mechanically, as well as markedly infectious.

Primary resection in the presence of even moderate obstruction is seldom permissible. It is necessary in these cases, first, to relieve the obstruction, as a soggy intestine, edematous and septic, is extremely liable to suture perforation. We must content ourselves either with a cecostomy under local anesthesia, which is best if the obstruction is urgent, a colostomy made as close as possible to the growth so that it can be excised when the resection is performed later, or, still better in the large majority of instances, the two-stage operation of Mikulicz and Bruns (Figs. 1 and 2).

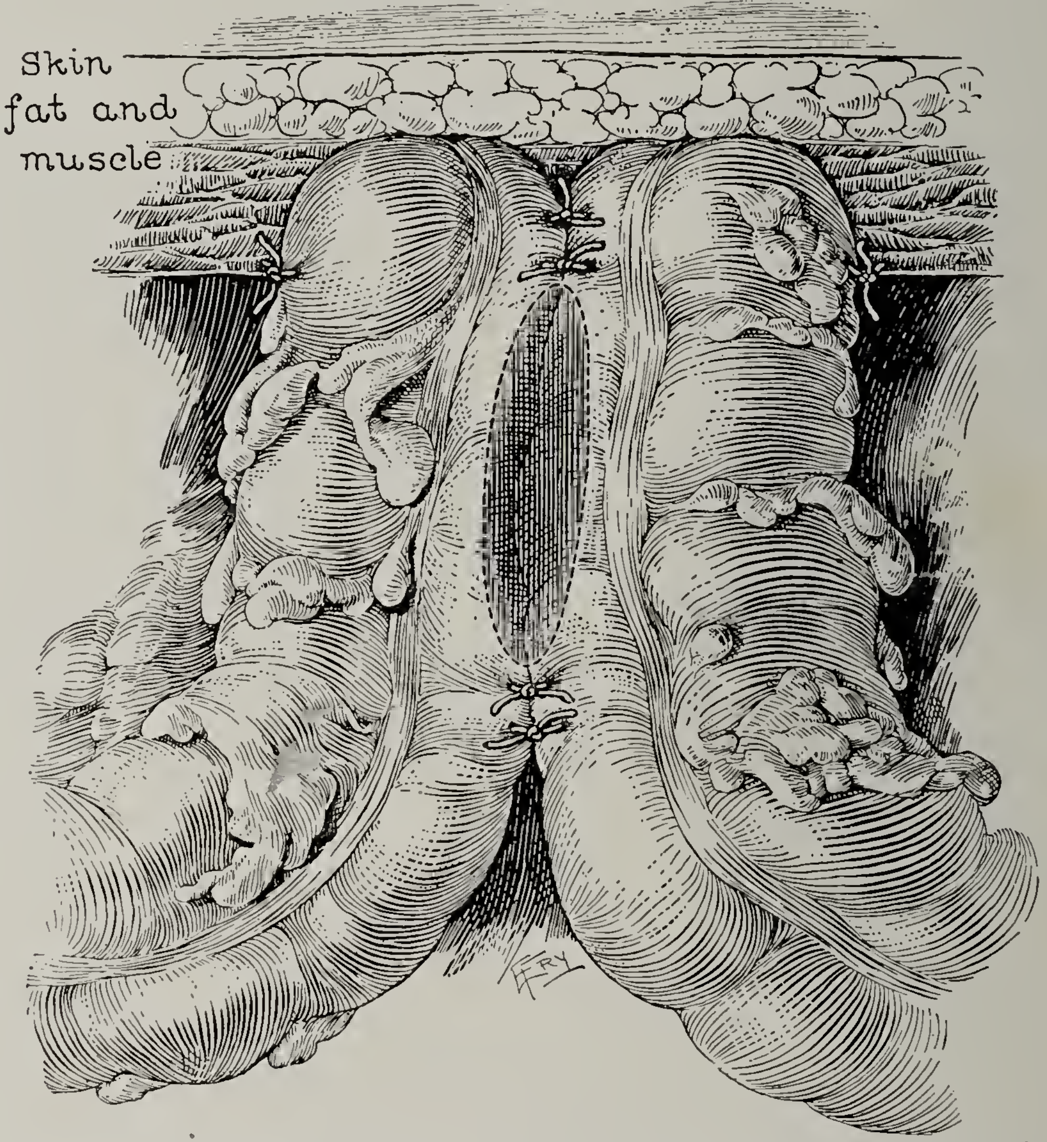

Fig. 3.—Bloodgood method of anastomosis of the large intestine. The bowel is attached to the incision in such a way that, should leakage occur, it would readily find its way to the surface.

Many patients will come with obstruction of the bowels and in extremely poor condition for operation. At times by lavage of the stomach and maintaining the fluids of the body if necessary by subcutaneous salines, such patients can be carried over the acute attack and subjected to operation later after flatus and bowel movement has been secured.

When conditions are favorable for a primary resection with an end-to-end anastomosis, the use of the sigmoid tube (Fig. 1 *a*), that is, a rubber tube of considerable caliber, which, as advised by Balfour, is passed from the anus completely through the anastomosed area and some inches above, will reduce the death rate to a very great extent. We frequently pass these tubes well up into the splenic flexure. A large-sized, rather firm stomach tube with a few lateral eyes near the tip will answer the purpose (Fig. 1 *b*).

The sutured area should be attached to the peritoneum if there is any doubt whatever as to the integrity of the suture line, or it may be brought completely through the peritoneum, the latter being attached behind it so that it lies within full view, and any leakage will be to the surface. If the colon is too short for this maneuver, the sutured area may be suspended on a roll of rubber tissue so that it will develop adhesions and the suture line will become extraperitoneal.

In applying the end-to-end suture, there is an unconscious tendency to draw the sutures tight, so as to narrow the lumen. This can be easily overcome, as suggested by C. H. Mayo (Fig. 2), by making an incision along the free surface of the colon opposite the mesenteric attachments three-fourths inch deep on each side, and trimming off the corners. When the suture is complete, the lumen is widened to that extent at the point of anastomosis. The Bloodgood method of colonic anastomosis also serves an excellent purpose. A drawing of this method is here shown and is so plain that it needs no further description (Fig. 3). The tube method of end-to-end anastomosis described by Balfour is especially valuable following resections of low sigmoid growths.

About twelve years ago, C. H. Mayo introduced into the clinic the Mikulicz - Bruns method (Fig. 4) of resecting the second half of the colon, and this method has probably done more to extend operability and reduce mortality than any other factor. It consists in loosening up the diseased portion of the colon, as already described, separating the mesentery, and lifting the growth and glands with the involved tissues entirely out of the abdomen. The sound colon for several inches above and below is well cleared and the two arms sutured, the tumor and a sufficient quantity of intestine being left completely outside the abdominal cavity. The peritoneum is sutured around the base of the extruded mass so that it becomes entirely extraperitoneal and is allowed to heal into the incision. In from three to seven days the mass is cut off, the two ends of the intestine being left like a double-barreled shotgun in the wound. If there is obstruction, the method of Paul is advisable, that is, after the sigmoid is fixed firmly in the wound to prevent retraction within the abdomen during sudden strain (coughing, etc.), the tumor mass is cut away, leaving the ends of the sigmoid projecting an inch or more. A rubber tube, 1 inch in diameter, is fastened into the proximal bowel end to carry the obstructed contents into a container. In many cases in which the circulation in the extruded loop is cut off, it is good practice to cut the tumor away at once after tying and sterilizing the ends of the bowel, as advised by Peck. This prevents soiling for from twenty-four to forty-eight hours until the wound is protected, and if the patient has been well prepared the temporary obstruction is borne without difficulty.

At a second stage, about ten or twelve days after the primary operation, during which time the bowels have been thoroughly evacuated, one blade of a 4-inch clamp is placed in each opening of the colon and the clamp closed to the first notch. Each day it is tightened until, at the end of about six days, it has cut its way through, converting the outer end of the double lumen of the intestine into a single cavity. A few days later the resulting colostomy can be closed by a simple extraperitoneal operation. It might be thought that with better technic a larger percentage of these cases could be subjected to immediate resection, but it is not technical faults in suturing that lead to disaster. If leakage occurs, it is usually in the second week, owing to perforations in the suture line after the sutures have fulfilled their mission. We have found chromic catgut for gastro-intestinal suture less liable to this complication than silk or linen.

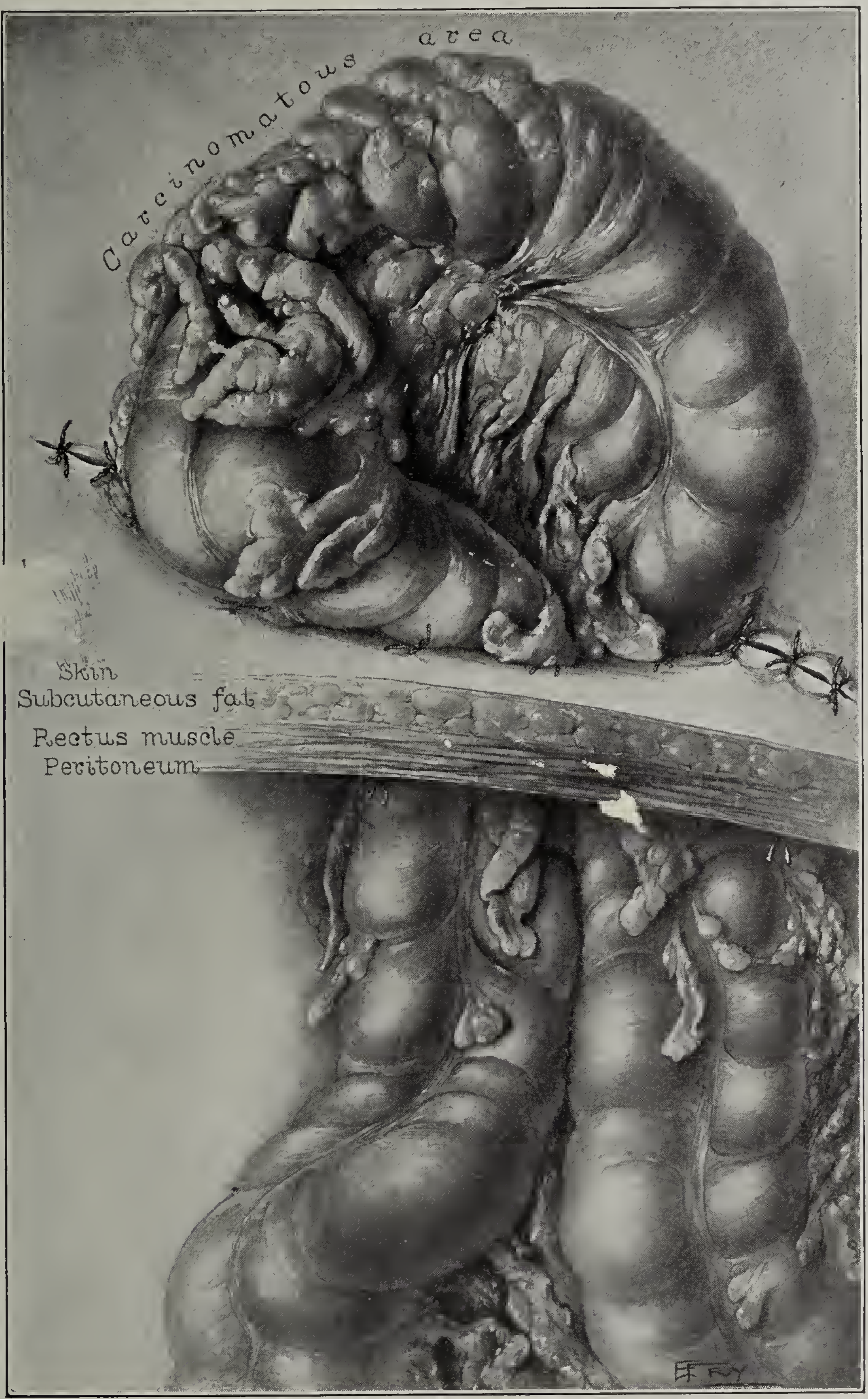

Fig. 4.—First stage of Mikulicz operation completed. The tumor, involved part of bowel, fat and mesentery being drawn outside the abdominal wall, where it will remain until it heals in. It will then be cut away, and the partition between the limbs of the bowel, as sutured together, will be cut out with forceps, restoring the lumen, and the colostomy closed.

The operation of Mikulicz can be applied to very low growths. It is astonishing to what extent even the upper part of the rectum can be brought into the abdominal wound. On many occasions we have removed rectosigmoid growths in this way, separating the rectum within an inch of the anus, and by loosening and depressing the parietal peritoneum, have succeeded in maintaining the growth exterior to the abdominal cavity. Often it is necessary to pack gauze about the protruding mass to support it in the wound beyond the peritoneum. The gauze support should be left from ten to sixteen days. In very fleshy patients in whom it has been practically impossible to bring the growth to the surface, we have in this manner brought the involved bowel up just outside the peritoneal cavity, and left it in the deep wound with an iodoform gauze support as long as eighteen days. When the tumor is finally cut away, the anastomosis will often complete itself without any secondary operation.

Occasionally, abscess cavities of considerable size will be found in the pelvis. These by no means necessarily indicate that the growth is inoperable, but they require the complete closure of the pelvis following the operation by loosening up and attaching the peritoneum so as to protect the abdominal cavity, and in the female by draining through the vagina. In the male, the entire small pelvis must be packed with iodoform gauze. These abscesses are more often found in the female than in the male, possibly because of the proximity of the fallopian tubes.

At times it is better to terminate these extensive complicated operations for rectosigmoid cancer by a permanent colostomy above, applying a right-angled clamp across the rectum below the growth and sterilizing the stump with the actual cautery. The necessary amount of involved sigmoid is then cut away and the proximal end brought out of the median incision just below the umbilicus as a permanent colostomy, after the method of Mixter. The cavity of the pelvis about the clamps is packed with iodoform gauze. The clamps are removed at the end of a week, and the gauze, the latter part of the second week. As a rule, it will be best to fasten the peritoneum at the brim of the pelvis to the sigmoid.

To one who has not actually taken part in some of these formidable operations, they might appear impossible, or even if mechanically possible, to be fraught with so much immediate danger and so little chance of permanent cure as not to be justifiable. This is by no means true, however, for after such extensive and complicated dissections we have had a very considerable percentage of permanent cures, and in the cases in which the disease has returned, the patient has had a long respite of comfortable existence which could not have been obtained by a palliative colostomy.

There were 262 resections of the large intestine for malignancy. Of the patients who recovered and who were operated on more than five years ago, 54 per cent. are alive. Of those operated on more than three years ago, 67.5 per cent. are alive.

In conclusion, I would urge that patients with cancer of the second half of the colon be given a chance even under unfavorable conditions, because the nature of the disease is such that the prospects of cure are better than for cancer in any other situation in the body, except on the lip and in the fundus of the uterus.

ABSTRACT OF DISCUSSION

Dr. Edward Martin, Philadelphia: The interpretation on the part of the individual while absolutely honest is not largely convincing to other than himself. The surgery of ptosis is largely obscured as to its ultimate results by the personal equation of the operator and by the impressionable psychology of those exhibiting the symptom complex of this condition. But, when it comes to cancer there is a local condition amenable only to surgery and which is either cured or is not cured by it. The test of cure is freedom from recurrence and this paper giving us such a test stands as the most notable and authoritative communication on this subject. Not the least important part of the teaching is the recital of results on taking any operative risks in so far as immediate survival is concerned, rather than being content with a partial operation or a palliative procedure. Indeed, if there be no hope of radical cure, an operative death is not to be regretted. So far as discussion of this paper is concerned, the Mayos and the Mayo Clinic are the jury before whom we lay our surgical problems, nor has any surgeon had cause to question the wisdom of their findings.

Dr. Jerome Morley Lynch, New York: As Dr. Mayo has said, only those who see these cases and operate frequently can appreciate the number of people who are condemned to death simply because when a diagnosis of cancer is made they stop there and no effort is made to cure these victims. I wish Dr. Mayo could go before every medical society in the country and state the fact that a great many cases considered inoperable are in reality operable. I recall a number of such cases both in my own practice and that of the late Dr. Tuttle. The sudden onset of constipation, to my mind, is the most important symptom in connection with cancer of the colon. It is the general practitioner, and not the surgeon, who sees these cases first, and he should be alive to the possible diagnosis of cancer. I have found it almost impossible in some cases to clean the colon previous to operation by any method of catharsis. I recall a case of constipation in which I operated for cancer. The man returned about three years later. He had been until that time absolutely regular and then became constipated. I found that he had a nodule not as big as a pencil which proved to be an adenocarcinoma, and the patient is alive today, proving that cancer of the colon is not always fatal. Glandular enlargement is no contraindication to radical removal. Kocher's statistics support this. Many cases in which he had occasion to operate a second time were due to the accompanying infection rather than to the cancer. If compatible with life, therefore, I advocate the widest possible removal. I agree absolutely with the essayist regarding operative results, and think too great emphasis cannot be placed on the necessity of exploring every case of cancer of the sigmoid colon, however inoperable the case might at first sight appear. The sudden onset of constipation characteristic of colonic cancer can be explained on biologic grounds. Dr. Draper and I have been impressed with the difficulty of emptying the colon previous to operation, regardless of the position of the new growth or the involvement of the lumen. Lateral implantation with no encroachment of the lumen has offered no exception. I have noted impaction following recurrences in a patient whose bowels had been previously regular. This recurrence was no larger than a pea. Until a better working hypothesis is offered this phenomenon should be looked on as a protective mechanism of the host due perhaps to an enzyme from the cancer.

Dr. R. C. Coffey, Portland, Ore.: Like Dr. Martin, we think no further than the Mayo Clinic when it comes to a discussion of cancer of the colon. A word might be said, however, of the work of John Young Brown of St. Louis who does ileostomy under a local anesthetic with no danger to the patient. Far advanced cases are only partially relieved. With the use of a bag and cup, however, the patient can go around with perfect comfort. The importance of Dr. Brown's work has not been appreciated. It is certainly far superior to having a colonic fistula and gives much more convenience to the patient.

Dr. John W. Draper, New York: This section ought to go on record as subscribing to the statement Dr. Mayo made, that you could tie the ureter anywhere in its course and never have any trouble from that kidney. We have done it on animals upward of fifty times and then watched for the result on the occluded kidney, but there is no result. Just as certainly as the negative renal pressure which is a necessary part of urinary secretion ceases, becomes positive, all secretion stops and you cannot produce hypernephrosis by tying a ligature tight. The only way to produce it is by intermittent partial obstruction. Complete obstruction is safe. Partial obstruction is not safe.

Dr. Julius H. Jacobson, Toledo, Ohio: I desire to emphasize the point Dr. Mayo makes, that in the presence of obstruction no radical resection operation should be made. The Mickulicz three-stage operation is a method which will accomplish much in reducing primary mortality in these desperate intestinal cases. The only objection which I find to the method is that the anastomosis when finally completed remains attached to the abdominal wall. This, however, seems to be no disadvantage on account of the larger lumen at the anastomatic site. It is a method which should be practiced more frequently, particularly in obstructions about the sigmoid portion of the descending colon.

Dr. W. J. Mayo, Rochester, Minn.: Regarding ligation of the ureter, referred to by Dr. Draper, of course, in a diseased kidney this might make trouble, but in such a case one would know something of the condition; and such a kidney could be removed, as was suggested in the course of the paper. In pelvic operations I believe that a great many times without knowing it the ureter is tied and there is nothing to show for it but a quickening of the pulse for a few days.

A Nation of Wasters.—A conservative estimate of the annual number of accidents in the United States which result fatally, or in partial or total incapacity on the part of the worker, has been placed by workers in this field at 500,000, representing an economic loss of $250,000,000 a year. The suffering involved and the hardship inflicted on the families of the injured workmen cannot be estimated in terms of dollars and cents. We have acquired a reputation as a nation of wasters. It is apparent that whenever a life is lost or a workman incapacitated the cost of maintenance of the remainder of the population is thereby increased. We would do well in "conserving our national resources" to place the conservation of the life and limb of the workingman at the head of the list. It is evident that we are becoming aroused to the need for an effective means to check this enormous economic waste. The nation-wide movement toward safety, toward accident prevention, and toward the elimination of the hazards of life is a mighty protest against this destruction which is taking place daily. That half the accidents in the United States are preventable is the general opinion of the engineering profession.—W. A. Bloedorn.

THE CORPUS LUTEUM

ITS LIFE CYCLE AND ITS RÔLE IN MENSTRUAL DISORDERS *

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Since the publication of Fraenkel's paper,[1] in 1903, the study of the corpus luteum has been the point of departure in most of the investigations which have been made as to the cause and mechanism of menstruation. I shall not review the now voluminous literature of this subject, except perhaps to call attention to the definite advance made in 1911 by Robert Meyer,[2] who showed that the corpus luteum, like the endometrium, passes through certain stages corresponding to the various phases of the menstrual cycle.

The purpose of this present paper, aside from the study of the normal life cycle of the corpus luteum in relation to the menstrual cycle, includes an effort to determine whether any histologic variations in the lutein structures of the ovary can be found to explain the various menstrual disorders. Only the salient points of the inquiry can be sketched within the brief limits of this paper, leaving the more extended discussion of the various aspects of the subject for a more exhaustive report to be published later. My investigation so far has embraced the clinical and histologic study of 137 cases from the Gynecological Department of the Johns Hopkins Hospital. While these cases constitute the actual basis for the present paper, I have had the opportunity of studying a large number of corpora lutea from cases not included in the series.

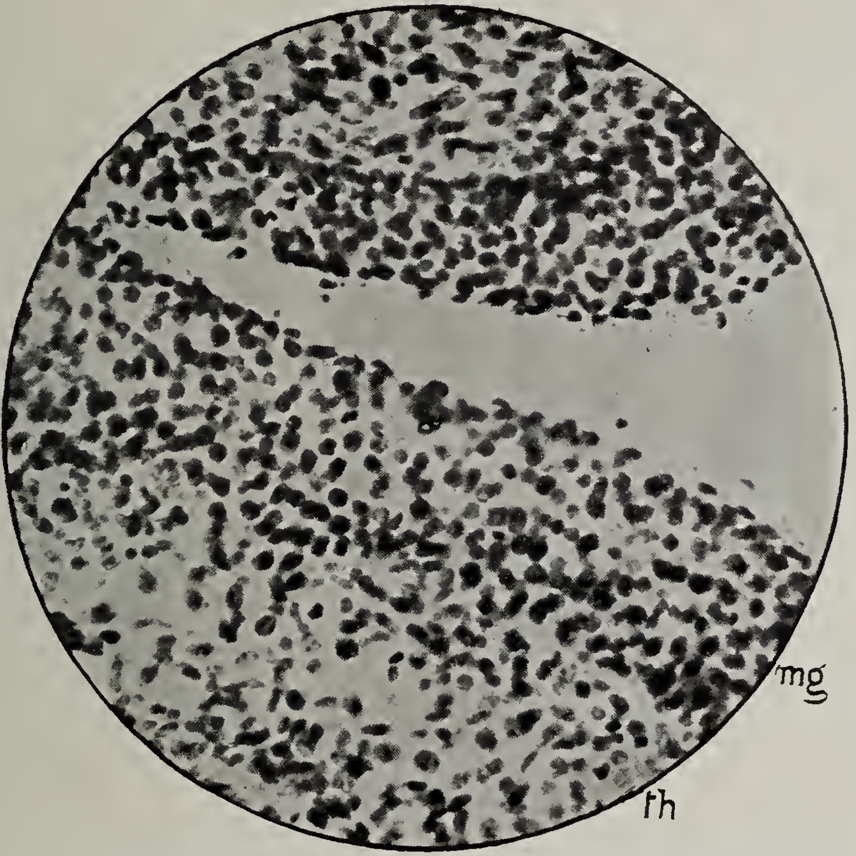

Fig. 1.—Portion of wall of mature graafian follicle, removed on fifth day of cycle (high power): *mg*, membrana granulosa; *th*, theca interna. All photomicrographs by Schapiro.

In 102 of the 137 cases of the series studied, both ovaries had been removed, together with the uterus, so that it was possible to study the histologic picture of the endometrium side by side with the histologic variations in the removed ovaries. The latter were thoroughly ransacked, by numerous sections, for all traces of lutein tissue, as well as other characteristic structures which might be of functional importance. A careful study was thus made, not only of corpora lutea in various stages of development, but also of other structures, such as mature graafian follicles, atresic follicles, etc. In this way it would seem that the possibility of overlooking structures of functional importance could be reduced to a minimum, since the presence of such elements can usually be easily determined macroscopically. This is especially true, of course, of the yellow-walled corpus luteum in all except perhaps its earliest stages. Only by such thorough examination of both ovaries are any generalizations justified as to the significance of its various elements.

The mere presence or absence of corpora lutea on the surface of the ovary means very little. It is common to find well developed corpora lutea in ovaries which on their surface give little or no indication of their presence. For this reason, observations made during operations on ovaries which are not removed are far less valuable than the thorough examination of the ovaries after removal. As a matter of fact, the only indication of the site of even large corpora lutea is apt to be a slight hemorrhagic discoloration on the surface. Only by cutting into the ovarian substance is the true nature of the otherwise easily overlooked area revealed.

Again, since corpora lutea may be present in both ovaries, it is obvious that it would be hazardous to venture any very sweeping deductions unless both ovaries are studied. It is for these reasons that I have selected for this study chiefly those cases in which both ovaries had been removed. The essential importance of accurate menstrual histories in such an investigation is obvious, as well as a knowledge of the full pathologic findings at operation and in the laboratory.

In a second smaller group of cases, numbering thirty-five, all ovarian tissue had not been removed at operation. Deductions from these cases cannot be included in any generalization concerning the rôle of lutein tissue in either normal or abnormal menstruation. They have been included in the study because the ovarian tissue removed from them has contained lutein structures which in one way or another are of interest from the standpoint of this investigation.

A careful study of the ovaries included in my material has enabled me to secure corpora lutea in practically all stages of development. One may thus trace the life history in a consecutive manner from beginning to end. Only in this way can an intelligent conception be gained as to the origin, development and ultimate fate of the structure derived from the rupture of the ripe graafian follicle.

With a few exceptions, those who have studied the corpus luteum in the past have seemed to disregard the fact that, like the endometrium, it undergoes a change from day to day. The stereotyped conception of the corpus luteum seems to have been that of a large structure, with brilliant yellow undulating walls, standing out sharply from the cut surface of the ovary. While this description fits the corpus luteum in certain stages of its development, it is altogether incorrect as applied to others. The above mentioned characteristics are apt to be those of the fully developed corpus luteum, which has, however, reached this stage only after a process of gradual development extending over many days. The presence of the large yellow walled corpus luteum does not, therefore, signify that ovulation has occurred just previously, as so many have assumed in discussing the subject.

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* From the Gynecological Department of the Johns Hopkins Medical School.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of stamped addressed envelope.

[1] Fraenkel, L.: Arch. f. Gynäk., 1903, lxviii, 438.

[2] Meyer, Robert: Arch. f. Gynäk., 1911, xciii, 354.

In its earliest stages, just after rupture of the graafian follicle, the corpus luteum is usually a small, collapsed structure, with thin, moderately undulating walls, which are of grayish yellow hue instead of the brilliant yellow color of the later stages. For this reason the earliest stages are very inconspicuous and are usually overlooked. Indeed, their discovery, even with careful search, must be looked on as in large measure accidental. The difficulty of securing these early stages is increased by the uncertainty as to the exact time of ovulation, so that it is not possible, in the present stage of our knowledge, to arrange operations of election with a view of obtaining these early corpora lutea. Again, there is much evidence that the changes in the early history of the corpus luteum take place very rapidly, so that the earliest stages, speaking histologically, extend over a comparatively short time.

It is not surprising, therefore, that there have been very few observations in the human being on the earliest stages of the corpus luteum. Indeed, I know of no such observation, with the exception of the questionable one of Kreis[3] in 1899, until the report of Meyer's series of cases in 1911. And yet the study of the corpus luteum in its earliest stages throws a light otherwise unobtainable on such important questions as that of the origin of the lutein cells — the still open question as to whether they arise from the epithelial cells of the membrana granulosa or from the connective tissue cells of the theca interna. For this reason I have been especially on the alert in the investigation of my material for these early stages of corpus luteum development, and have been rewarded by finding five interesting examples. On account of the rarity with which such cases have been described, I shall refer briefly to the findings in these five cases.

Case 1 (private patient).—Mrs. L. M., aged 28, was operated on by me at Mercy Hospital, March 2, 1916, the operation consisting of left salpingo-oophorectomy, appendectomy and resection of the right ovary. Menstruation had always been regular, lasting five days and being moderate in amount. The last period before operation commenced February 21, lasting five days, so that operation was done on the tenth day of the menstrual cycle.

Careful examination of the left ovary afterward failed to reveal any lutein structures. It contained, however, a follicular cyst about the size of a walnut, and numerous smaller cysts. The wedge of right ovary which had been removed, however, presented a small dark reddish discoloration on the surface. On section this was found to mark the site of a scalloped cavity, a little over 1 cm. in diameter, which contained no blood, the hemorrhagic appearance of the surface being apparently due to the excessive hyperemia of the walls. At one point there was a small eroded spot representing the point of rupture.

Microscopic sections revealed a picture which I had heretofore not observed, and which is well shown in Figures 2 and 3. The membrana granulosa is not only present, but there is not the slightest indication of degeneration. The cells are still quite compact, resembling those of the mature graafian follicle, except that they are more cylindric (compare Figure 1). The most remarkable change is evident in the cells of the theca interna. These have become large, epithelioid, and infiltrated with fat. The theca interna has become very vascular, its blood vessels, derived from the theca externa, pushing centripetally toward the granulosa, which, however, is not yet invaded. Especially striking is the vascular line of demarcation which has formed between the granulosa and the theca.

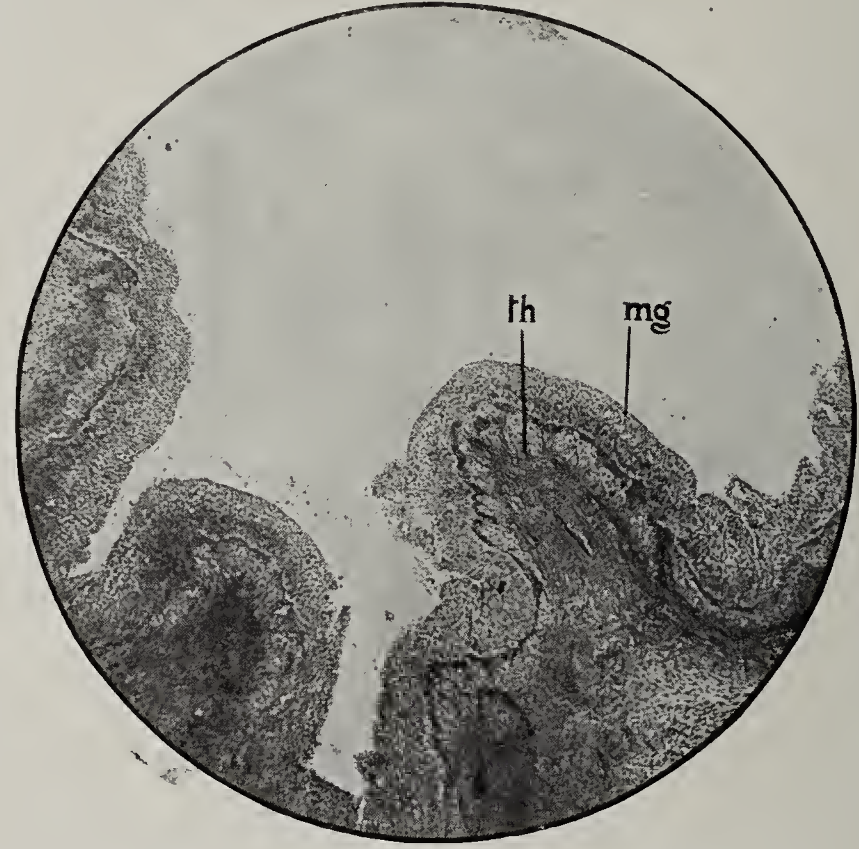

Fig. 2.—Portion of wall of early corpus luteum, removed on tenth day of cycle (low power); *mg*, membrana granulosa; *th*, theca interna. Note the vascular line of demarcation between these two layers.

Case 2 (Gyn. Path. No. 21216).—The patient was a white woman of 46, on whom a radical operation for cancer of the cervix was done in Dr. Kelly's service, May 19, 1915. Menstruation was irregular on account of the carcinoma, a bloody discharge having been present for eight months. Both ovaries were small and cirrhotic. The surface of the right ovary showed a small hemorrhagic discoloration, beneath which was found a cavity with scalloped walls, measuring about 1 by 2 cm. The cavity itself contained no blood, but there was much hemorrhagic infiltration of its wall in places, especially near the surface. The microscopic picture was almost identical with that shown in Figure 1. The endometrium was of the interval type.

Case 3 (Gyn. Path. No. 21223).—This patient, a white woman of 38, was operated on in Dr. Kelly's service, May 24, 1915, for the radical removal of a carcinoma of the cervix. Preliminary cauterization was done, May 15, 1915. The last menstruation had begun May 2, although the intervening operation and the presence of the cancerous disease detract from the importance of the menstrual history. The right ovary contained an early corpus luteum similar to those in Cases 1 and 2. There was in this case, however, a very great hemorrhagic extravasation surrounding the wall of the corpus, in many places obscuring the cells of the theca. The endometrium was of the interval type.

Case 4 (Gyn. Path. No. 21195).—A white woman, aged 34, was operated on in Dr. Kelly's service, May 13, 1915, for chronic pelvic inflammatory disease, with left tubo-ovarian abscess. Panhysterectomy, with double salpingo-oophorectomy, was performed. Irregular bleeding had been present for two months. The right ovary contained a small cavity, a microscopic section of which is pictured in Figure 4. The same ovary contained a large corpus luteum in the stage of retrogression. The endometrium was of the interval type. The corpus luteum pictured in Figure 4 differs from that represented in Figures 2 and 3 in that the granulosa cells are losing their long cylindric shape and are becoming larger and more polygonal. In other words, they are beginning to assume the morphologic characteristics of lutein cells. On the other hand, the theca cells are much less conspicuous than in the earlier stage, having lost much of their fatty content.

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[3] Kreis, O.: Arch. f. Gynäk., 1899, lviii, 426.

Case 5 (Gyn. Path. No. 21333).—This patient was a colored woman, aged 43, who was operated on in Dr. Kelly's service, July 6. The operation was hysterectomy with double salpingo-oophorectomy, on account of extensive inflammatory disease with cystic degeneration of both ovaries. Menstruation had always been regular, lasting two or three days, with moderate flow. The date of the last menstruation was June 20, so that the operation was done on the sixteenth day of the menstrual cycle. In the right ovary was a blood-filled cavity measuring 3.5 by 1.5 cm. which proved to be a corpus luteum cyst. Between this and the surface of the ovary, just beneath the latter, was a rather flattened cavity which on microscopic examination was found to be an early corpus luteum, similar to that found in the preceding case.

The five specimens of early corpus luteum here reported are alike in the very important particular that in all of them the epithelial cells of the granulosa are, to say the least, quite intact. This fact is of prime importance in the consideration of the origin of the lutein cells. One of the strongest arguments against the epithelial origin of these cells has been the alleged degeneration and disappearance of the membrana granulosa after rupture of the follicle. In each of my five specimens, however, the epithelium is well preserved. Moreover, in Cases 4 and 5, it exhibits definite signs of a lutein-like transformation. This I look on as a vital point — *the* vital point — in connection with the question of the origin of the lutein cell. If we can demonstrate in human beings, as Sobotta[4] seems to have shown in lower animals, that there is a direct transformation of the granulosa cell into the lutein cell, the problem is solved. I believe that Figures 1, 2, 3 and 4 illustrate such a beginning transition of the granulosa cell to the lutein cell. It will be noted that this transformation is already well under way before there is any evidence of vascular invasion of the granulosa layer, and that as the granulosa cells assume lutein characteristics, the cells of the theca become less conspicuous, giving up much of their fatty content. This may be observed from a comparison of Figures 3 and 4. From this it might be inferred that the theca cells, with their rich fatty content, fulfil an important nutritive function, as Meyer has suggested. The gradual retrogression of the theca cells, moreover, is another indication that it is not they that are to be transformed into lutein cells.

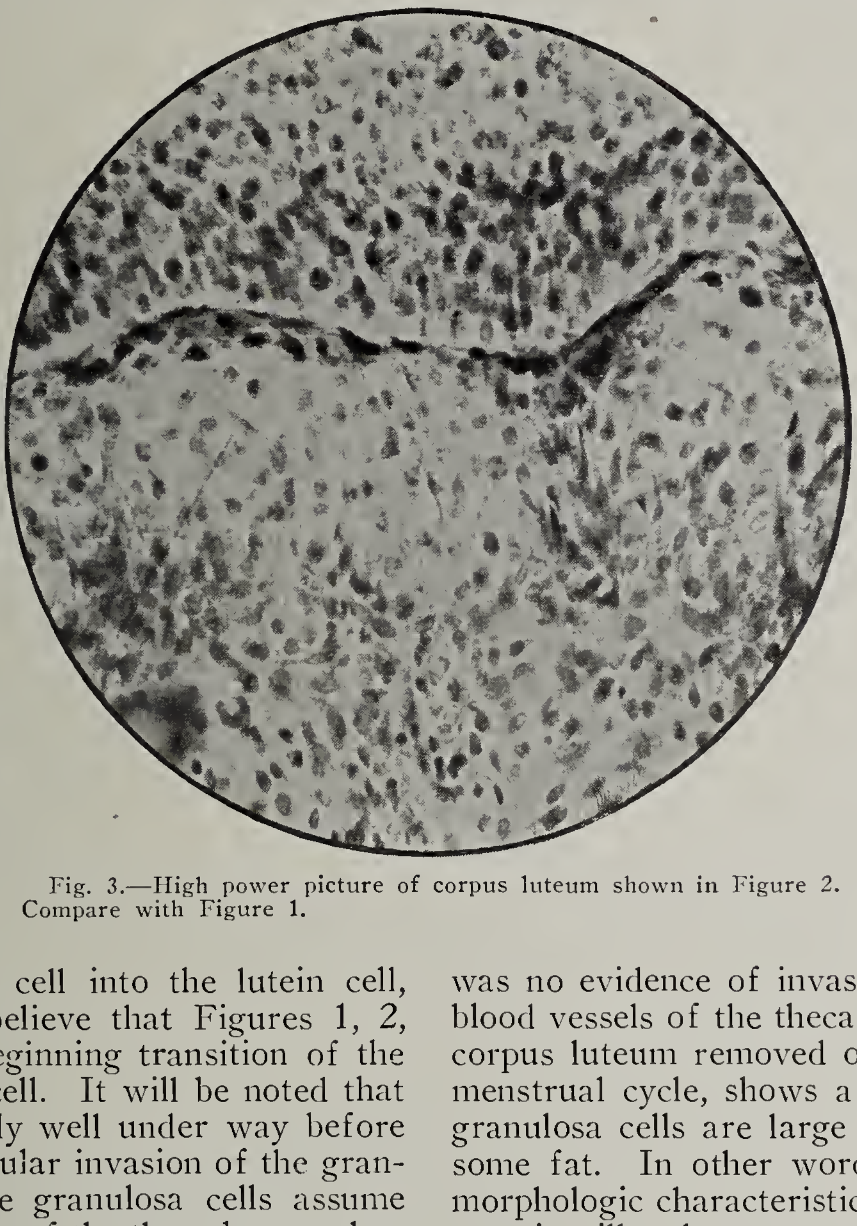
Fig. 3.—High power picture of corpus luteum shown in Figure 2. Compare with Figure 1.

That the structures which I have described are really corpora lutea and not merely mature and unruptured follicles is evidenced, not only by the demonstration of a definite point of rupture in at least two of the cases, but also by the many layers of the epithelium, by the cylindric shape and large size of the cells, by the striking fatty deposit in the theca interna, and by the pronounced and characteristic hyperemia (Compare Figures 1 and 3).

As to the time relation of these early corpora lutea to the menstrual cycle, only two of the five cases, unfortunately, can give any trustworthy evidence, owing to the irregular bleeding present in the others. The structure found in Case 1 and pictured in Figure 2 was obtained on the tenth day of the menstrual cycle. For the absolute accuracy of the menstrual history in the case I can vouch. In Case 5, on the other hand, the patient was operated on on the sixteenth day of the menstrual cycle, although histologically it represents only a slightly later stage than that seen in Case 1. Meyer's earliest corpus luteum was found on the twelfth day of the cycle. The unruptured follicle pictured in Figure 1 was removed on the fifth day of the cycle. It would be indiscreet to draw from this small group of cases any conclusions as to the time of follicular rupture. Indeed, it does not seem to me that a sufficient number of cases have as yet been studied by all investigators collectively to warrant any such generalization. I may simply state that in the five cases reported by me ovulation seems definitely to have occurred in the first half, or perhaps we may say the second quarter, of the intermenstrual period, and that the time of follicular rupture is subject to a certain — perhaps a considerable — degree of individual variation.

The later stages of the development of the corpus luteum I shall pass over much more briefly, as my observations differ in no important respect from those of Meyer. In the five cases above described, there was no evidence of invasion of the epithelium by the blood vessels of the theca. Figure 5, which pictures a corpus luteum removed on the fourteenth day of the menstrual cycle, shows a somewhat later stage. The granulosa cells are large and epithelioid, and contain some fat. In other words, they now possess all the morphologic characteristics of lutein cells. The lutein zone is still rather narrow and only slightly undulating.

The most significant feature of this stage, however, is the invasion of the lutein layer by small blood channels. These are clearly traceable back to the ring of blood vessels which marks the division between the granulosa and the theca, as described in connection with the earlier stages. Some of the blood in the lutein zone is present in definite endothelium-lined vessels, while some lies free between the cells, making its way to and into the cavity of the corpus. Even in this early stage, endothelial cells may be observed here and there to push out into the lumen, forecasting the organization of the blood contents which takes place in the late stages of the corpus luteum. It will also be seen that vascularization of the lutein layer is chiefly responsible for the bleeding into the cavity of the corpus, and for the organization of the lumen contents. From a physiologic point of view, it is of great importance because, in addition to carrying nutriment to the lutein cells, it enables their secretion to be emptied directly into the blood stream. Together with the advance in the development of the lutein cells, there is a corresponding retrogression in the theca cells. They have lost most of their fat, and are apparently reverting to the type of ordinary connective tissue cells.

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[4] Sobotta, J.: Arch. f. mikrosk. Anat., 1896, xlvii, 261.

In Figure 6, which represents a considerably later stage, the theca cells are inconspicuous, while the lutein layer appears as a broad festooned zone irrigated by numerous blood channels. The corpus luteum in this picture is rapidly approaching the stage of maturity, which is illustrated in Figure 7. Here one sees the corpus luteum in full bloom. Operation in this case had been done on the twenty-seventh day of the menstrual cycle. The lutein cells are large and polygonal, and give every histologic appearance of active function. Toward the lumen they are separated from the contents by a delicate layer of organized tissue, whose formation from the septa penetrating the lutein layer from the theca is clearly traceable. Meyer attaches great physiologic importance to this layer, as indicating that the secretion of the lutein cells can no longer be given off into the lumen, but must pass back into the blood stream. In many mature corpora lutea which I have examined, however, this layer is very poorly marked, and I believe that irrigation of the lutein zone by the vascular channels is more important than the formation of this organized layer in determining the internal secretory function of the corpus luteum.

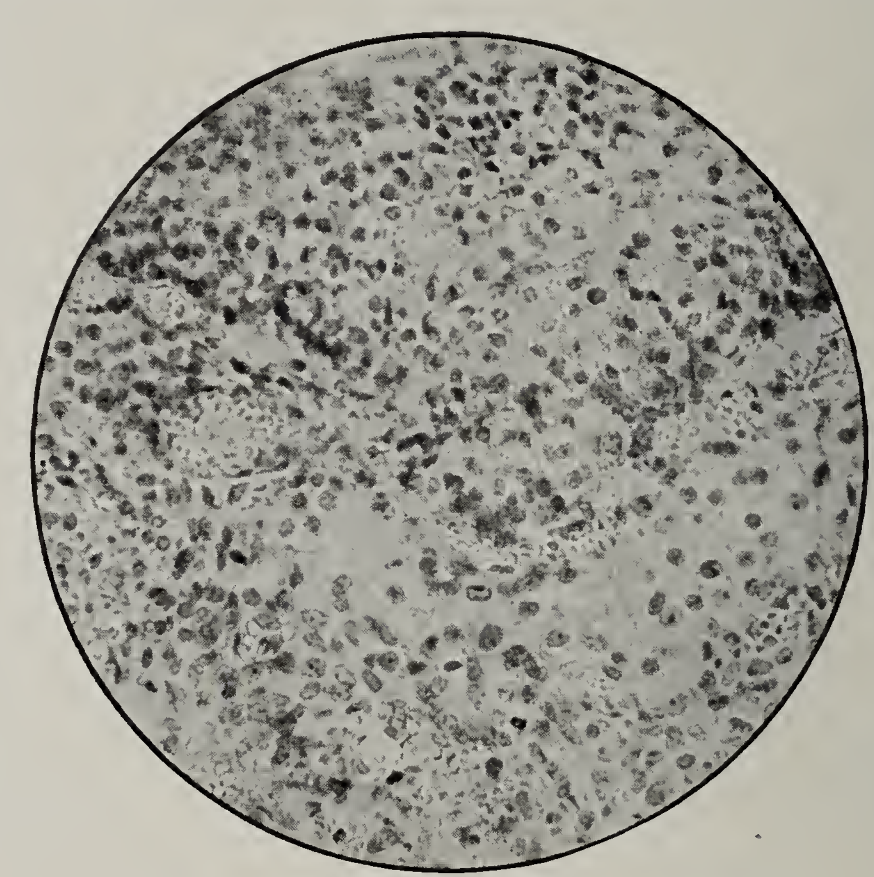

Fig. 4.—Wall of early corpus luteum, slightly more advanced than that shown in Figure 3 (high power). Note the lutein-like change of granulosa cells, and beginning retrogression of theca cells.

The present series included twenty-four corpora lutea classified histologically as mature. Reference to the menstrual histories in these cases showed that operation had been done at periods varying from the eighteenth to the twenty-seventh days of the cycle. In other words, the mature corpus luteum is found during that portion of the cycle in which the endometrium exhibits the premenstrual hypertrophy.

An exceedingly interesting feature of many corpora lutea, especially near the stage of maturity, is the remarkable development of the theca interna cells. This is well shown in Figure 7, and, more highly magnified, in Figure 8. The theca cells are seen to be fully as well developed as are the lutein cells, though they are of quite a different type. The contrast is very striking. The large size of the theca cells, their alveolar arrangement, the richness of their blood supply, all suggest a glandular structure and function. I cannot believe, as does Meyer, that the theca cells, after fulfilling a nutritive function in the earliest stages of the corpus luteum, retrogress and serve no further purpose. The name of "paralutein" cells was given to these cells by Pinto,[5] who, however, credits them with no special function. Such pictures as that shown in Figure 8 speak strongly against such a view. The corpus luteum pictured in Figure 9 shows a similar theca change occurring with an early tubal pregnancy. Incidentally it illustrates also the broader lutein zone and the more advanced organization of the corpus luteum of pregnancy. The theca changes represented in Figures 7 and 9 are practically the same, though one patient was pregnant and the other was not.

There can be little doubt that the corpus luteum possesses at least a dual function. Even Fraenkel attributed to it not only the causation of menstruation but also the fixation of the ovum in the early part of pregnancy. Since the luetin cells proper are almost certainly concerned in the causation of the menstrual phenomena, perhaps the paralutein cells are in some way concerned in the other important function ascribed to the corpus luteum. This, however, is a problem of biologic chemistry. I may simply state that in nineteen corpora lutea exhibiting marked development of these paralutein cells, all except a few were removed from patients who gave histories of profuse and, in a few instances, irregular menstruation. It is curious to note, also, that many of the patients were sterile. In some cases pregnancy had never occurred although the patient had been married many years, while in others, again, there had been a long period of secondary sterility.

ORIGIN OF THE LUTEIN CELLS

Such a complex question as this cannot, of course, be adequately discussed in the limits of the present paper. I shall merely indicate one or two facts which the study of my cases has brought out and which seem to throw light on this problem. The theory of the connective tissue origin of the lutein cells was supported by von Baer, the discoverer of the human ovum, and, after him, by His, von Köllicker, Spiegelberg, Paladino, Schottländer, Clark, Holzl, Nagel and others. On the other hand, the theory of the epithelial genesis of the lutein cells has found able supporters in Bischoff, Pflüger, Call and Exner, Schulin, Waldeyer, Sobotta and others. The latter theory, moreover, is favored by most of the modern German school of investigators who have contributed so much to our knowledge of the corpus luteum.

The question of the origin of the lutein cells in the lower animals has been conclusively settled by the exhaustive studies of Sobotta[4] on mice, rabbits, guinea-pigs and other mammals. Sobotta's studies indicate that in the lower animals, at least, it is from the epithelial cells of the membrana granulosa that the lutein cells are derived. It is questionable, however, whether these findings may be taken as applying to the human corpus luteum, especially since there has been such a paucity of accurate studies of the human structures.

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[5] Pinto, C.: Ann. di obstet. e ginec., 1905 (quoted by Seitz, Footnote 6).

Without going into the evidence pro and con, I may say that the balance was thrown decidedly in favor of the epithelial origin of the lutein cells by the studies of Robert Meyer on very early stages of corpus luteum development, as already mentioned. The early corpora lutea described by me in this paper fully confirm Meyer's claim that the cells of the membrana granulosa do not undergo degeneration after follicular rupture. Furthermore, the "paralutein" cells found in many corpora lutea, constituting a distinct zone between the lutein layer within and the theca externa to the outer side, are, with scarcely a doubt, developed from the theca interna. If this be true, there is no reasonable doubt of the origin of the lutein cells from the epithelium of the membrana granulosa.

Finally, the demonstration, as seen in Figures 1, 2, 3, 4 and 5, of a direct transformation of the granulosa cells into, first, luteinlike cells and then into actual lutein cells, is the strongest and most direct histologic evidence that can be brought to bear on this question. The great desideratum at the present time is the secural of many more early corpora lutea, so that all possible stages may be described in the actual conversion of granulosa cells into lutein cells. Such evidence is infinitely more valuable than any that can be obtained from the study of the mature corpus luteum.

ATRESIA FOLLICULI AND THE THECA LUTEIN CELLS

Only a very small percentage of the follicles in the ovary attain maturity, with the discharge of their ova and the development of corpora lutea. The great number sooner or later exhibit the phenomenon of atresia, which is characterized by degeneration of the ovum and of the epithelial cells of the granulosa. I shall not here discuss the influence which brings about this arrest in the development of the follicles, except to say that it seems to emanate from the discharged ovum. The cystlike cavities resulting from atresia are found in practically all ovaries during the reproductive period, and not infrequently even in the ovaries of fetuses and young children. When present in excessive number, they give rise to the well known fibrocystic disease of the ovary. The later history of the cystic atresic follicle is a gradual process of obliteration. In other words, the two varieties of atresia folliculi described by Seitz,[6] the cystic and obliterative, are in reality only different stages of the same process.

The theca cells of the atresic follicle, as is well known, exhibit a striking change during pregnancy, giving rise to the so-called "interstitial glands." Although no special attention seems to have been paid to their behavior in the nonpregnant condition, the arrangement of these cells strongly suggests that these cells possess some sort of function. What the relation of the theca lutein cell is to the paralutein cell already described I do not believe can be stated in the present stage of our knowledge.

As to the clinical significance of atresia folliculi, we may look on the process as, within certain limits, physiologic. On the other hand, the so-called fibrocystic ovary, to which so much pathologic importance was attached in the past, represents usually a marked exaggeration in the number and size of the atresic follicles. The particular point which struck me in going over my cases was that the ovaries which exhibited extreme degrees of follicular atresia, i. e., the fibrocystic ovaries, were almost always associated with excessive menstruation. I hasten to add that I do not look on the fibrocystic disease as the cause of the excessive menstruation. I do believe, however, that, like the latter, it is an evidence of excessive ovarian function. The majority of these ovaries are found in association with pelvic inflammatory disease, which brings about a greater or less increase in the blood supply of the ovary with hyperfunction as the natural result. Another result of the ovarian hyperemia is a stimulation of the growth of the follicles throughout the ovary. Only one of these each month, as a rule, comes to rupture, the others forming the numerous cavities of varying size, with or without epithelium, scattered throughout the ovary. If this view is correct, the presence of the fibrocystic ovary is an important index of ovarian hyperemia and hyperfunction, with excessive menstruation as the most frequent clinical symptom. This would explain, moreover, the frequent good results obtained by resection of a greater or less amount of ovarian tissue in cases of this type.

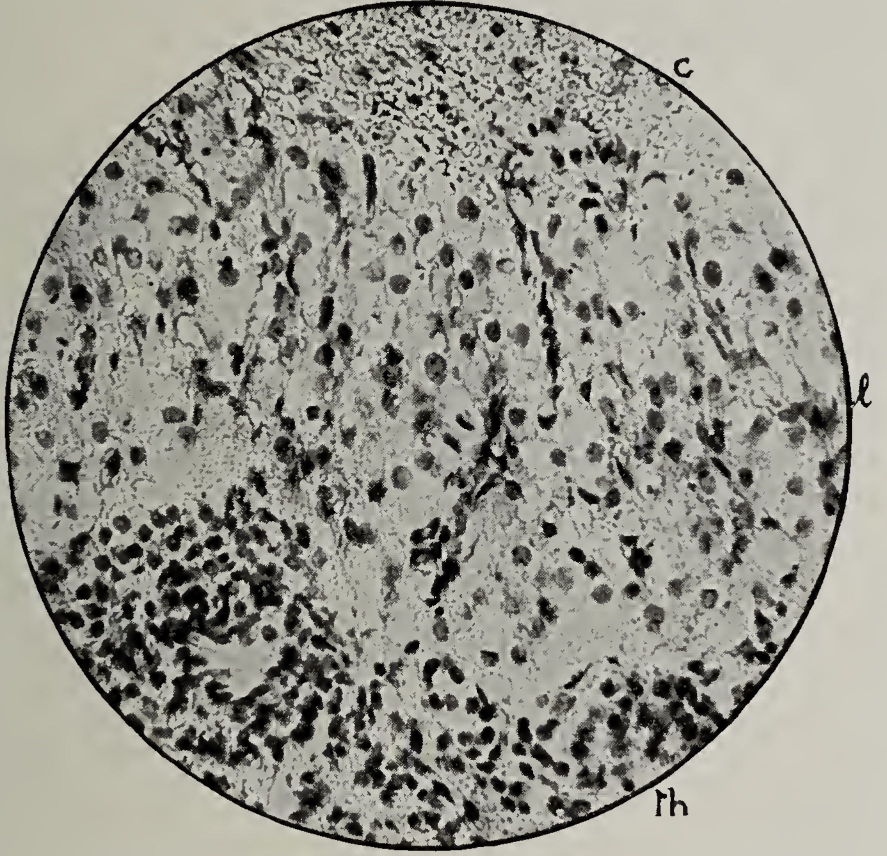

Fig. 5.—Wall of corpus luteum in stage of early vascularization, sixteenth day (high power). Blood vessels from the theca are pushing into the granulosa layer (*l*), which now possesses definite lutein characteristics. The theca cells (*th*) have lost their fat and are retrogressing. Note the beginning invasion of the blood in the cavity (*c*) by endothelial cells.

CLINICAL CONSIDERATIONS

One of the purposes of this study has been to determine whether any characteristic anatomic changes in the ovaries, especially as regards lutein tissue, are associated with the various disorders of menstruation. The histologic appearance of a tissue cannot be taken as an index of its functional activity. It would be of value, however, to know whether amenorrhea on the one hand or excessive menstruation on the other are associated with differences in the lutein cell content of the ovary, as one would expect might be the case.

One of the most important methods of studying the function of an organ is to study the results of its removal. I need only mention the valuable results yielded by this method of study in the case of other endocrine glands, such as the thyroid, parathyroid, suprarenal or pituitary. Fraenkel's plan of destroying the corpus luteum by the cautery point, crude and imperfect as it was, is an illustration of the same method as applied to this structure. The indispensability of the corpus luteum to menstruation can be determined with far greater accuracy, however, by the histologic method. During the menstrual life of the normal woman, lutein tissue in some stage or another of development is always to be found in the ovaries. On the other hand, in the nonmenstruating woman corpora lutea are absent. Many cases might be described to illustrate this fundamental rôle of the corpus luteum in menstruation.

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[6] Seitz, L.: Arch. f. Gynäk., 1906, lxxvii, 203.

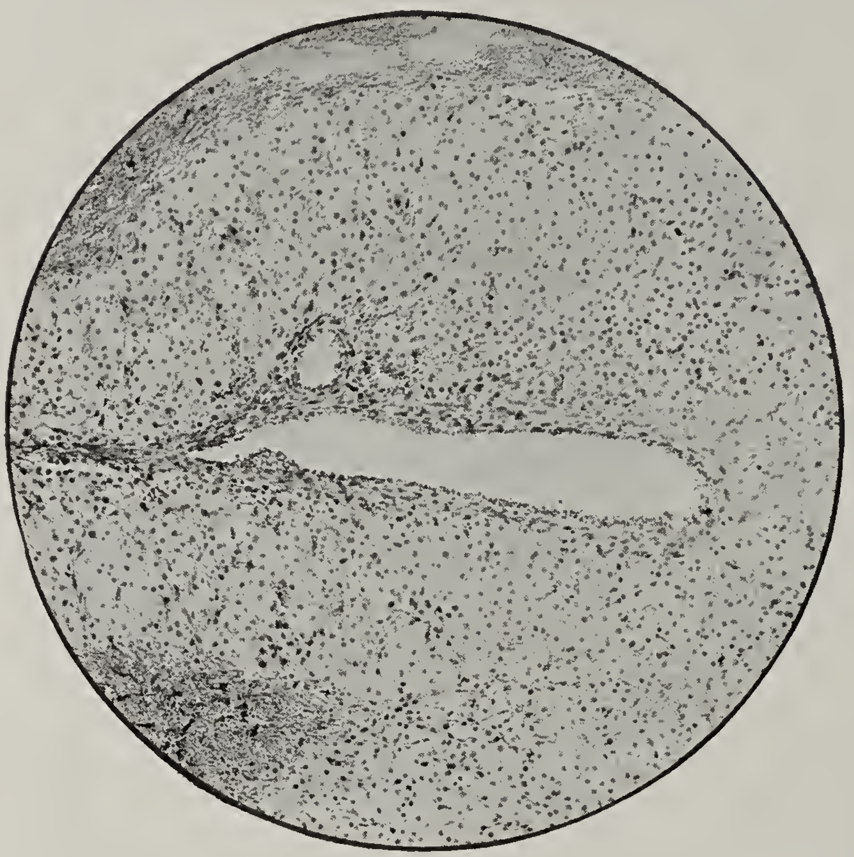

Fig. 6.—Wall of corpus luteum in stage of late vascularization, approaching maturity (low power).

While it is true that a greater or less degree of maturation of graafian follicles is frequently observed in the ovaries of girls before puberty, and even in those of fetuses and new-born children, corpora lutea are never found. Although I have studied a considerable number of very young ovaries, I have never observed a corpus luteum in them. On the other hand, I have frequently seen well developed graafian follicles and atresic follicles.

To pass to the other extreme of menstrual life, corpora lutea are never found in the ovaries of women who have ceased to menstruate. For a number of months after the last menstrual flow, retrogressive corpora lutea are, of course, present, and degenerated lutein cells may be observed; but this does not alter the general rule.

Of especial interest in this connection is the amenorrhea of lactation. That ovulation occurs during this period is obvious from the frequency with which impregnation occurs among nursing women. Certainly, therefore, one must expect to find corpora lutea in the ovaries of lactating women. Why, then, is menstruation so frequently absent during lactation? The evidence all indicates that the menstrual function of the corpus luteum is nullified by the new element which comes into activity during lactation, i. e., the influence of the functioning mammary gland. This influence is exerted through the medium of a hormone, which tends to inhibit or to counteract the secretion of the corpus luteum. A similar explanation suggests itself with regard to the amenorrhea of hypopituitary obesity (dystrophia adiposogenitalis), while the amenorrhea of anemia, phthisis and other debilitating conditions is due either to an inhibitory effect on the secretory cells of the corpus luteum, or, more probably, to the failure of ovulation itself. Which of these two factors is responsible can be determined only by the careful study of ovaries from women suffering from these various diseases. So far as I know, such studies have not yet been made.

With regard to the opposite condition of excessive menstruation, the problem is much more difficult and complex. Many factors are to be considered in attempting to explain uterine bleeding, as emphasized in a previous paper before this section.[7] At present, however, we are dealing only with the possible rôle of the ovary in this connection.

As is well known, Hitschmann and Adler[8] have attempted to show that in the great majority of cases uterine bleeding is due to either functional or organic disturbance in the ovaries. For example, such conditions as salpingitis are especially apt to produce excessive menstruation when the ovary is involved in the inflammatory disease. When the ovary is free, there is less likelihood of menorrhagia or metrorrhagia. This rule, if I may so speak of it, does not, of course, apply to diseases such as carcinoma of the uterus, in which the bleeding is due to actual local destruction of tissue and invasion of blood vessels by the disease.

Since it seems to be demonstrated that the corpus luteum is the cause of normal menstruation, it would seem most probable that we must look to disturbance of this structure for an explanation of the disorders of menstruation. The histologic evidences of hyperfunction would naturally be either overdevelopment of

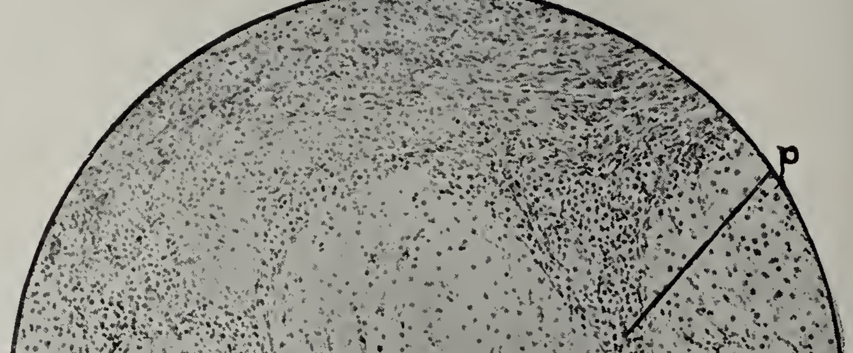

Fig. 7.—Wall of mature corpus luteum, twenty-seventh day (low power), showing lutein (*l*) and paralutein (*p*) cells. The latter are found in the wedgelike septa.

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[7] Novak, Emil: The Pathologic Physiology of Uterine Bleeding, The Journal A. M. A., Aug. 22, 1914, p. 617.

[8] Hitschmann and Adler: Arch. f. Gynäk., 1913, c, 233.

the normal corpus luteum, of the presence of other lutein tissue than that to be found in the corpus luteum (accessory corpora lutea, corpus luteum cysts, etc.). A careful analysis of my cases has failed to reveal anything like a direct relation between the degree of lutein development in the ovary and the clinical intensity of the menstrual flow. Speaking generally, the corpus luteum from a case of excessive menstruation shows no greater development than that from a case of scanty menstruation at a corresponding stage in the menstrual cycle. Such a conclusion is not justified unless both ovaries are thoroughly ransacked in all parts so that no lutein tissue structures will be overlooked. This was done, as has been mentioned, in 102 cases of this series, and it is of course on these alone that I have based the assertion that variations in the amount of menstrual flow are not due to differences in the degree of development of the lutein tissue of the ovary. This does not, however, preclude the possibility of functional increase or decrease being the cause of increase or decrease in the menstrual reaction. Nor can we forget the all-important fact that even though the ovarian secretion is the immediate cause of menstruation, this function is also influenced by practically all the other endocrine glands of the body. The ovary is merely the portal through which the entire ductless gland change exerts its influence on the functions of the female generative organs. Whereas formerly anatomic causes were presupposed in practically all cases of uterine bleeding, now the evidence is pointing more and more clearly toward the importance of functional disturbances in the ovary and of the endocrine system of which it is a part. To this general principle, the bleeding caused by such actually destructive lesions as cancer is of course an exception.

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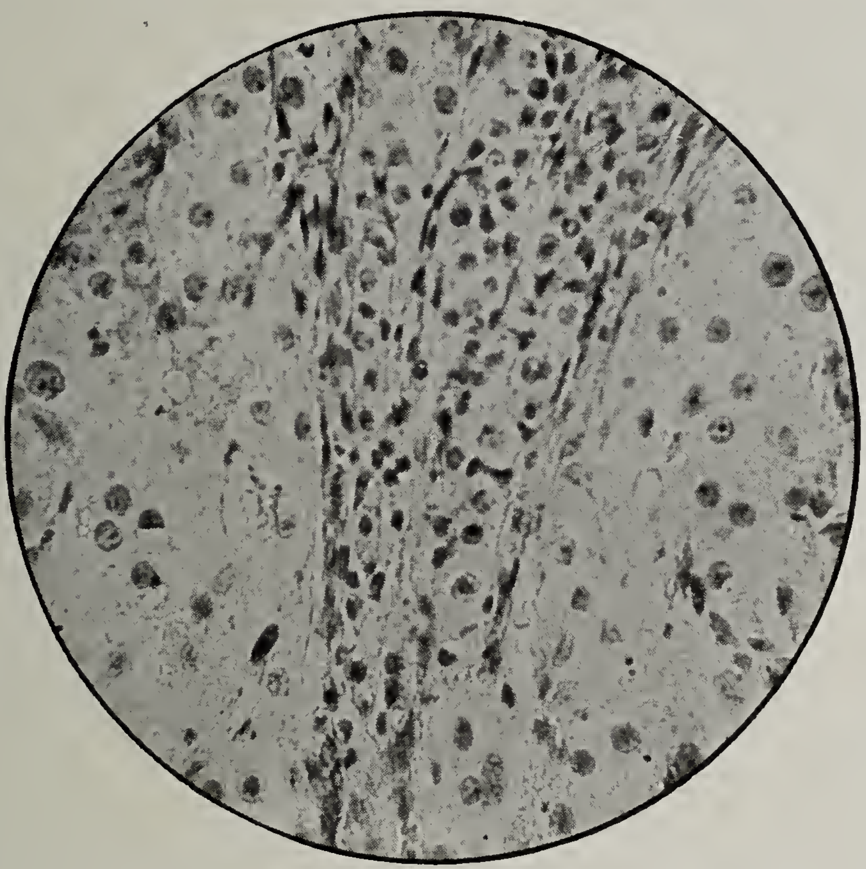

Fig. 8.—Contrast between lutein and paralutein cells, near top of septum shown at *p*, in Figure 7 (high power).

ABSTRACT OF DISCUSSION

Dr. Carey Culbertson, Chicago: I was pleased that Dr. Novak regards the lutein cell as the histologic derivative of the membrana granulosa—hence of embryonic epithelial origin—rather than as modified from the internal theca. This opinion is in accord with my own teaching during the past ten years. The corpus luteum must be thought of as implying not only folliculation, but ovulation, hence I agree with the speaker again in his remarks anent Dr. Reynold's description of the atretic follicles, that is, that in the atretic follicle the band of more or less degenerated cells does not represent lutein cells. A follicle that has become cystic before casting off its ovule can never develop a corpus luteum, hence, can never produce a hormone, nor eventually result in a corpus albicans. Another point in Dr. Novak's paper which requires reinforcement is that pertaining to the theca interna. This represents a very interesting cell change, indeed, on which the corpus luteum seems to be absolutely dependent. The corpus luteum must not be thought of as a histologic entity in that it can exist by itself, be transplanted, etc. It depends for its cell development, for its activation, directly on the underlying theca wherein we find the essential blood supply. Indeed, after all, the term "activation" may mean nothing but vascularization—the dilatation of capillaries with the consequent imbibition of serum whereby certain special cells reach the height of development and are thereby able to produce a certain active principle called a hormone.

Dr. E. Novak, Baltimore: As Dr. Culbertson remarked, the tendency in this country has apparently been in favor of the connective tissue origin of the lutein cell, probably as a result of the influence of certain American writers. If such observations as those which I have reported are confirmed, it will be necessary to revise this teaching. The evidence of the epithelial origin of these cells is based on the following observations: (1) The membrana granulosa is not lost after follicular rupture, but remains practically intact and virile; (2) a direct transformation of the granulosa cells seems to have been demonstrated; (3) the theca cells, while epithelioid and fatty shortly after follicular rupture, soon exhibit a retrogression to the ordinary connective tissue type; (4) if, as seems almost certain, the paralutein cells are derived from the theca interna, the lutein zone must represent the transformed granulosa; (5) exhaustive studies of the corpus luteum in lower animals have clearly demonstrated the epithelial origin of the lutein tissue in these animals. The time is soon coming when the mystery which has always enshrouded the menstrual phenomenon will be dissipated. We are rapidly accumulating facts which will sometime enable us to treat menstrual disorders as rationally as we treat such analogous disorders as those of the thyroid gland. There can be little doubt that perfected organotherapy will play a more important rôle in the management of many of these cases in the future than it has in the past.

Mutations of de Vries.—It would appear from the researches of de Vries and other botanists that the sudden alterations of structure and function which may be known as mutations of de Vries are of far more general occurrence among plants than among animals. Such mutations are attributable to sudden alterations of molecular and atomic constitution. Sensitiveness to the biochemical reactions of the physical environment should theoretically be more evident in organisms like plants which derive their energy directly from inorganic compounds which are constantly changing their chemical formulae with the conditions of moisture, of aridity, of temperature, of chemical soil content than in organisms like animals which secure their food compounds ready-made by the plants and possessing comparatively similar and stable chemical formulae. Thus a plant transferred from one environment to another exhibits much more sudden and profound changes than an animal, for the reason that all the sources of plant energy are profoundly changed while the sources of animal energy are only slightly changed. The highly varied chemical sources of plant energy are, in other words, in striking contrast with the comparatively uniform sources of animal energy which are primarily the carbohydrates and the proteins formed by the plants.—The Origin and Evolution of Life Upon the Earth, Henry Fairfield Osborn.

LEPRA MUTILANS

MELVIN S. ROSENTHAL, M.D.
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History.—C. C., a colored bootblack, aged 22, single, applied to Dr. John Chambers of the Mercy Hospital, April 10, 1916, for ulceration and necrosis of fingers of both hands. Suspecting the possibility of leprosy, Dr. Chambers referred the patient to the dermatologic department, where the following history was elicited: The patient was born in Demerara, British Guiana, in 1893. The mother died of dropsy about fifteen years ago. The father was living and well. A brother and sister were living and apparently healthy. There was no history of any skin disease on either side of the family. In 1897 the family migrated to Barbados, West Indies, where the patient remained until 1907, coming to New York as a laborer. The following year he came to Sparrows Point, Md., and worked in the iron mills. At about this time the patient noticed a slight contraction of the fingers of both hands which was not serious enough, however, to incapacitate him from work. While engaged at his occupation he dropped a bar of hot iron on his foot, and in removing it severely burned his fingers and toes. The burns were painless and showed but slight disposition to heal, the injured surfaces remaining denuded of skin, the soft tissues gradually receding from the bone, leaving the ends of the bones exposed and charred. These finally sloughed off, leaving ulcerated surfaces on the fingers but clean cicatricial masses on the toes. Subjectively the only symptoms were loss of sensation in hands and feet, with slight burning and tingling in the parts. Except for the discomfort arising from the loss of fingers and toes and the unsightliness of the disease, the patient had suffered no pain or inconvenience, being able to follow his occupation until the diagnosis of leprosy was made.

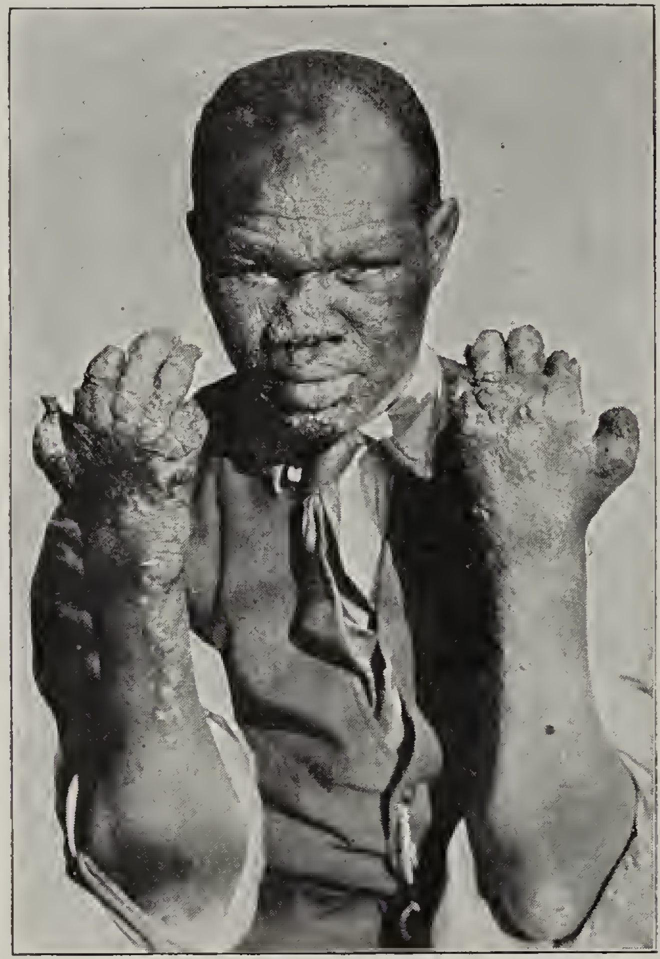


Fig. 1.—Lepra mutilans: mutilation of fingers, leukodermic spots on arms, loss of septum, eyebrows and eyelashes; face studded with many tubercles, which are especially prominent around the mouth and chin.

Examination.—The patient was a well nourished black negro apparently about 40 years of age. There was slight alopecia presenilis without evidence of inflammation. The skin on the face was thickened, indurated and covered with a large number of tubercles of various size and shape. Around the mouth, chin and nose they were especially abundant. The eyebrows and eyelashes were scant, and the beard practically lost. There was a mass of ulcers on the mucocutaneous margin of the lips. The nasal fossae were studded with a large number of ulcers extending into the posterior nares. There was complete loss of septum, flattening the nose against the face. Both external ears were covered by many small tubercles extending deep into the auditory canal. Many of these tubercles were broken down and suppurating. Both hands were covered with a black, foul smelling débris, but slightly adherent to the skin. The removal of this mass showed many ulcers and scars. There was complete destruction of the little fingers of both hands. Both thumbs were thickened, and there was destruction of the terminal phalanges. On the right, the phalanx remained as a charred mass, and was readily removed by slight traction. The other fingers were thickened and partly destroyed. The ends of the stumps on all the fingers were open and suppurating. The back of both hands and forearms were covered with numerous leukodermic spots, circinate in outline with central loss of pigment. There was no apparent change in the muscular structure of forearms or hands. There was complete anesthesia of both arms extending in an irregular outline from the elbow down. Large sections were removed from the hands for microscopic examination without causing the slightest pain. There was complete destruction of all the toes on the left foot, a clean, healthy cicatrix covering the entire area. On the right foot there remained part of the great toe; the second toe was ulcerated and partly destroyed; the other toes were destroyed. On the inner surface of the right foot was a long scar, the result of a surgical operation for supposed gangrene. There were a few leukodermic spots on both feet. There was complete anesthesia below the knee. There was palpable thickening of the ulnar and median nerves, with evidences of nodes. The ankle and patellar reflexes were lost. The Wassermann test was negative. Smears made from the nose, mouth and hands showed the presence of large numbers of rod shaped, acid fast organisms found in groups and closely resembling the tubercle bacillus. In sections the same organisms were found. Roentgenograms of the hands showed a symmetrical destruction of the phalanges of both hands.

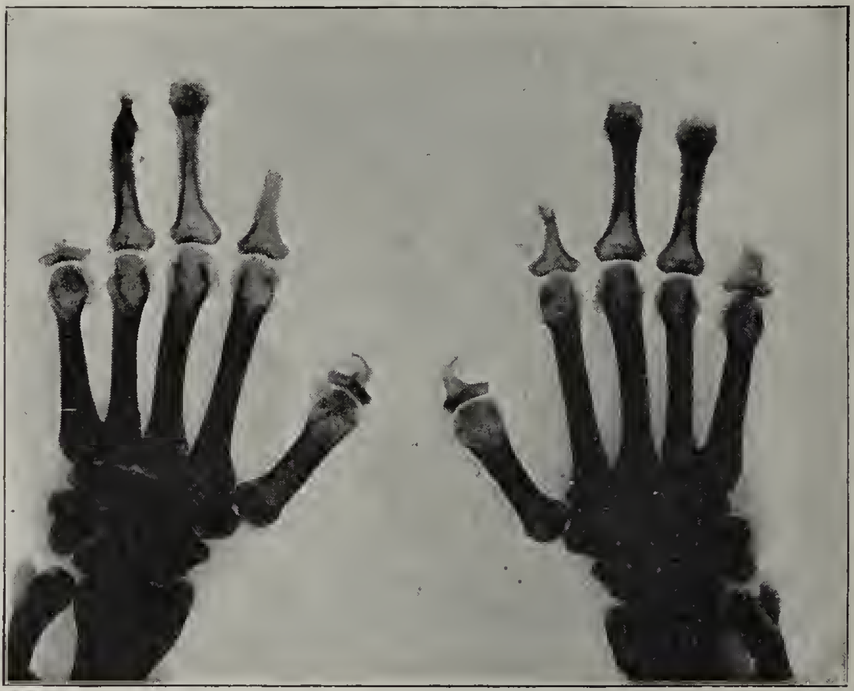


Fig. 2.—Symmetrical destruction of bones of hands.

The syndrome of the clawlike contraction of the fingers, followed by painless and gradual loss of the digits, the complete anesthesia, mutilation and thickening of the face, the ulceration around the mouth and nose, and the leukodermic spots on the hands and feet, identify this as a case of leprosy without the refinement of differential diagnosis, yet a number of unusual features makes it of more than ordinary interest.

It is difficult to conceive that a man with so pronounced and evidently serious a skin disease should have entirely escaped a diagnosis in spite of the fact that within a year he had been treated both as an ambulatory and a bed case in several hospitals. The rapidity of the tuberculous and destructive process in the face had been unusually rapid. The amount of mutilation which had taken place in this patient in about a year ordinarily takes from three to five years. He had been able to follow his occupation as bootblack continuously until the diagnosis was made. By means of leather bands into which his hands were fitted he was enabled to hold his brushes and shine shoes. His stand was in the neighborhood of the Mercy Hospital, and his patrons were largely medical students, and it was through the curiosity of a medical student that he was induced to visit the Mercy Hospital.

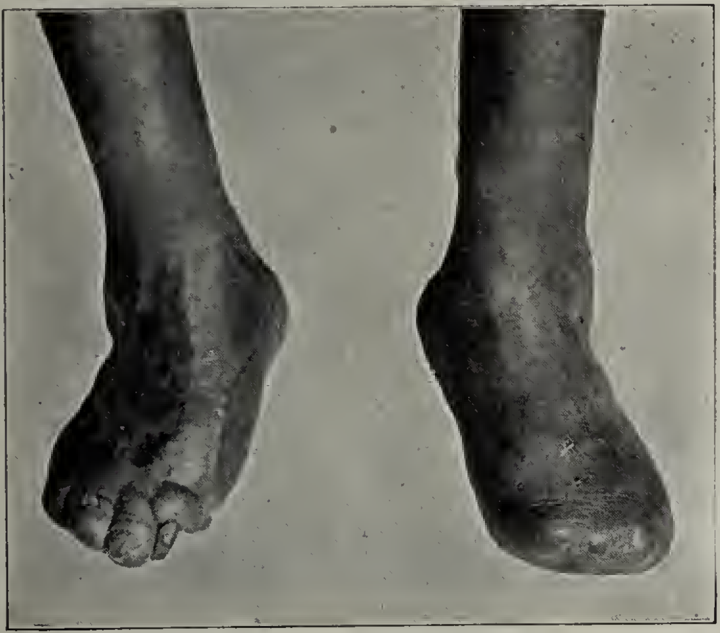


Fig. 3.—Complete spontaneous amputation of toes of left foot, leaving a healthy cicatrix; partial amputation of toes of right foot, showing ulcers and denuded bone; scar of inner surface, result of operation for necrosis.

The horror with which the public views leprosy makes the disposition of these cases a difficult problem. While direct evidence is lacking as to the communicability of the disease in this climate, it is assuredly hazardous and undesirable to allow absolute freedom to a poverty stricken individual lacking all the facilities of ordinary cleanliness, living in filth and squalor, and incapacitated by his deformity from caring for himself. Smears made from the hands, mouth, nose and lips were filled with the lepra organisms, and in our present state of uncertainty it would be prudent to isolate these patients.

The case was originally reported to the health department, April 13, as a case of leprosy; but up to the present time (June 9) the department has taken no official recognition of the disease, treating the patient simply as a pauper, and referring him to the supervisor of city charities for admission to the almshouse. This department in turn, claiming leprosy to be a menace, has refused him admission, transferring the case to the City Charity Organization Society for financial assistance.

In the meantime, the man continues to roam at freedom, using the street cars and telephones, handling money as he sees fit, and living in the same sordid, unhealthy surroundings in which he was originally found.

This case well illustrates the urgent need of a national leprosarium where these unfortunates can find a permanent refuge and the community be spared the presence of an unsightly, mutilated and incurable human being awaiting the final call.

718 North Howard Street.

AN UNUSUAL FRACTURE OF BOTH BONES OF THE LEG

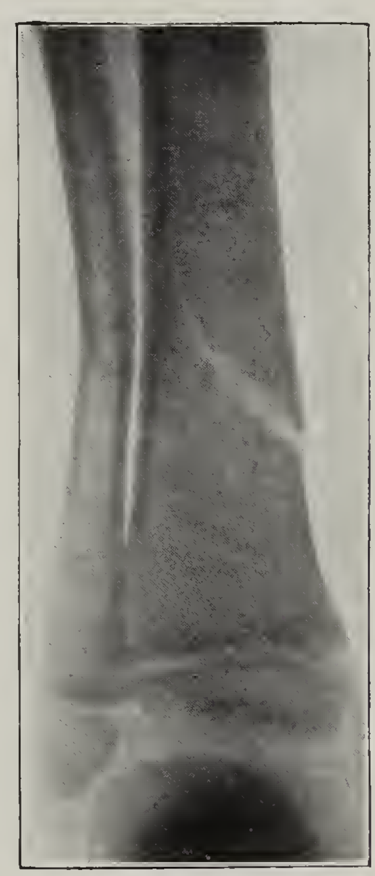
Charles Ryttenberg, M.A., M.D., Port Chester, N. Y.
Associate Surgeon, the United Hospital

Lester B., boy, aged 5 years, while crossing the street, was struck by the mudguard of an automobile, and knocked down. The blow was a glancing one, as the driver in endeavoring to avoid striking the child ran his machine on the sidewalk.

Examination of the child a few minutes after the accident revealed a slight abrasion over the inner side of the right arm, and refusal of the child to stand on its feet. The only subjective symptom was pain above the left ankle. The examination of the left lower extremity showed no dislocation at any joint. There were no swelling, no false motion, no ecchymosis, no crepitus. Movements at the ankle and knee were normal. Slight tenderness was present at the junction of the lower and middle thirds of the leg. Motion transmitted upward by striking against the heel elicited tenderness at about the same place. This transmitted tenderness was not a very marked sign. There was not sufficient reason to suspect a fracture, so a wet dressing was applied, and the child kept in bed. When seen the next day, the symptoms were practically unchanged: no swelling, no ecchymosis, no false point of motion and no crepitus. In fact, the only symptoms were refusal of the child to stand on the leg, slight tenderness at the junction of the lower and middle thirds of the leg, and slight tenderness transmitted by pressure against the heel.

On account of the peculiar character of the case, a Roentgen examination was made. The findings were unexpected: There was an oblique incomplete fracture of the tibia in the lower third of the bone, extending from the inner side upward and outward to within about an eighth of an inch of the outer side. At a point directly opposite the fracture of the tibia, there was a marked inward bowing of the fibula, strongly suggestive of a greenstick fracture.

The leg was immobilized in plaster, without any attempt being made to correct the deformity of the fibula. An uneventful recovery followed in three weeks, with complete restoration of function.



Oblique fracture (incomplete) of tibia; greenstick fracture of fibula.

A View of Life.—There is no such thing as a common, a humdrum or a sterile life, unless we make it so ourselves. "The rainbow and the rose," says my author, "will give their colors to all alike. The sense of beauty that is born in every soul pleads for permission to remain there." If we will but look for it, there is something ennobling and uplifting in every vocation to which a man can put his hand. Every activity of life has its material aspect and its spiritual aspect. It has its result in visible accomplishments, and it also has its result in invisible mind-building, will-building and intellectual enjoyment.—Nicholas Murray Butler.

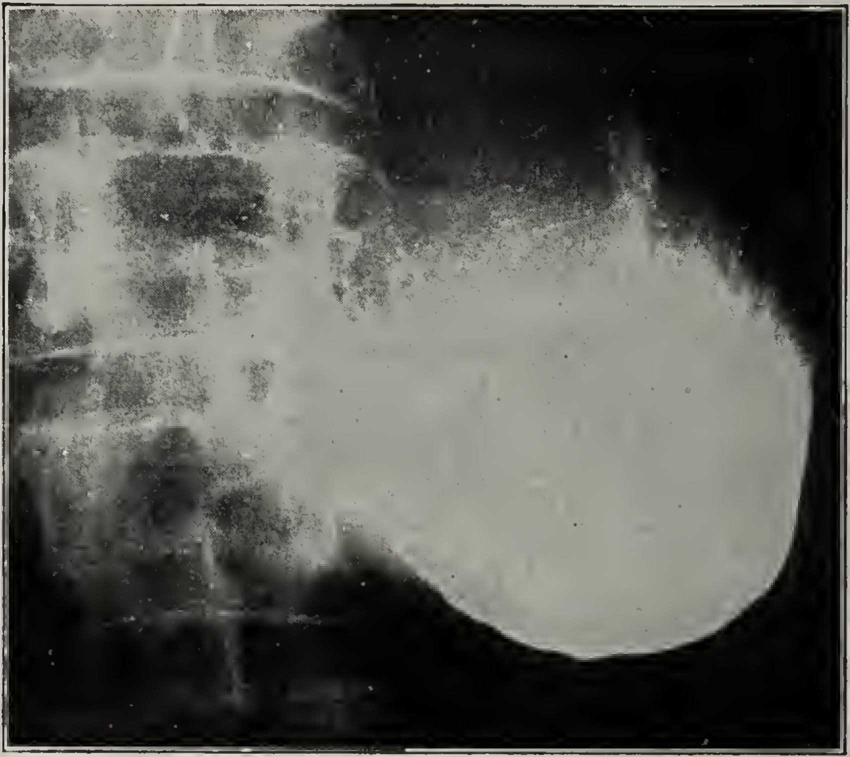
TRAUMATIC RUPTURE OF THE STOMACH, WITH RECOVERY

Alanson Weeks, M.D., San Francisco
Chief Surgeon, Emergency Hospital Service

The patient, a man, aged 35, was brought to the Central Emergency Hospital at 6:20 p. m., Feb. 19, 1916. He was examined by Dr. Edmund Butler, the surgeon on duty, who made a record of the following findings, and notified me of the necessity for immediate operation.

A short time before, the patient, while driving his automobile, ran into a moving street car, striking the upper abdomen against the steering wheel with great force. Examination showed the patient conscious, with very severe pain in the epigastric region; lacerated wound of the chin; contusion of the scalp; abdomen flat and rigid (boardlike), and extremely tender; liver dulness present; no dulness in flanks; no nausea or vomiting, and no blood in urine.

A diagnosis of rupture of the bowel was made, and operation performed immediately. A midline epigastric incision was made. The preperitoneal fat was hemorrhagic; the posterior sheath of the rectus was ruptured; there was no gas or blood when the peritoneal cavity was opened, but when the stomach was lifted into the wound, gas and blood escaped from the region of the pylorus. One inch from the pylorus the stomach was ruptured through the entire thickness, from the lesser to the greater curvature, on the anterior, and through all but the peritoneal coat of the posterior surface, from the lesser curvature, more than half way across, to the greater curvature. It was rather difficult to make out the exact nature of the injury, because of the fact that the mucous membrane and muscular and peritoneal coats were separated in the region of the wound. There was marked hemorrhage from the torn edges. The rupture of the posterior wall was closed through the anterior opening, with a continuous catgut suture, in one layer; the anterior wall was closed with a continuous catgut suture in two layers. A rubber tube drain was placed to the region of the tear. There was no other bleeding in the abdomen. The patient received 1,000 c.c. of normal salt solution intravenously on the table.



Roentgenogram of stomach two hours after eating.

He was returned to bed, and at 12:30 had a pulse of 104, respiration 22, and was resting comfortably. Continuous glucose bicarbonate drip was given by bowel for four days. He required but two hypodermics for pain, following the operation. Small amounts of water by mouth were started, February 22, and February 23 he was allowed small amounts of malted milk. On the 24th, he had an even temperature, and the pulse was 88 and the respiration 18. Recovery was uneventful. He walked from the hospital, Feb. 28, 1916, and was driving his car and attending business two weeks from the date of injury. Two months after the operation he is evidently in perfect health.

The accompanying roentgenogram of his stomach speaks for itself. Dr. Howard E. Ruggles makes the following report of his Roentgen findings: "Stomach high and central, with dilated cardia and body, and a persistent defect in the antrum 2 inches inside the pylorus. Also, persistent contraction of the duodenal cap, which never filled completely, and which emptied rapidly. At two hours after eating there was still one-third residue in the stomach, and at six hours the stomach was entirely empty."

STRICTURE OF THE ESOPHAGUS

REPORT OF A CASE

Walter M. Brunet, M.D., Lynchburg, Va.

History.—Negro, aged 35, laborer, about sixteen months ago swallowed an ounce of concentrated lye by mistake, thinking it was water, with the usual result of the ingestion of such material. He was seen shortly after the accident by a physician in the country near his home, who administered demulcents for the burned condition of his mouth and throat.

The acute symptoms subsided after several days, and he felt no ill effects until some weeks after the accident. He first noticed that if he took any liquids in a hasty manner he would regurgitate some of them, and if he ate solid food of any kind without chewing thoroughly (fletcherizing) he would expel them.

This condition increased for about a year, and at this time he consulted a nose and throat specialist who referred him to a general practitioner for treatment. The doctor dilated the stricture on several occasions, using flexible graduated bougies, and the patient states that he was very much improved by the procedure and could eat with less discomfort. After this he did not consult a physician for a year.

Present Illness.—The patient states that while in the act of drinking lemonade he swallowed a small lemon seed, and it "stuck in his throat," and he was unable either to swallow it or regurgitate it.

He was seen shortly after the accident by two physicians, and both attempted to dislodge the obstruction by bougies, but without success. The man's thirst was intense, as the heat during this period, June, 1915, was extreme, and the man was unable to retain any fluids taken by mouth. About twenty-four hours after the accident he came to this city and consulted a nose and throat specialist, who referred him to me.

Physical Examination.—The patient was fairly well developed and well nourished, and was very weak and exhausted in appearance, owing to the torrid weather and lack of fluids. At the time of this examination he had had no fluids for over twenty-four hours.

He was given water in small quantities, and a string was tried, but after retaining them for a few moments they would be ejected. Then a small olivary tipped bougie was passed, and it met an obstruction about 14 inches from the teeth. After the patient had been subjected to this torture for some time he was sent to a roentgenographer for an examination.

A roentgenogram was taken after the ingestion of a small quantity of bismuth, and this showed the esophagus to be occluded, and the outlines of a lemon seed could be plainly seen.

The patient was then sent to the hospital and rectal alimentation resorted to for some hours.

Operation.—Under general anesthesia a left rectus incision high up under the costal margin was made, and the stomach located and pulled up into the wound and incised. The finger was then passed into the cardia, but the constriction was so high up that it could not be palpated. A small bougie was then passed into the esophagus from the cardia, and it became obstructed about 12 inches from the latter. After several attempts a small uterine sound was successfully passed beyond the constriction, and with this in place a small bougie was passed from the mouth, and on the withdrawal of the sound the bougie was carried into the stomach. This was gently pulled all the way into the stomach cavity, and successive sizes passed until a fairly large dilation was obtained.

During this manipulation the lemon seed was pushed into the stomach; it was of usual size and was intact from its position in the esophagus.

After these manipulations had been carried out, a rubber tube was sutured into the stomach wall after the method of Senn.

Postoperative Course.—For the first twenty-four hours the patient had a rather stormy course, but after this his condition rapidly improved, and at the end of the fourth day he was able to take food by mouth with a fair degree of comfort. At the end of the sixth day graduated bougies were passed twice a day, and at the end of the ninth day the tube in the stomach was removed, and the patient left the hospital on the fifteenth day.

Since his discharge from the hospital he has kept up the passing of the bougies, which has been about twelve months. He eats anything and has had absolutely no trouble with the passage of food through the esophagus.

He has now gained 40 pounds and works every day as a section hand on one of the railroads which come into the city.

REPORT OF A CASE OF ACQUIRED HEMOLYTIC JAUNDICE WITH SPLENECTOMY

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Attending Physician in Digestive Diseases, Vanderbilt Clinic; Gastro-Enterologist, Gouverneur Hospital
AND
ELIHU KATZ, M.D.
NEW YORK

While a great deal has been written and elaborate studies and experiments have been made to determine the nature of hemolytic jaundice, it was not until 1898, that Hayem,[1] through a study and analysis of cases, first showed that the familial and the acquired types were two entirely separate and definite conditions. Since then many experimenters and clinicians have substantiated his conclusions. A review of the summary on hemolytic jaundice made in 1915 by Elliott and Kanavel,[2] who were the first in this country to report on splenectomy in the familial form, reveals the fact that a splenectomy was done in but thirteen cases of the acquired type, and that all these cases have been recorded in foreign literature. This lack of case reports in the American literature has served as a stimulus for recording the following case:

CASE REPORT

History.—M. T., male, aged 18, tailor, white, born in southern Italy, eighteen months in this country, first came under observation at the Vanderbilt Clinic, Nov. 9, 1915. His parents, three brothers and three sisters, all of whom are living, are in good health. There is no history of icterus in the family. Aside from the fact that when very young he had a fever that lasted three days, he never had any illness. A history of venereal infection could not be elicited. He had never used alcohol, tobacco or drugs. He had been in good general health until eight months previously, March, 1915, when he noticed that his skin and his eyes were becoming rather rapidly lemon colored. In about two days, the jaundice was deep, he felt drowsy, was weak, and had to go to bed. On the third day he had high fever, sweat a good deal, and had several distinct chills. The high fever with the severe chills and sweats persisted for two weeks during which he remained at home and in bed. The yellow discoloration of the skin and mucous membranes, however, which had by this time become less intense, was nevertheless quite marked. At the beginning of the third week the fever, sweats and chills decreased in severity, and the patient resumed his work at which he remained until his admission to the Roosevelt Hospital, Nov. 17, 1915. During this entire period, he had a daily fever of from 99 to 100, which appeared regularly in the afternoon, which was preceded by a slight chill lasting for about five minutes, and which was followed by sweating. At no time did he have itching of the skin. For a few months prior to his admission to the hospital, in addition to the symptoms mentioned, he complained of a heavy feeling, distention, and tenderness in the epigastrium. These appeared about half an hour after meals and continued from ten to twenty minutes. He had, however, no distinct pain, localized or radiating, and no vomiting or nausea. His bowels moved daily. The stools were yellow, not offensive, of normal consistency, never contained mucus or blood, and were never clay colored. He had no burning on micturition, and no urgency or frequency of micturition. His urine was always of normal color. During the eight months of his illness he had lost 6 pounds in weight.

Physical Examination.—When examined his pulse was 72, respiration 18, and temperature 100. His nutrition was fair. The skin and visible mucous membranes were distinctly icteric, and there was a slight acne rash on the back of the chest. The tongue, teeth, pharynx, tonsils and eyes were normal. The heart and lungs were negative. The abdomen was relaxed and there was slight tenderness in the epigastric region, especially to the left of the midline. The liver was not palpable and on percussion did not seem to be enlarged. The spleen, however, was distinctly enlarged, the sharp inner border being felt near the midline, and reaching almost to the umbilicus, and the lower pole being 4 inches above the crest of the ilium. The consistency was about normal, the surface smooth, and not tender. The genitalia, extremities and reflexes were normal.

Laboratory Examinations.—Nov. 9, 1915, the blood examination showed hemoglobin 68 per cent., erythrocytes 4,500,000, and leukocytes 4,200. The differential count of 200 white cells showed polymorphonuclears 78.5 per cent., small lymphocytes 12.5 per cent., large mononuclears 4 per cent., eosinophils 2 per cent., basophils 0.5 per cent., and transitional cells 1.5 per cent. Slight poikilocytosis was present and the crenation of the red blood cells was marked. No pigmented or other abnormal erythrocytes were found. A careful and repeated search for malarial plasmodia proved negative. Blood withdrawn for the Wassermann reaction also gave negative results, but tests for bilirubin in the blood serum were strongly positive.

Gastric analysis made, November 10, after a test breakfast, showed free hydrochloric acid 40, and a total acidity of 60. There was no blood in the extracted contents, but a very slight trace of bile was present. An examination of the stool made the same day showed the feces to be normal in color and consistency. Microscopic examination revealed a large quantity of cellulose, with a few starch granules. No fat globules or ova were found. The particles were heavily tinged with bile.

Successive daily analyses of the urine gave negative reactions for albumin, sugar and bile. The urobilinogen and urobilin tests were repeatedly strongly positive. Microscopically the urine was continually negative.

November 15, the patient was referred to Dr. Mortimer Warren, pathologist to the Roosevelt Hospital, who reported as follows: Blood count showed erythrocytes 4,200,000, with a hemoglobin of 78 per cent. The white blood cells totaled 4,200, with a differential count of polymorphonuclears 75 per cent., lymphocytes 15 per cent., large mononuclears 1 per cent., transitionals 5.5 per cent., eosinophils 3.5 per cent. The color index was 0.9 per cent. Anisocytosis and poikilocytosis were present. There was no polychromatophilia or granular basophilia. By vital staining 16 per cent. of the red blood cells showed granulation. A few microcytes and blood platelets were found, but no parasites. The average size of twenty dried smear red blood corpuscles measured 7.2 by 5.8 mm. The volume of the red cells was 31 per cent. The resistance of the red cells to hypotonic salt solution was determined, and somewhat diminished values were obtained, the minimum being 0.45 per cent., and the maximum 0.3 per cent. The blood serum was orange colored, and responded to the test for bilirubin. Auto-agglutination and isohemolytic tests were negative. The urine examined at this time contained no bile, but gave distinct reactions for urobilinogen and urobilin.

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[1] Quoted from Krumbhaar (Footnote 7).

[2] Elliott and Kanavel: Splenectomy for Hemolytic Icterus, Surg., Gynec. and Obst., 1915, xxi, 37.

Diagnosis.—Diagnosis of acquired hemolytic jaundice was made. The chronic enlargement of the spleen, the acholuric nonobstructive jaundice not causing pruritus, the absence of bile from the urine and the presence of bilirubin in the blood serum, the positive reactions for urobilin and urobilinogen in the urine, the anemia, and the granulation of the red blood cells with their slightly increased fragility to hypotonic salt solutions all pointed to this condition. From the fact that there was no hereditary basis for the icterus, and from the late and rather sudden onset, it was evident that the case belonged to the acquired type.

Treatment.—Although roentgenotherapy was considered, a splenectomy was advised. This was done at the Roosevelt Hospital, Nov. 23, 1915, by Dr. Charles Peck, assisted by Dr. Street. Under ether anesthesia an incision was made along the left border of the left rectus muscle from the rib margin to the umbilicus. Palpation of the gallbladder, gallducts, liver, stomach and pancreas was negative. The spleen was considerably enlarged, firm, but not indurated, and fairly free from adhesions except along its posterior border and to a moderate extent at the upper pole. The adhesions were freed, allowing the delivery of the spleen forward. The pedicle of the spleen was then ligated and the spleen removed. It weighed 800 gm. The wound was then closed in the usual manner. The operation was well borne, and the patient made an uneventful recovery. It is interesting to note that the icterus began to disappear immediately after the operation, and was almost entirely gone at the end of a week. Four weeks later the patient resumed his work.

Pathologic Report.—This report was made by Dr. Mortimer Warren. The spleen measured 17 by 10 by 7 cm. On macroscopic examination it was found to be soft and flabby. It cut easily and the cut surface presented a dark red, rather granular appearance. The trabeculations stood out prominently. Microscopic examination showed that the capsule was not thickened and that the trabeculae were not prominent. The follicles varied in size, and there were areas of considerable extent without any follicles, some having disappeared. Occasionally, a follicle presented a marked activity, showing a central cluster of large mononuclear cells analogous to the germinal centers of lymphoid nodes. The follicular arterioles were not thickened. The lumina in some instances appeared narrow, as if compressed, but it was impossible to correlate the disappearance of a follicle with any change in the artery. In general the small arteries stood out prominently, more by contrast with the surrounding elements than by an increase in size. The pulp consisted largely of red blood cells. The peculiar pulp cells were scanty. There was no evidence of proliferation or adventitial myeloid transformation aside from a very occasional eosinophilic polymorphonuclear leukocyte in the pulp. As a rule, the sinuses were empty and compressed. Here and there one was widely distended. The striking feature was the interstitial suffusion with red blood cells. There was no phagocytosis. On his findings Dr. Warren made the diagnosis of interstitial congestion of the spleen. Sections of the spleen treated with potassium ferrocyanid and hydrochloric acid showed an unusually small amount of iron-containing pigment.

Results.—The results obtained by the splenectomy were striking. Two days after the operation, November 25, the white blood cells rose to 24,000. The polymorphonuclear leukocytes were 80 per cent. November 29 Dr. Warren reported as follows: Hemoglobin 88 per cent., red cells 5,120,000, the color index being 0.9; total number of leukocytes 11,000, the differential count of 300 cells showing, polymorphonuclear leukocytes 73.6 per cent., lymphocytes 14.6 per cent., large mononuclears 0.3 per cent., transitionals 7.3 per cent., eosinophils 3 per cent., and basophils 1.2 per cent. There was no anisocytosis or poikilocytosis. The vital staining showed few granular or reticulated red cells. No microcytes were seen, but large masses of platelets were found. The auto-agglutination and the isohemolytic tests were again negative. The resistance of the red blood cells was for the minimum 0.5 per cent. and for the maximum 0.35 per cent. The urine contained urobilin but no urobilinogen.

December 20, about one month later, the blood count showed: hemoglobin 80 per cent., the total count of red cells being 5,440,000. The white blood cells numbered 18,600, the differential count being: polymorphonuclear leukocytes 70 per cent., small lymphocytes 16 per cent., large mononuclears 3 per cent., eosinophils 2.5 per cent., basophils 1 per cent., and transitionals 7.5 per cent. No large lymphocytes were seen. A urinalysis at this time showed an absence, both of urobilinogen and urobilin. December 29, the hemoglobin was again 80 per cent., and the red cell count was 5,500,000. The number of white cells dropped to 5,400, the differential count being: polymorphonuclears 47.5 per cent., small lymphocytes 39 per cent., large lymphocytes 0.5 per cent., large mononuclears 2 per cent., eosinophils 6 per cent., basophils 0.5 per cent., and transitionals 4.5 per cent. The resistance of the red cells was normal, and reticulated or granular red cells were not seen. The urine was negative.

The patient, when last seen, March 20, 1916, had no subjective symptoms, and there was no sign of icterus. The blood and urine were normal.

COMMENT

Hemolytic jaundice is associated with an increased blood destruction resulting in a somewhat characteristic blood picture and blood findings, an icterus and a splenomegaly. The cause for the hemolysis is not at all clear, but recent operative and experimental results have proved that the spleen is an essential, if not the main, factor in the etiology of the disease, but that, as in other hemolytic diseases, pernicious anemia, for instance, many other factors are perhaps involved. The liver too, probably, plays an important rôle. Just how the spleen and liver act, however, is not definitely known. Vogel[3] believes that the spleen probably acts by bringing the red blood cells more closely into contact with the pulp cells, where there is not so much blood destruction; but, perhaps, the red cells are so affected or sensitized as to render them more susceptible to hemolytic action on the way to the liver, or, more probably, to destruction by the Kupffer cells of that organ. The enormous hyperemia in the spleen sinuses, with practically no large phagocytic cells containing red blood corpuscles or blood pigment, the absence of excessive iron deposition in the organ, and evidence of marked stasis of blood with relatively little blood destruction, seem to favor this view.

The spleen has been classed with the ductless glands. It is said to have an internal secretion the function of which is not yet understood, and, like other glands of internal secretion, it may be removed with apparently no harm. One of the special functions of the secretion is believed to be hemolytic, and a hyperactivity of splenic function due to some unknown pathologic condition and resulting in an increased internal secretion, leads to an excessively marked hemolytic action, regardless of whether this hemolysis takes place in the spleen itself, the general circulation, the liver, or elsewhere. To this condition Eppinger[4] has given the name "hypersplenism." The hemolysis disappears, or is strikingly altered, when the spleen is removed; furthermore, an extract has been obtained from the spleen that has been described by some experimenters as having hemolytic properties. The evidence for this, however, is still very meager.

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[3] Vogel, Karl M.: Theories of the Etiology of Pernicious Anemia, The Journal A. M. A., April 1, 1916, p. 1012.

[4] Quoted from King (Footnote 5).

Another possible explanation of this condition is found in the association of unsaturated fatty acids and hemolysis. It should be mentioned that Eppinger[4] and King[5] have shown that an increase in the unsaturated fatty acids, which are definitely known to be hemolytic, has been found in the blood where there is red blood cell destruction. By splenectomy the amount of these unsaturated fatty acids is reduced. Moreover, in a series of animal experiments, King has found in every case an increase in the total fats and cholesterin in the blood. The latter substances are a protection against hemolytic agents, and their increased quantity may be a protection against hemolysis.

The blood in hemolytic icterus has certain features. Widal and Chauffard[5] were the first to show that there is an increased fragility of the red blood corpuscles. It has been observed, however, that this decreased osmotic resistance to hypotonic salt solutions is not constantly present in all cases, probably owing to the fact that the fragility, depending on unknown factors, changes from time to time. It has also been demonstrated that the fragility may, even though rarely, persist for a long time after the splenectomy has been done. Some authors have reported an increased fragility in other conditions, as in nephritis with severe anemia, but this is a rather unusual occurrence. After a splenectomy the fragility in the acquired type disappears as a rule, but in the successful splenectomies of the familial type performed by Kohn and Roth,[1] the resistance of the red blood cells failed to return to normal. Pearce, Austin and Evans[6] found that after removal of the spleen the resistance of the red blood cells is increased.

In the acquired form of hemolytic jaundice the phenomenon of auto-agglutination has been described by Widal, Abrami and Brule.[1] This they have found to be positive in every case of the acquired type, and negative in all congenital cases. In the case reported, however, there was no auto-agglutination either before or after the operation. In some rare instances the blood serum may contain isohemolysins.

Microscopic examination shows an increased number of microcytes and of reticulated or granular red blood cells brought out by the method of vital staining. Chauffard[1] first called attention to this in the congenital type, but their presence has been shown also in the acquired type. Normally there is 1 per cent. of reticulated red cells in the blood. In hemolytic jaundice it may be increased from 5 to 20 per cent. The increased number of reticulated red corpuscles is generally considered a sign, not of excessive blood destruction, but rather of a hyperactivity of blood formation.

The anemia in hemolytic icterus is not, as a rule, severe. In an analysis of 158 cases of both types of hemolytic jaundice in which blood counts were made, Krumbhaar[7] found that fifty-five belonged to the acquired form and 103 to the congenital or familial type. The average red cell count of the fifty-five acquired cases was 2,032,200; the counts ranged from 1,000,000 to 4,500,000; ten cases showed a count which was below 1,000,000. In twenty-seven the count was below 2,000,000, and in only four cases was it over 4,000,000. Pearce[1] and his co-workers have shown that after splenectomy in dogs a definite and prolonged anemia is produced. After splenectomy in hemolytic jaundice, however, the anemia disappears. It seems probable that the removal of a spleen that has undergone some pathologic change is followed by entirely different results from those which follow the removal of a normal spleen.

The chronic slight icterus so characteristic of the disease is the direct result of the destruction of the blood. The manner in which this jaundice is produced has been thoroughly explained. It is due to the obstruction in the bile passages caused by the extreme viscidity of the bile. The sequence in which this occurs is briefly as follows: By whatever agents produced, the red blood cell is destroyed with the liberation of the hemoglobin. This is then split into two parts; first, the iron-containing portion, or hematin, which is carried to the liver (Kupffer cells), bone marrow, kidney and other organs; second, the pigment-containing portion, or hemochromogen, which is taken up and excreted by the liver as bilirubin. Thus there is an increased formation and excretion of the bile pigments with an increased viscidity of the bile, which causes an obstruction to the flow of the bile in the smaller ducts. Reabsorption of the bile takes place, leading to the production of jaundice. The bilirubin may be demonstrated in the blood serum. The bilirubin in the intestines is converted into urobilinogen by the reducing action of the intestinal bacteria. This is absorbed and excreted by the kidneys. Urobilin and its antecedent, urobilinogen, may be demonstrated in the stools, and as has been suggested by some in the duodenal contents.

The amount of blood destruction has been estimated by the amount of urobilin and urobilinogen in the urine and in the stools. Eppinger[4] assumed that one molecule of urobilin represented one molecule of destroyed hemoglobin. Addis,[8] however, has described a method for determining accurately the quantity of urobilin and urobilinogen excreted in twenty-four hours.

The splenomegaly is one of the principal characteristic features of the disease. The findings in the spleens, both in those removed by operation and in those which were obtained at necropsy, showed very little proliferation, if any, of the connective tissue. There was frequently great loss in the number of the follicles, and in a majority no germinal centers were to be seen. The splenic sinuses were dilated. Constant infiltration of the pulp with red blood cells was perhaps the most characteristic feature noticed. The endothelium of the blood vessels was proliferated and was filled with coarse hemosiderin. On necropsy nothing definite was found. The liver, however, showed a deposit of pigment, and this was also seen in the kidney and bone marrow. Eppinger[9] showed the presence of an enormous hyperemia in the spleen sinuses of pernicious anemia, as well as in hemolytic icterus. Pribram[10] has pointed out the fact that stasis of blood in the spleen, as caused by chronic passive congestion, is associated with an increased destruction of red blood cells. He also showed that urobilinuria could be easily caused by inducing congestion of the spleen. He therefore associated increased blood destruction, anemia and urobilinuria with stasis of the spleen.

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[5] King, John H.: Studies in the Pathology of the Spleen, Arch. Int. Med., August, 1914, p. 145.

[6] Pearce, Austin and Evans: Reactions of Hemolytic Serum to Various Intervals After Splenectomy, Jour. Exper. Med., 1912, xvi, 363.

[7] Krumbhaar, E. B.: Classification and Analysis of Clinical Types of Splenomegaly Accompanied by Anemia, Am. Jour. Med. Sc., 1915, cl, 227.

[8] Addis and Wilbur: Urobilin, Its Clinical Significance, Arch. Int. Med., February, 1914, p. 235. Addis: A Working Hypothesis of Hemoglobin Pigment Metabolism, Arch. Int. Med., March, 1915, p. 413.

[9] Eppinger, H.: Zur Pathologie der Milzfunktion, München. med. Wchnschr., 1913, xxxv, 1952.

[10] Pribram: Hyperspleniche Hämophtisen und Stauungsmilz, Wien. klin. Wchnschr., 1913, xxvi, 1607.

In the treatment of hemolytic icterus, iron, arsenic and the Roentgen ray have been used, but in most cases gave little benefit. Jona[11] has reported a case of the acquired type in which Roentgen-ray treatment resulted in a cure, and strongly urges that this treatment be tried before attempting the removal of the spleen. He knows of no previous cure, however. Splenectomy gives the best results.

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TESTS BY BÁRÁNY METHODS

DEMONSTRATING NEURAXIAL DIFFERENTIATION OF THE FIBERS FROM THE HORIZONTAL AND THE FIBERS FROM THE VERTICAL SEMICIRCULAR CANALS *

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While contributions which add something to our previous store of knowledge need no excuse for their presentation, nevertheless in deference to the tendency of many to query as to the so-called practical values, it is worth while sometimes to indicate what service to medicine may be the outcome of a somewhat intricate clinicopathologic study. Researches by the Bárány methods, especially when these were complemented by necropsies with microscopic investigation, have furnished facts of importance in diagnostic symptomatology. First, the cause of vertigo, that symptom which so frequently confronts not only the neurologist and otologist, but also physicians at large, is often a perplexing problem. No matter where the primary seat of the affection which causes vertigo may be situated, whether in the stomach, kidney, liver, pancreas, tonsils, or the brain outside of the vestibular apparatus, the resulting toxemia, the abnormal nervous stimulus, or the cardiovascular disorder does not produce vertigo until the vestibular apparatus — the labyrinth and its associated pathways and encephalic centers — is involved. The Bárány tests furnish us with the means for studying this vestibular apparatus. Secondly, these tests enable us to say with more positiveness that an intracranial tumor, abscess or other lesion is situated in the third ventricle or in the cerebellopontile angle, is limited to the pons or the cerebellum or is labyrinthine.

Cajal has shown histologically that fibers from the vestibular portion of the eighth nerve enter Deiter's nucleus and continue from the inferior cerebellar peduncle into the cerebellum itself. This tract has been generally recognized and accepted. We believe that (1) this path includes the fibers from the horizontal semicircular canals exclusively, and (2) the fibers from the vertical canals have an entirely different course. The former are confined to the oblongata, while the latter ascend into the pons.

In thirty-two cases in which the labyrinths themselves and the eighth nerves were normal and the horizontal canals gave normal reactions, the vertical canals failed in some or all of the well known responses. That the labyrinths themselves were normal was made probable by the presence of perfect hearing, and corroborative evidence of neuraxial lesions was additional confirmation. In five cases stimulation of the vertical canals produced no nystagmus, no vertigo, no past pointing and no falling, and yet violent projectile vomiting occurred. This showed that the vertical canals themselves were functionating; in fact, there was even a hyperactive response of the tenth nucleus to the stimulation of the canals. In one case in which the lesion was clearly thrombosis of the right posterior inferior cerebellar artery, the right horizontal canal failed to respond normally, whereas reactions from the right vertical canals were normal.

REPORT OF CASE

History.—C. M. D., a woman, aged 36, admitted to the University Hospital to the service of Drs. Mills and Spiller, Aug. 12, 1915, having been referred by Drs. S. D. Ludlum and J. W. McConnell, gave a history of vertigo, without associated tinnitus, of eight weeks' standing. Two weeks after the onset vertigo was so marked that she was not able to walk. She staggered both to the right and to the left. At this time she began vomiting without precedent nausea, and continued to do so at intervals until her death, two weeks after her admission.

The fourth week of her illness the patient noticed that the right limbs were becoming weak. This impairment increased until at the time of admission she could scarcely move either the right arm or leg. Five weeks from the time of onset she began to have severe headaches. In the sixth week she noticed that her sight was becoming bad, and grew steadily worse. The family history was negative except that one uncle had had a brain tumor.

Examination.—The following notes were made immediately after the admission of the patient:

The right eye shows slight ptosis, some weakness of the external rectus, of the superior and inferior obliques and internal rectus. The left eye shows ptosis and weakness in all ocular movements. Movements of the musculature of the third nerve are almost completely abolished. Conjugate movements are lost in all directions. The pupils are unequal, the right being larger. They react to direct stimulation, but the convergence response is questionable. Dr. B. Baer reports marked papilledema, worse in the left eye.

The patient lies in bed in the supine position with the head slightly inclined to the left. She has a typical right-sided hemiplegia, face, arm and leg, with moderate hypertonicity. Superficial and deep reflexes are all increased. Foot clonus is absent. Plantar stimulation gives plantar flexion. No paralysis is discoverable in the left half of the body, but the left finger-to-nose test shows a distinct ataxia, the uncertainty being of small excursion. Sensation for pain and touch is everywhere normal. Speech is slow and dysarthric, but not sufficiently so to make it inarticulate. The patient answers questions sensibly and performs commands so far as she is physically able. The blood examination is normal.

The patient died suddenly just ten weeks after the onset of her illness.

Before giving the results of the ear tests, it might be well to recall a few well known facts regarding them. The semicircular canals may be stimulated by turning an individual in a smoothly revolving chair, or by douching the ear with either hot or cold water. When the individual is turned with the head in the upright position, the horizontal canals are stimulated. When he is turned with the head forward or backward, the vertical canals are stimulated. Naturally the turning involves the labyrinths of both sides. Douching, on the other hand, influences only one ear. Douching the ear with the head upright stimulates the vertical canals, whereas douching with the head either forward or backward stimulates the horizontal canal.

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[11] Jona, G.: Policlinico, Rome, 1916, xxiii, No. 1; abstr., The Journal A. M. A., Feb. 26, 1916, p. 696.

* Read before the American Neurological Association, Washington, D. C., May 8, 1916.

Tests.—On looking to the right, this patient showed a marked horizontal nystagmus to the right. On looking to the left, there was a horizontal nystagmus to the left not so marked. Looking upward produced occasional vertical nystagmus upward.

Turning to the right, with head upright, produced a rotary nystagmus to the left, instead of the normal horizontal. The remarkable feature of this turning was that the nystagmus lasted thirty-four seconds, which is unusually long as compared with the normal twenty-six, and yet no vertigo was produced. That there was any nystagmus at all is remarkable, because turning to the left produced no nystagmus, but a *conjugate deviation* to the left. Turning to the left also failed to produce vertigo.

Douching the right vertical canals gave no reactions. Douching the right horizontal canal caused a conjugate deviation to the right. This became a fairly good horizontal nystagmus to the left when the patient was told to look straight ahead, or to the left.

Douching the left vertical canals gave a similar reaction, namely, after the normal length of time (forty seconds) there was a marked conjugate deviation to the left, with a developed oscillatory nystagmus to the right, when the patient made the effort to look to the right.

Douching the left horizontal canal caused conjugate deviation to the left after thirty seconds, which became an irregular horizontal nystagmus to the right when the patient was told to look to the right, and there were irregular twitches for a while which settled back again into a conjugate deviation to the left.

Stimulation of the right horizontal and the left vertical canals produced no vertigo. Considerable dizziness, however, resulted from stimulation of the left vertical canals.

Incidentally, the following difficulties were encountered in examining this patient: Her mentality was poor, her speech was difficult to understand, and the pointing tests were impossible because of paralysis of the right upper extremity, and marked incoordination of the left upper extremity.

Dr. Jones reported in writing to Drs. Ludlum and McConnell: "The results of the Bárány tests indicate a lesion of the upper portion of the pons and the junction of the cerebral crura at the point where the cerebral fibers reach the region of the posterior longitudinal bundle. The oblongata and lower half of the pons appear uninvolved."

Dr. William G. Spiller makes the following report of his macroscopic and microscopic examination:

"The tumor extends from the uppermost portion of the cerebral peduncles, through the pons, and into the cerebellar lobe. It is confined to the left half of the brain stem throughout. It causes much enlargement of the left side of the cerebral peduncles, and implicates almost all of this side. In the upper part of the pons the posterior longitudinal bundle on the right side is well preserved, but the outer portion of the posterior longitudinal bundle on the left side is much degenerated. The tumor in the upper part of the pons is confined to the left tegmentum, and implicates almost all of this portion of the tegmentum. The same is true of the middle portion of the pons. The tumor greatly compresses the fourth ventricle, and almost closes it by displacement of the surrounding tissue. It does not invade the medulla oblongata, but at the level of this structure it is confined to the white matter of the left cerebellar lobe. It is a glioma."

COMMENT

A study of the data obtained by the ear tests and necropsy indicates certain definite facts as to the vestibular pathways in the neuraxis. The experiments demonstrated that the tracts from all the semicircular canals except the right verticals, through the vestibular nuclei to the nuclei of the ocular nerves were open. The specimen showed that the Deiters' nucleus group (Deiters' nucleus proper, the triangular nucleus and von Bechterew's nucleus) was unaffected by the lesion, as were also the entire oblongata and the lower part of the pons.

Let us recall the peculiar response of conjugate deviation. This ocular movement may be regarded as the slow component of nystagmus. For it to occur it is only necessary that the stimuli shall pass from the ear through the posterior longitudinal bundle to the nuclei of the sixth nerve and of the third nerve, or rather of that part of this nerve which innervates the internal rectus. The conjugate deviation, therefore, results from stimulation of the ear; but this normally is converted into a nystagmus by impulses from the cerebrum which tend to call the eye back to its usual position, that is, if the cerebro-oculonuclear tracts are open. It follows, therefore, that if, as in this case, the response is only a conjugate deviation, some lesion is interfering with the transmission of cerebral stimuli to the nuclei of the ocular nerves affected. It has been shown by necropsy that such a lesion was present.

It may be of interest to note in this connection that one fully anesthetized, when the semicircular canals are stimulated, shows only a conjugate deviation and no return movement.

Let us turn now to an explanation of the vertigo in the light of our premortem and postmortem findings. We believe that the ear stimulus which produces vertigo passes to the cerebrum through the *cerebellum.* While the paths which carry the vestibular stimuli through the cerebellum to the cerebrum are not demonstrated absolutely in all their extent, the facts at our disposal appear to indicate that they are received by the cerebellum through the inferior cerebellar peduncle from the horizontal canals and the middle cerebellar peduncle from the vertical canals, and after completing their cerebellar itinerary, pass to the cerebrum by way of the superior cerebellar peduncles. In the present case ear stimulation failed to produce the normal vertigo from all the semicircular canals except the left verticals. Clearly, therefore, there was obstruction somewhere in this vestibulocerebellocerebral pathway concerned with the stimuli causing vertigo. As there was present a conjugate deviation from the stimulation of the same canals or tracts, the lower neuraxial pathways appeared open. To explain this absence of vertigo the logical place of destruction was at the decussation of the superior cerebellar peduncles. The necropsy studies showed involvement of the superior cerebellar peduncles, which have been demonstrated to contain tracts which pass to the cerebrum from the cerebellum.

With regard to the spontaneous nystagmus upward, this case confirms our previous experience that such a nystagmus is pathognomonic of a neuraxial lesion, either destructive or due to pressure.

The right vertical canals failed to produce any reactions. It follows, therefore, that the neuraxial fibers from these canals were involved, and as the lesion was in the upper portion of the pons, that these fibers must reach at least as high as the site of this lesion. That the lesion extended further down on the left side suggests that the fibers from the right vertical canals decussate to the opposite side.

In our experience, interruption of the impulses from the vertical canals is produced by tumors of the cerebellopontile angle, internal hydrocephalus causing pressure on the floor of the fourth ventricle, and intracerebellar tumors causing pressure on the pons.

Finally, we are confident that the fibers from the horizontal canal and the fibers from the vertical canals have separate pathways in the neuraxis. That the horizontal canal fibers are confined to the oblongata and enter the cerebellum through the inferior peduncle and that the vertical canal fibers ascend into the pons and enter the cerebellum through the middle peduncle, however, we believe to be highly probable, but feel that our evidence to date is not sufficiently large to indicate with confidence the exact course of these fibers.

THROMBOSIS OF BRACHIAL ARTERY

RELIEVED BY INCISION AND MASSAGE OF THE ARTERY

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Jan. 17, 1912, the patient, a street car conductor, was on the rear platform of a standing car, when suddenly the building in front of which his car was standing was demolished by a natural gas explosion. A shutter was hurled by the explosion, and struck him on the flexor side of the left arm, above the elbow. He also received minor cuts and bruises about the face and lost consciousness.

On regaining consciousness, his left hand felt numb and was cold. When I saw him about a half hour later, it was quite evident he had suffered considerable psychic shock. He was pale, cold and covered with clammy perspiration. Examination of the left arm revealed considerable ecchymosis on the inner side of the arm just above the elbow. The skin was tense, but not pulsating. The fingers were cold, and most careful examination failed to disclose any pulsation in the radial artery.

The patient was sent home, the arm wrapped in cotton and hot water bottles were applied. After three hours, another observation of the arm showed no improvement. The numbness seemed worse, and the hand was still cold and pulseless. The patient was then sent to a hospital.

I supposed at that time I was dealing with a thrombus; consequently, my purpose was to expose the artery, locate the lesion, clamp the artery above and do a thrombectomy. By a 3-inch incision just above the elbow to the inner side of the biceps, the brachial artery was exposed to touch without difficulty, and at a certain point (I would judge about 2 inches above the bifurcation), good distensile pulsation could be felt. Tracing the artery downward from this point was easily done, and the impact on the artery was felt with each pulsation, but the artery did not alternately dilate and contract. It was evident that here was a thrombus.

Beginning at the most distal point on the artery within reach of my finger, I firmly stroked the vessel proximally. After three or four strokes, the intern who had held his finger constantly over the radial suddenly announced that good pulsation had returned. After waiting for several minutes to see if the radial pulse was maintained, and noting that there was no change in its vigor, I closed the wound.

On the following morning both radials beat with equal tension, all numbness was gone and the hand was warm. From this time recovery was uneventful.

Evidently I broke up a clot which was carried further on. In the forearm the collateral circulation is so free that the complete occlusion of either radial or ulnar offers practically no barrier to good nourishment of the hand.

In the past few years, surgery of the arteries has made such advances that one is no longer justified in regarding a damaged artery as a *noli me tangere*. In this case the dislodgment of the clot and reestablishment of the radial pulse rendered further interference unjustifiable. If the clot had not been dislodged, my purpose was to make a clean incision in the brachial and remove it.

Evidently the syncope following the accident with its consequent low blood pressure and a slight damage to the intima formed a combination of conditions favorable to thrombosis. I infer that the damage to the intima must have been very slight for, in the presence of any considerable alteration of the intima, thrombectomy has succeeded in restoring the circulation only temporarily. This patient has now been perfectly well for more than four years.

My object in reporting this case is to emphasize the necessity of prompt action in the operative relief of thrombosis. After a thrombus has lodged long enough to cause changes in the intima, its removal will only result in another thrombosis. Of course, massage of an artery and breaking up of a clot in a location where small emboli would be carried on and might cause damage would be inexcusable. In this case, however, either the clot was dissolved, or it obstructed such small vessels that it offered no barrier to complete collateral circulation.

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THE COMPARATIVE RESISTANCE OF BACTERIA AND HUMAN TISSUES TO CERTAIN GERMICIDAL SUBSTANCES *

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It is recognized that an ideal germicide for use on infected tissues of the body is one that will kill the pathogenic micro-organisms present without at the same time injuring the tissues.

Although clinical observations have led to fairly definite conclusions regarding the irritating or nonirritating qualities of many germicides, it is obviously not practicable to carry out on the living body—in human beings, at least—experiments to determine accurately the relative resistance of tissues and bacteria to chemicals of any kind.

It is hardly necessary to state in this connection that the irritative action of any germicide is dependent on the injury to the cells which it causes.

Since in the growth of tissues in vitro by the method of Harrison, Burrows and Carrel we have, as regards cell life, conditions closely analogous to those in the body, it occurred to me that this technic might be utilized for investigating the problem, just suggested, of finding an ideal germicide.

In carrying out this idea, the method has consisted in subjecting infected and noninfected tissues removed from the body to the action of various chemicals, including most of the germicides in common use. The relative resistance of bacteria and cells was determined by incubating the treated tissues in tissue culture preparations. In the clotted plasma both cells and bacteria which survived exposure found a suitable medium for growth. In such experiments cells and bacteria are exposed under practically the same conditions as obtain in an infected wound bathed in an antiseptic solution. Staphylococcus aureus was the organism used. Human tissues were used throughout the experiments, since it seemed that the results would be of more practical value than if the tissues of lower animals were employed.

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* From the Pathological Laboratory of the Presbyterian Hospital.

It was shown in a previous paper[1] that by the use of a slightly modified plasma medium human connective tissue cells and wandering cells (such as, for example, in lymph glands and spleen) can be cultivated as easily as similar cells of lower animals.

A more detailed report of the technic of these experiments will be published elsewhere.

The accompanying table gives the results obtained so far in testing some of the commoner germicides.

It is seen that cells are more easily destroyed than bacteria by all but one (iodin) of the agents used. However, in the case of several—mercuric chlorid, sodium hypochlorite (Dakin's solution), potassomercuric iodid, argyrol and phenol—the difference is not great. That normal cells should exhibit even this demonstrated degree of hardihood will probably occasion some surprise. It is interesting, for example, that no harmful effect whatever was seen from exposure of cells for one hour to 10 per cent. alcohol. The low bactericidal power of hydrogen peroxid, so popular among the laity, is noteworthy.

TESTS OF SOME COMMON GERMICIDES

	Cells Not Killed by	Bacteria Not Killed by	Cells Killed by	Bacteria Killed by
Mercuric chlorid	1:120,000	1:80,000	1:80,000	1:40.000
Potassomercuric iodid	1:20,000	1:10.000	1:10,000	1:5,000
Potassium cyanid	1:6,000	1:2,000	1:4,000	1:500
Sodium hypochlorite*	1:10,000	1:5,000	1:2,000	1:1,000
Iodin	1:2,500	1:5,000	1:1,250	1:2,000
Phenol	1:500	1:200	1:200	1:100
Tricresol	1:2,000	1:500	1:1,000	1:200
Argyrol	1:400	1:250	1:200	1:100
Hydrogen peroxid†	1:1,500	1:200	1:1,000	1:50
Alcohol	1:10	1:5	1:5	1:1

* The sodium hypochlorite solution was prepared according to the method recently described by Dakin (Brit. Med. Jour., 1915, ii, 318), who also states that the solution contains a definite calculable amount of hypochlorite (from 0.5 to 0.6 per cent.) and that it is free from the harmful impurities in the solutions prepared in the usual way. Very favorable results are reported by Carrel and others from the use of the solution on wounds treated in the French military hospitals.

† The U. S. P. 3 per cent. solution was used. The figures indicate the actual amount of hydrogen peroxid present.

Iodin, as indicated above, stands out as the one germicide toward which cells were found to be more resistant than bacteria. The difference was not striking, but it was possible by the use of a solution of iodin of suitable strength to kill the organisms in infected tissues without affecting more than slightly the growth of cells.

Since the ultimate aim in this work was to find an ideal tissue disinfectant, it should be mentioned that iodin, as well as the sodium hypochlorite solution used, possesses the power of rapidly dissolving fibrin—a property which may militate against the use of either of these germicides in healing wounds; for it is recognized that fibrin serves a useful purpose in plastering together wound surfaces, thus facilitating organization, and in forming on the base of an ulcer or other granulating surface a scaffolding on which fibroblasts and sprouting blood vessels may cling.

It has been concluded from these experiments that the method of tissue cultures affords a simple, direct, and easily controlled method of determining, under conditions analogous to those in the body, the relative resistance of tissues and bacteria to various chemical agents, including the common germicides. Of the germicides tested, iodin is the only one which will kill staphylococci in strengths which do not seriously injure tissue cells. It is possible, however, that on account of the fibrin-dissolving property of iodin, causing conceivably an inhibition of wound healing, some other substance may be found approaching more closely the ideal tissue disinfectant.

New Instruments and Suggestions

NOTE ON AN AUSCULTATORY SIGN OVER THE MANUBRIUM

Louis M. Warfield, A.B., M.D., Milwaukee, Wis.

In the routine examination of patients, a sign was found on auscultation with the stethoscope on the manubrium which seems to be of some importance, and which is not found described, or is found only casually mentioned, in any books on physical diagnosis which have been consulted. For over a year now this sign has been noted, and has been helpful in determining whether or not the anterior mediastinum was free from encroachments of any kind, organs or swellings or actual tumor masses.

In the normal subject, the anterior borders of the lungs practically unite in the median line beneath the manubrium. They cover the trachea and the large arteries and veins which pass through the anterior mediastinum. The true space is normally only a potential space filled with loose areolae tissue in which are lymph spaces. In the infant the thymus occupies this space in its whole extent, but in the adult this gland is so small that it is often not possible to find even traces of it. The posterior part of the space is bounded by the trachea, which lies at a variable depth from the manubrium, depending on the size and shape of the chest. It may be from 4 to 6 cm. from the manubrium.

These being the anatomic relations, it is not possible with the most accurate percussion to detect any change in the note from that of the lung at either side of the manubrium. Also, and this is the important point, auscultation over the body of the manubrium gives a vesicular murmur, or, at the most, the slightly bronchovesicular character which is usually found over the right upper front just below the clavicle.

It has been found that any solid or semisolid (edema) mass in the anterior mediastinum changes the respiratory sound from the vesicular to harsh bronchial, and finally to typical high-pitched tubular breath sounds.

The cause for this phenomenon is considered to be the interposition of a sound-conducting substance between the trachea and the bone. I have found this sign most useful and helpful in cases of dilated arch of the aorta, and in cases of Hodgkin's disease when the mediastinum contains enlarged glands. At a time when careful percussion reveals no impairment of the note, the breath sounds will certainly be bronchial and may be typical tubular. In one particularly instructive case of Hodgkin's disease, the sign over the manubrium was typical. At operation the surgeon succeeded in removing the mass of glands below the upper portion of the manubrium. Auscultation now revealed only a slight prolongation of the expiration over the upper two thirds of the manubrium (edema?), but tubular breathing over the lower third.

Tubular or bronchial breathing has been found in: (1) persistent thymus; (2) substernal thyroid enlargement; (3) edema of mediastinal tissues; (4) enlarged glands; (5) aneurysm; (6) dilated aortic arch: (*a*) acute aortitis, and (*b*) chronic dilatation, and (7) tumor growths.

I have been particularly interested in cases of enlarged glands and those with dilated aortic arches. Thus far all cases in which the sign has been present have been shown by roentgenograms or by fluoroscopy to have had the condition diagnosed with the stethoscope. It is stated in some textbooks on medicine that in aneurysm of the arch the breath sounds over the manubrium are not very audible. This, I feel sure, is incorrect. The error is due to the fact that the loud sounds produced by the closing of the valves of the heart, or by murmurs in the aneurysmal sac, so obscure the respiratory sounds that unless one listens particularly for these sounds he will certainly fail to hear them. As a matter of fact, in all the cases of aneurysm during the past year I have heard this sign, and in two instances tubular breathing beneath the manubrium drew attention to the diagnosis of otherwise obscure cases. It is hoped that others will use this sign and obtain as much help from its presence as I and my assistants have obtained.

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[1] Lambert, R. A.: Jour. Exper. Med., 1916, xxiv.

79 Wisconsin Street.

A METHOD WHICH GREATLY FACILITATES THE CULTURE OF THE MENINGOCOCCUS *

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The difficulty in isolating some strains of the meningococcus is appreciated by those who have worked with this organism. Primary cultures of some strains are easily obtained on human blood agar or Loeffler's blood serum, but others, resembling the gonococcus very closely, will grow only on ascites or pleuritic agar. Often only one or two colonies are obtained in cultures when many diplococci are demonstrated in control smears. Wherry and Oliver,[1] working with the gonococcus, found that thousands of colonies could be produced by growth at partial oxygen tension when control aerobic tubes remained sterile or showed only a few colonies.

Because of the close relationship of the gram-negative diplococci to one another, it was thought that this method of growth at partial tension might facilitate the culture of the meningococcus. Accordingly aerobic partial tension and anaerobic cultures were made of the spinal fluid in a case of epidemic cerebrospinal meningitis on a medium composed of equal parts of the basic sodium phosphate agar described by Martin,[2] and sterile pleuritic fluid. All tubes were incubated at 37.5 C. For the anaerobic cultures the pyrogallic acid method was used. The partial tension cultures were made by connecting the culture tube to a freshly inoculated agar slant of *B. subtilis* by means of rubber tubing.

An average of two colonies appeared on each aerobic tube in twenty-four hours, while hundreds appeared on those grown at partial tension; the anaerobic cultures remained sterile and were discarded after six days. Transplants from the partial tension strains would grow aerobically on the same medium but not nearly so luxuriantly as at partial tension. No growth could be obtained aerobically on human or rabbit's blood agar or on Loeffler's blood serum; a scanty growth was produced at partial oxygen tension on human blood agar.

The fermentation reactions of both the aerobic and partial tension strains were tested, glucose, levulose, saccharose, mannite, maltose, lactose and galactose being used with Martin's pleuritic agar as a base. Slight acidity was produced in glucose and maltose in twenty-four hours by the partial tension strain and in thirty-six hours by the aerobic one. The remaining sugars were unchanged at the end of six days and were discarded. These results correspond with the aerobic fermentation reactions of the meningococcus as described by Martin.[2] In fermentation tubes in a medium made of equal parts of sugar broths and pleuritic fluid, only glucose was fermented, with the production of a slight amount of acid.

Primary partial tension cultures were obtained from six other specimens of spinal fluid in the same case and from eight specimens in another case. Growth at ordinary oxygen tension yielded meningococci only four times, and in each instance the growth was meager. In the majority of instances cultures were obtained when no diplococci could be found microscopically in control smears. Both of these patients recovered after intraspinal injections of antimeningococcic serum; neither patient had any clinical evidences of gonorrhea. These facts, together with the fermentation reactions, are sufficient proof of the identity of the organism.

Since the strains of the meningococcus isolated in these cases grew best at partial oxygen tension and scarcely at all aerobically, it is evident that many of the organisms are micro-aerophils and only a few are capable of growth at ordinary oxygen tension.

In view of these facts, it seems to us that for the cultivation of the meningococcus, growth at partial oxygen tension, preferably on Martin's pleuritic agar, should be adopted as a routine.

Therapeutics

ILLUMINATING GAS POISONING

ETIOLOGY

Poisoning by illuminating gas is not uncommon. Most of the cases are due to suicidal intent and are produced either by the gas escaping through an open jet, or by means of a tube attachment to the mouth (the person breathing the gas by way of the mouth). At other times poisoning may be accidental, owing to the unintentional opening of a stop cock, or it may result from a leak in some part of the piping. Poisoning has occurred in houses which are in the vicinity of a broken main from which gas escapes, and workmen seeking to repair such leaks have themselves often been overcome. Poisoning may also occur in carelessly conducted illuminating gas plants, where a leak in the system allows enough gas to escape so that the surrounding atmosphere becomes filled with it.

PATHOLOGY

In illuminating gas poisoning, the symptoms are due to the carbon monoxid contained in the gas. The amount of carbon monoxid in the air need not be great to produce symptoms of poisoning. When air contains from 1 to 2 per cent. of this gas, inhalations can cause serious symptoms. When the content in the air rises to as high as from 10 to 20 per cent., persons exposed can survive only a short time, and if death does occur, as much as from 60 to 80 per cent. of the hemoglobin in the circulation will be in combination with the carbon monoxid. Even when there is as little as from 0.07 to 0.12 per cent., breathing in this atmosphere for half an hour will render one quarter of the red blood corpuscles incapable of uniting with the oxygen.

After inhalation of carbon monoxid, it enters the blood stream and there unites with the hemoglobin, forming a compound called carboxyhemoglobin. This gives a bright red or cherry red color to the blood. The combination is a stable one and cannot be easily disturbed by the presence of oxygen unless the oxygen is present in large amount and under pressure, in which case the oxygen may drive off some of the carbon monoxid, replacing it. It is on account of this close union of the carbon monoxid with the blood that there results insufficient oxygenation, and the symptoms resulting are due partly to the toxic action of the carbon monoxid and partly to air hunger. Blood containing carbon monoxid has a characteristic appearance when observed by means of the spectroscope, and this means is used to detect its presence in the blood.

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* From the Pathologic Institute of the Cincinnati General Hospital, and the Department of Pathology of the University of Cincinnati.

[1] Wherry, W. B., and Oliver, W. W.: Lancet-Clinic, Cincinnati, 1916, cxv, 306.

[2] Martin, W. B. M.: Jour. Path. and Bacteriol., 1911, xv, 76.

Carbon monoxid has a direct action on the nervous system, first stimulating the central nervous system and then depressing it, with a resultant paralysis. The order in which the parts are affected are the brain, spinal cord and medulla. Besides this, it also attacks other tissues, such as the muscles and glands, and produces in these very rapidly a considerable amount of degenerative changes that sometimes result in gangrene. The attack of the gas is so insidious that often before a person becomes aware of its presence there exists a certain amount of mental depression, if not stupor. This is particularly true when the gas is inhaled during sleep. Escaping gas is almost always detected by its odor when one is awake.

SYMPTOMS

McCombs,[1] who has observed 1,000 cases of illuminating gas poisoning, has grouped the symptoms resulting from the poisoning into three stages, which in a general way may be divided as follows: The first stage continues until the patient loses consciousness; the second stage, beginning with syncope, ends with apnea; in the third stage the patient is comatose, and respirations have ceased.

In most cases, the first symptoms consist of a feeling of discomfort and a throbbing of the blood vessels. There is also dizziness, headache, weakness, and sometimes nausea and vomiting. Pains in the extremities have occurred, and also muscular twitching. The temperature remains normal. The pulse becomes full and bounding, and there is a rise in the blood pressure. The beginning difficulty in breathing is felt as a constriction around the chest. The pupils are widely dilated, and there is a gradual sinking into stupor and finally into unconsciousness. As this continues, the respiration is accelerated and stertorous, the skin becoming dusky and the lips and extremities blue. This is due to the advancing asphyxia. At this time also the temperature may begin to rise. On account of the action of the gas on the cortical centers, the control over the reflexes is lost. There may even be a loss in the control of the sphincters. Tetaniform convulsions may occur at this stage, and this will ultimately be replaced by a marked muscular rigidity in which the jaws also may become rigid. The pulse and the respirations both become weaker, and finally there is apnea. If the gas is still being inhaled, the poisoning continues, and there occurs sooner or later complete cessation of the heart action as well as of the respiration. A characteristic change is the bright red color of the blood, which is also seen as cherry-red markings of the skin, lasting for some time after death.

As a rule, convalescence is tardy, and there may result symptoms of a pulmonary or nervous character. Loss of memory has also resulted. Most of the after-symptoms are referable to the nervous system, and consist of delirium, transient hemiplegia, nervousness, insomnia, various neuralgias, and also glycosuria. Complications such as bronchopneumonia have also occurred. If the patient survives, all complications usually clear up.

TREATMENT

Success in the treatment will depend on how quickly and how thoroughly the carbon monoxid can be removed. It also depends on how saturated the blood is with carbon monoxid. First, it is usual to resort to artificial respiration with simultaneous stimulation of the heart. The artificial stimulation may be either by means of the Silvester or Schäfer methods, or it may be carried out by mechanical respiratory devices which force air into the lungs. Artificial respiration by intratracheal insufflation through a tube inserted into the trachea, as suggested by Meltzer,[2] can also be used.

For stimulation, hypodermic injections of strychnin or camphor in oil may be given; strophanthin may be given; strong coffee may be given by the mouth if the patient is not totally unconscious. Physiologic saline solutions may be injected into the rectum by the drip method, or from 300 to 500 c.c. may be given every three hours subcutaneously into the breast. Other substances that can be tried are hypodermic injections of 2 c.c. of ether, $\frac{1}{100}$ grain of atropin, or 2 minims of epinephrin solution (1:1,000). The body, especially the feet, should be kept warm.

If by these means recovery does not take place, or only very slowly, other measures may be resorted to. One of these is venesection with the introduction of an amount of physiologic saline solution corresponding to the amount of blood removed.

PROGNOSIS

McCombs[1] states that if treatment is resorted to before the appearance of the usual signs of death, almost all patients should recover from the immediate effects of the gas in from forty-eight to seventy-two hours. He also cites Edsall, who reported the recovery of thirty-four patients in thirty-nine poisonings, the fatalities resulting from sequelae of the poisoning.

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[1] McCombs: Am. Jour. Med. Sc., October, 1912, p. 577.

[2] Meltzer, S. J.: Pharyngeal Insufflation, A Simple Method of Artificial Respiration, THE JOURNAL A. M. A., May 11, 1912, p. 1413.

Epidemiology of Typhus During the Last Few Years.—A recent compilation published by the International Public Health Bureau at Paris shows that a few scattered cases of typhus have been recorded in nearly every country each year for many years. The war has brought a recrudescence at the same time that medical science has shown how to prevent its ravages. The principal focus of endemic typhus in Europe outside of Russia is Galicia; next comes Poland, and the disease is endemic also in certain parts of the Balkans and Turkey in Asia. There are also typhus victims each year in Persia, northern China and Siberia, and cases have been known in Japan. In England and Wales there were over 23,000 deaths from typhus between 1869 and 1883; 2,249 from 1884 to 1898, and only 390 since then to the end of 1913. France from 1903 to 1913 had a total of 209 deaths from typhus; the seacoast provinces suffered most. The Scandinavian countries seem to have escaped most. In the recent epidemic in Serbia it is estimated that 135,000 persons died from typhus. In Russia the deaths from typhus between 1905 and 1911 ranged each year from 3,639 to 10,500, but there were comparatively very few cases at Moscow and Petrograd. In northern Africa the disease always has a foothold but rarely becomes epidemic. Egypt has from one to two thousand deaths annually but during the first half of 1915 there were 14,505 cases reported with 3,398 deaths. It was at Tunis that attention was first attracted to the louse as the possible conveyor of the disease, confirmed by our own investigators in Mexico, our American endemic focus. The records show a total of 56,719 cases and 14,758 deaths in Mexico from 1893 to the end of 1913.

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SATURDAY, OCTOBER 28, 1916

THE TREATMENT OF WAR WOUNDS

The fluctuations of surgical opinion concerning the treatment of war wounds have been noted in The Journal from time to time in the letters from foreign correspondents and in other departments. At the beginning of the war a general opinion prevailed, and was acted on, that the special conditions of war wounds called for the energetic use of strong antiseptics according to the listerian technic. It is notorious that the results were unsatisfactory. Two other methods have since come into favor, one the Dakin-Carrel method, employing hypochlorites, and the other the Wright or so-called physiologic method.

A series of articles appeared by Sir Almroth Wright.[1] In these he explained his method and gave the experimental basis for it. A vigorous reply from Sir Watson Cheyne,[2] formerly Lister's assistant and now president of the Royal College of Surgeons, followed in another publication. Practically Sir Watson Cheyne seems to have constituted himself the uncompromising champion of the so-called listerian method. According to Sir Watson Cheyne the unfavorable results which were given by this method in the early part of the war were due to defective technic. He states that the improved technic devised by himself and other members of the commission *ad hoc* did give in some hands excellent results, and would have given them more generally but for the fact that justice was not done in the official trials, owing to the prejudice entertained by the surgeons. He intimated that discipline alone prevents the thousands of surgeons who have been using the Wright method from expressing their dissatisfaction. Later,[3] Wright gave an explanation of further development of his method, but this article was not a reply to Sir Watson Cheyne's attack on the method. The reply came, however, none the less vigorous for the delay.[4] Wright divides his answer into two parts. The first is a contribution to the ethics of polemic controversy, the main thesis of which is that truth must be learned at all hazards, even at the risk of personal offense to parties in the controversy. Having thus explained himself, Sir Almroth takes up the second part, in which he applies this principle and proceeds to berate Sir Watson generally. He does not, of course, attack the president of the Royal College of Surgeons in his private capacity, but only in his scientific life, the methods of thought and action as illustrated in the article published in the *British Journal of Surgery.*

All who have had to do with the treatment of wounds during the present war are emphatic in declaring that they differ in important respects from what is customary in the lesions encountered in civil practice. Indeed, surgeons with experience of previous wars have found that the wounds in this war have features peculiar to themselves. Sir Watson Cheyne, however, speaks of war wounds as though they were fairly comparable with such compound fractures as occur in civil life. This is not the view of the majority of the writers on the subject, and it seems that the strength of Wright's[5] position that war wounds are invariably infected; that in only rare cases does the wounded man present himself for adequate treatment within a short time of the infliction of his wound; that highly infected foreign bodies are usually found in all complicated war wounds; that the latter are not open wounds accessible to swabbing with strong antiseptics (remember that Sir Watson Cheyne wants to recommend pure phenol [carbolic acid]), and can only rarely be converted into open wounds; that in such a wound it is not its cavity or limiting surface, but the interior of the adjacent tissue which is important as regards infection, and that no strong antiseptic has ever been shown to penetrate a useful distance into the walls of the wound, although, of course, such antiseptics may be absorbed by the vascular system and thereby give evidence of their presence in the systemic circulation.

Wright's method consists essentially of irrigating the wound first with hypertonic salt solution and then, at the appropriate moment, with isotonic saline solution. Vaccines may be used as adjuvants. Finally the wound is closed. The rationale of this method is that hypertonic saline solution checks microbial growth, and causes a mechanical cleansing of the wound and of the depths of its walls by the lymph exuded, while inhibiting the tryptic action of the exudate. The isotonic saline solution permits and encourages phagocytosis and tryptic digestion of clots and other solid exudates.

In the Dakin-Carrel technic, a modification of Labarraque's hypochlorite solution is kept flowing continuously or nearly continuously in contact with the wound, in the belief that thereby antisepsis or even disinfection can be combined with mechanical cleansing. Toward this method both extremists extend a hand much in the familiar way of belligerents courting neutrals. Sir Watson Cheyne welcomes the hypochlorites as antiseptics and germicides which he hopes will prolong the useful period for the employment of such agents. Sir Almroth Wright, while not conceding their value as antiseptics in septic wounds and still less as disinfectants, sees in them constituents of an irrigating fluid far less objectionable than the ordinary antiseptics, if only because they are devoid of the antienzymic properties of the latter. It is well here to draw attention to the fact that the antiseptic action of the hypochlorites in wounds has been strongly challenged by others than the thick-and-thin adherents of Sir Almroth Wright, and their disinfecting action is denied by a much larger number. It must be borne in mind that the action of an antiseptic in a wound is difficult to measure in nonexperimental conditions. The mere fact of obtaining a positive result by culture, showing the presence of living bacteria, is of no significance, and strictly comparable quantitative results are difficult to obtain by direct examination of smears.

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[1] Wright, A. E.: Wound Infections and Their Treatment, Lancet, London, 1915, ii, 957, 1009, 1063.

[2] Cheyne, W. W.: Treatment of Wounds in War, Brit. Jour. Surg., January, 1916.

[3] Wright, A. E.: Treatment of Infected Wounds by Physiologic Methods, Lancet, London, 1916, i, 1203.

[4] Wright, A. E.: The Question as to how Septic War Wounds Should Be Treated, Lancet, London, Sept. 16, 1916.

[5] Wright, A. E. (Footnotes 3 and 4).

THE INCUBATION PERIOD IN INFECTIOUS DISEASE

The "incubation period" is the expression applied to the interval of time, usually quite definite in length, between the moment of entrance of bacteria into the body and the first appearance of the symptoms of consequent disease. The explanations ventured for this characteristic delay have not always been easily squared with the facts. Obviously the small number of bacteria which gain an inroad into the tissues in spontaneous infection is entirely inadequate in itself to produce symptoms. Part at least of the incubation time is therefore postulated to be consumed in the multiplication of the bacteria—their growth, distribution and accumulation in number sufficient to cause a noticeable physiologic disturbance. Less clear is the function, commonly assigned to part of the incubation period, for the action of the toxin or poison produced by the invading micro-organism.

Illuminating evidence has been shed on the nature of the defensive mechanism and immunity responses on the part of infected animals, by Bull[1] of the Rockefeller Institute for Medical Research, New York. He devoted his attention to what takes place in the dog when it is infected with pneumococci. The dog was chosen because of the alleged comparatively high resistance which this species exhibits to these micro-organisms; for here the mechanism of the immunity might disclose itself more readily than in individuals like rabbits, which promptly succumb with septicemia to an exceedingly small quantity of a virulent culture of pneumococci.

Bull found that injected cocci leave the circulating blood with rapidity. The mass of bacteria introduced disappears within so short a period as ten minutes; but the pneumococci reinvade the blood a day or two later. In dogs the septicemia reaches its climax between the fourth and fifth days and then abruptly declines, the blood becoming sterile within from one to three days after the height of the septicemia is reached. This would probably be the end of the infection if it were not for the fact that a meningitis may develop in the meantime.

The initial disappearance of the pneumococci from the circulation has been found to be due to the agglutination of the diplococci within the blood stream and to the accumulation of the clumps in the lungs, liver, spleen and other organs. The significance of this reaction in resistance to infection was recently discussed in The Journal.[2] By successive reinoculations at various stages in the processes already described, Bull has ascertained that the pneumococci are able to reinvade the circulation because they have acquired a fastness to the existing antibodies. The latter have not become exhausted; but serum which once agglutinated and opsonized the original cultures later fails to be able to accomplish this protective result. On the other hand, pneumococci isolated as the infection is subsiding are more susceptible to the action of immune serums than the original cultures injected. Bull remarks that this seemingly paradoxical finding that the pneumococci become more resistant to the action of antibodies in the early part of the infection and later more susceptible is probably due to the nature and strength of the antibodies operative at the different phases of the infection. In the incubation period, only the natural antibodies are present, while in the decline of the septicemia acquired antibodies have appeared.

On the basis of the newer observations,[1] it is suggested that the incubation period of infectious diseases is due to the fact that the infecting agents must become adapted to the adverse conditions encountered in the newly infected host before they can multiply sufficiently to produce the symptoms of disease. It is further suggested that epidemics may arise because the infectious agent is passed from person to person in the ascending stage of the disease and thus enters new hosts in a state of maximum resistance to the natural antibodies of such individuals. When early contacts are avoided, epidemics tend to subside because the infectious agent is weakened by the action of acquired antibodies during convalescence.

The part played by the newly acquired antibodies at the time of the crisis in the septicemia gives a possible clue to the scheme of the natural recovery from infectious diseases in man. If the host can offer sufficient resistance to the invading bacteria, Bull says, to forestall a profound depression of the physiologic functions, or a fatal issue, until specific antibodies can be formed and mobilized, recovery will result. On the other hand, if the host offers little or no resistance to the bacteria at the time of infection, and the incubation period is eliminated, the battle is lost before defensive antibodies can be formed. The latter condition is found in the case of pneumococcus septicemia in rabbits, and the former in pneumococcus septicemia in dogs. Comparative pathology, thus fruitful in its results, must be depended on to bring still further and fuller knowledge of infection and resistance in general.

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[1] Bull, C. G.: Immunity Factors in the Pneumococcus Infection in the Dog, Jour. Exper. Med., 1916, xxiv, 7.

[2] Resistance to Infection, editorial, Oct. 21, 1916, p. 1230.

THE RAPIDITY WITH WHICH SUGARS BECOME AVAILABLE FOR METABOLISM

The fact that a considerable period of time usually elapses before the stomach becomes empty after an ordinary mixed meal tends to lead us to forget how rapidly certain foodstuffs may become available for metabolic use if only they reach a place suitable for absorption and are in a form appropriate for entrance into the circulation. It ought not to be surprising, when one stops to consider the promptness with which drugs introduced by mouth may unfold their pharmacodynamic potency and thereby give indication of having been absorbed from the alimentary canal. But in the case of foods there are few tangible evidences of absorption that do not require some special technic or laborious examination to bring them to light. Once the food is eaten, the progress of its ingredients in the nutritive exchanges becomes veiled in mystery to the subject who ingests it.

There is more than mere theoretical interest in knowing what food materials are most promptly available. Nutritive emergencies, though not frequent, do arise at times. The tendency at present would probably be to resort to intravenous rather than gastro-enteric modes of nutrition under such circumstances. It may come as a surprise, therefore, to learn that some of the sugars may begin to be burned in the organism within from five to ten minutes after they are ingested. Higgins,[1] of the Nutrition Laboratory of the Carnegie Institution, has employed the respiratory quotient, now easily determinable in the human individual, as a means of recognizing the immediate fate of the ingested substance. Sucrose, lactose and levulose begin to be burned very promptly, that is, within ten minutes, when they are ingested into an empty stomach so that they are rapidly passed into the absorbing intestine.

Glucose and maltose, on the other hand, are not utilized as food as soon as the other sugars just mentioned. From twenty to thirty minutes may elapse before their combustion plays any important part in the metabolism. This does not mean that glucose or maltose—which yields glucose prior to its absorption from the digestive tract—are inferior foodstuffs. Higgins comments that the outcome of such observations makes it clear that there is a fundamental and distinct difference in the metabolism of the various sugars in man, and that from a nutritional point of view one must recognize the possible necessity of differentiating between them in their action and use. One might say in brief, Higgins adds, that levulose and sometimes galactose, judging from the respiratory quotient, shows a tendency or a preference to change to fat in the body, while glucose tends to change to glycogen and be stored as such.

That maltose behaves so similarly to glucose is to be expected from its being a disaccharid yielding two molecules of glucose. Sucrose, the common sugar of the table, breaks down in digestive hydrolysis to give one molecule of levulose and one of glucose. Probably it is its levulose fraction which affects the respiratory quotient so promptly. Lactose, or milk sugar, furnishing galactose and glucose on hydrolysis, similarly seems to owe its rapid metabolism to the galactose rather than the glucose moiety of the molecule.

It may further appear surprising that some of these sugars begin to be burned in the body quite as promptly as is alcohol administered under comparable conditions, despite the very rapid absorption of alcohol, beginning in the stomach itself. Although alcohol thus is not available as a food any sooner than are some of the sugars, it will be burned in preference to sugar when the two are taken together.[2] Alcohol begins to be burned in appreciable quantity in from five to eleven minutes after it is taken, the rapidity varying with different persons.

CREATIN, CREATININ AND MUSCLE TISSUE

It is difficult to believe that two comparatively simple compounds so nearly alike in chemical structure and so readily converted, each into the other, as are creatin and creatinin do not have some intimate interrelationship in the organism where both occur. Ordinarily each of these substances is restricted in its appearance to some definite tissue locality. Creatin is primarily a constituent of muscle; whereas creatinin occurs in the blood and the urine, and is currently believed to represent an end-product of a particular type of endogenous tissue metabolism. The appearance of creatin in the urine, in adult life, at once suggests the existence of an unusual if not a technically abnormal functional condition.

The chemically trained mind, recognizing the structural resemblances between these two biologically important substances, is naturally inclined to the supposition that urinary creatinin is derived from muscle creatin. The physiologic evidence in support of such a belief has not always been convincing; nor has the place of origin of the excreted creatinin been discovered with any degree of certainty. One mode of attacking the problem has consisted in feeding or injecting creatin into the living organism and attempting to follow its fate. Another direction of investigation has led to the study of what changes, if any, the creatin of muscle may undergo under conditions of tissue survival.[1] Gottlieb and his collaborators believed several years ago that they had demonstrated the existence of specific enzymes in muscle which could convert these substances into each other. Their work has been the subject of lively criticism, doubtless in part justified; nevertheless, the careful researches of Myers and Fine[2] on the metabolism of creatin and creatinin tend distinctly to the conclusion that muscular tissue is the site of creatinin formation.

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[1] Higgins, H. L.: The Rapidity with Which Alcohol and Some Sugars May Serve as Nutriment, Am. Jour. Physiol., 1916, xli, 258.

[2] Tögel, Brezina and Durig: Biochem. Ztschr,, 1913, L, 296.

Newer experiments by Hoagland and McBryde[3] of the Bureau of Animal Industry in Washington show very clearly the transformation of muscle creatin into creatinin during autolysis. Judging by their results, this reaction must be ascribed to a very considerable degree, at least, to its facilitation by enzymes. The special value of this new contribution lies in the fact that the investigators were successful in conducting the autolysis of muscle under the conditions of strict asepsis, obtainable only with difficulty, yet essential. The objectionable possibility of the interference of bacteria, on the one hand, or the inhibitory effect of added antiseptics, on the other, was thus averted. In the course of the postmortem aseptic autolysis of muscle tissue, which exhibits in a marked degree the property of converting creatin into creatinin, an equilibrium between these substances is finally established. In life, however, with an intact circulation and continuous removal of the product of the reaction, the continued production of creatinin would not necessarily be impeded in the same way.

Muscular tissue appears to have, in an appreciable degree, the ability both to produce and to destroy creatinin. Obviously all of these findings must be regarded as having some bearing, indirect though it may be, on the formation of creatinin in the body. At any rate, the government investigators, taking into account the now known facts on the subject, are convinced that there is much evidence in support of the theory that muscle creatin is the source of urinary creatinin, with a creatin-creatinin-free diet, and considerable evidence to the effect that in part, at least, the transformation of creatin into creatinin takes place in the muscular tissue.

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[1] These questions have been discussed in editorials published in The Journal during the past two or three years.

[2] Myers, V. C., and Fine, M. S.: The Metabolism of Creatine and Creatinine, tenth paper, The Relationship Between Creatine and Creatinine in Autolyzing Tissue, Jour. Biol. Chem., 1915, xxi, 583.

[3] Hoagland, R., and McBryde, C. N.: Effect of Autolysis upon Muscle Creatin, Jour. Agric. Research, 1916, vi, 535.

Current Comment

INDUSTRIAL ACCIDENTS

The workmen's compensation law, passed by Congress to give to certain government employees the right to receive compensation for injury sustained in the course of their employment, became effective, Aug. 1, 1908. Bloedorn[1] describes the method of recording injuries in the United States Navy Yard at Washington, D. C., developed since that date, and analyzes the various factors which entered into the production of accidents for a period of two years beginning Jan. 1, 1914. The average number of men employed during these two years was 3,202. The total number of men who reported one or more injuries was 2,178. The statistics were studied from every conceivable point of view, and a mere statement of the chief results of this analysis is instructive. The highest percentage of injuries occurred among employees between the ages of 16 and 20, and decreased steadily to those between the ages of 50 and 59, from which point there was a constant rise with advancing age. A higher injury rate was shown by colored than by white employees, although engaged in less hazardous work as a rule, and by single than by married employees. The injury rate was markedly higher during the first six months of employment, and skilled employees showed the lowest percentage, whereas helpers and apprentices showed the highest percentage. The day of the week had a very slight influence. It is especially interesting to note that the greatest percentage of injuries occurred during the first two hours of work, with a steady decline for each two-hour period thereafter. The author believes that the first two hours constitute the period of adjustment of the workman to his machinery, and that during this period the workman is more susceptible to injury. Of 4,711 injuries received by 2,178 men, 1,263 were received by 188 men; in other words, a small number, 8.6 per cent., of the total number of men injured received over 26 per cent. of the total number of injuries. While these are the chief factors of interest in the analysis, many others are discussed, for example, the type of injury, the duration of illness, the percentage of accidents in various working shifts, and the percentage of fatal accidents. As a result of his study, Bloedorn makes several recommendations. In accordance with the foregoing analysis, he recommends that the new employee be given especial attention until he becomes accustomed to his machinery and to his fellow employees; that special effort be made to avoid accidents during the first two-hour period during the day; that particular attention be given to shops which show a high percentage of injuries, and that certain dangerous machinery be provided with guards wherever practicable. The large number of injuries to eyes suggests, of course, the use of protective goggles, and Bloedorn recommends that these goggles be made compulsory for all employees engaged in work which exposes the eye to frequent injury from flying particles; he recommends also that employees who appear most susceptible to injury be given particular attention, and that an effort be made to decrease their susceptibility to injury either by correcting any physical defects which may exist, or by inspection and attention along the lines of accident prevention. The national movement toward accident prevention, toward safety and toward the limitation of preventable hazards to life is gaining impetus. Organizations like the Safety First Federation, the National Safety Council, public safety commissions, and the committees on accident prevention of various civic organizations, are spending time, energy and money in investigation as to the sources of industrial and other accidents with a view to correcting the conditions on the basis of a complete analysis of the causes. A most significant fact is the determination by Bloedorn that a certain percentage of workmen are especially susceptible to injury, and that this susceptibility is based frequently on physical defect, and perhaps still more frequently on mental defect. The problems of accident prevention are equally problems for the physician and for the engineer.

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[1] Bloedorn, W. A.: Studies of Industrial Accidents which Occurred in the Navy Yard at Washington, D. C., U. S. Naval Medical Bulletin, 1916, x, 585.

THE MEDICAL OFFICERS' RESERVE CORPS

By the terms of the army bill passed June 3, 1916, the Medical Reserve Corps, as now authorized by law, will cease to exist after June 3, 1917. According to a circular just issued by the assistant surgeon-general, officers of the present Medical Reserve Corps may be transferred to the Officers' Reserve Corps at any time prior to June 3, 1917. There is a slight change in name, but without change in relation to the surgeon-general's office. The new corps, however, will be on a more practical basis than is the present one. Under the present arrangement the officers of the Medical Reserve Corps are such in name only; under the new order, the members of the Officers' Reserve Corps assume responsibilities which will guarantee their efficiency and dependability in time of need. The commissions are issued for a period of only five years; at the end of that time officers may be recommissioned with reexaminations. Attendance at camps of instruction is required for a period of fifteen days in each year, the government paying the transportation and subsistence to and from camp, and subsistence while in camp. Officers are, further, required to complete a correspondence course conducted by the field service and correspondence school for medical officers. This has been optional in the past. In time of peace no officer above the grade of first lieutenant can be ordered into active duty, but first lieutenants may be so ordered. In time of war or stress, the service of all reserve officers is at the disposal of the government as against the provision of the old law in which reserve corps officers could be called to active duty only with their own consent. The holding of two commissions, that is, a commission in the Officers' Reserve Corps and in the National Guard, will not be permitted. The law, without doubt, is a decided improvement, and gives to the United States Army a more reliable and more serviceable medical corps. Every officer in the new medical reserve corps may be counted on for actual service in time of need, and through the correspondence course and the required annual camp instruction will be a more efficient unit.

MEMBERSHIP IN THE ARMY MEDICAL CORPS AS A CAREER

Congress has finally placed the medical department on a definite and satisfactory working basis. The new act provides for a fixed ratio of medical officers to the enlisted strength of the army, which automatically increases or decreases the total strength of the Medical Corps as the army is increased or decreased by law. At the same time the law preserves the definite ratio of field rank now existing. This is the most important step in medical legislation, so far as it relates to the army service, ever enacted into law. The act referred to carries seven medical officers to each thousand authorized enlisted men of the army. When in full effect, the Medical Corps will be increased from 443 to 1,553 medical officers, creating for each of the five increments 222 vacancies. The Journal has received notice from the surgeon-general that an examination of applicants for commission in the Medical Corps will be held at various points throughout the United States, Jan. 2, 1917; furthermore, that the present session of the Army Medical School will close Feb. 28, 1917, and that successful candidates in the January examination will be ordered to the Army Medical School, March 1, for the usual course of instruction. This is an innovation for the medical department, as heretofore only one term each year has been the rule. Candidates who qualify in January will by this plan receive their commissions in the Medical Corps one year earlier than heretofore. There is much in the Medical Corps to appeal to the young physician. There is the opportunity to specialize, to perfect oneself in some particular branch of the profession without the ever present financial difficulties of the young physician struggling for a livelihood. Every officer of the corps is required to meet certain requirements. He can meet these requirements only by constant application. Every officer is encouraged to specialize, and prior to examination for promotion informs the board of his specialty, if any. He is examined on this subject. So far as the interests of the government will permit, an officer who is qualified is assigned to duty and station where there is an opportunity to follow his specialty. Laboratories, operating rooms, libraries, etc., of all post hospitals are equipped for research work, offering opportunities for original investigation which come to the lot of few in civil life. That medical officers have taken advantage of the opportunities, medical literature testifies. From Beaumont to Gorgas one finds a list of brilliant names, men whose work has been a boon not only to the army but also to humanity at large. The Journal commends to the young men of the medical profession as a life work the Medical Corps of the army. It is not a life of ease or one of large financial return. As has been said by Hon. James Hay, late chairman of the

Committee on Military Affairs, House of Representatives:

> The story of medicine and surgery in our army reads like a romance. It is all the more a romance because these achievements were the work of men inspired solely by that stern sense of duty which prevails in the army, without the hope of personal reward or financial gain. The immense benefits that have thus come to soldiers everywhere, and to humanity in general, have been entirely the fruit of labors of love.

SPORTING NOTE

Those who rely on The Journal for their knowledge of sporting events doubtless read with interest, in last week's issue, the alleged secret of Ty Cobb's success as a baseball batter — "Nuxated Iron." While The Journal hesitates to appear in the rôle of competitor with the *Police Gazette* or the *Pink'Un,* it feels impelled to chronicle another item that is of contemporaneous interest with the iron that made Ty Cobb famous. It appears from publications, more sophisticated than we in the matter of outdoor sports, that articles have appeared and are again to appear under Mr. Cobb's name describing incidents of interest to baseball enthusiasts. A recent issue of the Chicago *Tribune* in referring to this particular phase of Mr. Cobb's activities said:

> "In spite of all efforts to forbid it, Ty Cobb signed a contract allowing the use of his name as alleged writer of a series of syndicate stories on the series in defiance of President Johnson's mandate to the contrary. . . . As it might mean a lawsuit to break Cobb's contract, the syndicate will be permitted to deceive the public again into thinking Cobb can write as well as play baseball. . . . President Johnson has suggested that the Baseball Writers' Association take action on the matter which will authorize him in future to use more drastic methods to stop this gulling of the public."

Here we have the germ of an idea that is worthy of extension. It seems that the organization of baseball writers objects to baseball players of national prominence posing as authors of articles which they are incapable of writing. If now we could only persuade the Amalgamated Order of "Patent-Medicine" Testimonial Writers to make a similar protest the public might gain in honesty what it would lose in amusement. If the writers of testimonials really had to take the dope for which they are willing — for one reason or another — to stand sponsor, it would redound to the interest of good sportsmanship and old-fashioned truthfulness, although the testimonial industry itself might receive a set-back.

THE PASSING OF BEECHAM

The manufacturer of "Beecham's Pills" is dead. He made his millions from the sale of two products, "Beecham's Pills" and "Beecham's Cough Pills." The former was essentially an aloes pill that has, in the past at least, been sold as a "cure" for kidney disease, gonorrhea, syphilis, "all nervous affections," and for women who "find any unusual delay" in their menstruation. The "Cough Pills" — as sold in the British Isles — contained morphin, until the law required "patent medicines" containing morphin and some other poisons to be labeled "poison"; then the morphin was taken out. This was admitted by Beecham himself when he appeared before the Select Committee on "Patent Medicines." As Sir Henry Norman, chairman of the committee, said: "You took the morphin out, not because you thought it unnecessary medicinally in the drug, but because you found it convenient for trade purposes not to have it in?" "Yes," said Beecham, "that was all." Beecham's testimony before this committee was interesting. He was made to admit that his "Cough Pills" as sold in the United States contain no morphin; he was further forced to admit that Beecham's Pills sold in Australia contained no reference to their alleged curative powers over gonorrhea and syphilis, diseases, by the way, which he euphemistically described as "Secret Maladies." The history of Beecham's Pills is a "patent medicine" epic: a product of the most ordinary kind, invested with miraculous properties and forced on the public by the irresistible power of modern advertising backed by vast capital. "Beecham's Pills — Worth a Guinea a Box," a slogan obviously and essentially false, and the foundation on which a fortune was built. Beecham made his millions out of a humbugged public. Like others in similar lines of business, he seems to have been free with his easily gotten wealth, and he attained some reputation as a philanthropist. In 1911 he was made a knight, in 1914 a baronet. This might indicate that it matters little how you make your money provided you make enough of it and spend it freely. "My son," admonished a cynical father, "make money, honestly if you can, but make money."

CRITICISM OF METHODS OF QUARANTINE IN INFANTILE PARALYSIS

In an address delivered before the American Public Health Association this week on "The Essential Statistics of Infantile Paralysis," Mr. Frederick L. Hoffmann is reported to have said, in summarizing the results of his investigations, that "the evidence was apparently quite conclusive that the methods of federal and state quarantine adopted for the purpose of disease control had been quite ineffective, and possibly more of a hindrance than a help in the intelligent and rational administrative supervision and control of the disease." The Journal holds no brief for the federal and state health officers, but such a broad condemnation of the efforts of these public officials does not appear to be justified by scientific evidence, or by any statistics which thus far have been presented. No one can conjecture what the extent of the epidemic might have been without the establishment of the measures which were instituted.

The Harvest.—"Does God fix the death rate? Once men were taught so, and death was regarded as an act of Divine Providence, often inscrutable. We are now coming to look on infant mortality as evidence of human weakness, ignorance and cupidity. We believe that Providence works through human agencies, and that in this field, as in others, we reap what we sow—no more and no less."—Dr. L. Emmett Holt.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DELAWARE

Personal.—Dr. Joshua A. Ellegood, Wilmington, has been elected president of the Delaware Society for Social Hygiene.

New State Society Officers.—The annual meeting of the Delaware State Medical Society was held at Milford, October 9 and 10, under the presidency of Dr. George I. McKelway, Dover. The address in surgery was delivered by Dr. Charles H. Frazier, Philadelphia. Middletown was selected as the place of meeting for 1917, and the following officers were elected: president, Dr. James Beebe, Lewes; vice president, Dr. John Ball, Elsmere; secretary, Dr. George W. K. Forrest, Wilmington (reelected); treasurer, Dr. Samuel C. Rumford, Wilmington, and delegate to the American Medical Association, Dr. Willard Springer, Wilmington.

ILLINOIS

Diphtheria in School.—River Forest Grammar School was ordered closed for a week, October 17, on account of the discovery of six cases of diphtheria among its pupils.

Personal.—Dr. Raymond L. Hatfield, Danville, suffered a severe electrical shock from a Roentgen-ray machine at St. Elizabeth's Hospital, Danville, October 16.——Dr. Alvin B. Cary, Donnellson, was operated on for disease of the kidney in the Jewish Hospital, St. Louis, October 14.

Ogle County Tuberculosis.—At a meeting held in Oregon, Ogle County, September 15, an organization was formed for the prevention of tuberculosis. An exhibit was made at the Ogle County Fair. The question of whether or not Ogle County shall have a sanatorium for the treatment of tuberculosis will be submitted to the voters at the election next month.

Harvey Tercentennial.—Dr. Frederick G. Novy, Ann Arbor, Mich., delivered the opening address of the Harvey Tercentennial, which was held in Galesburg, October 13, under the auspices of the Kent County Medical Society. The subject was "Anaphylaxis and Anaphylatoxin." Addresses were also delivered by Drs. George W. Crile, Cleveland, and Bertram W. Sippy, Chicago.

Medical Unpreparedness.—At the opening exercises of the College of Medicine of the University of Illinois, held in Chicago, October 5, Edmund Janes James, president of the university, delivered an address on the "Functions of the State in the Promotion of Medical Education and Research," in which he pictured the unpreparedness of the United States in matters of public health and called attention to the great ignorance regarding the cause and the means of prevention of the many and the most common diseases.

Chicago

Personal.—Dr. Harry C. Rolnick has reached Berlin on his way from the Graudenz Hospital to his new post of duty at the psychopathic hospital in Pardubitz, Bohemia.

New Appropriation for Poliomyelitis.—The city council, October 9, passed an ordinance appropriating to the health department $17,000 to continue its work against anterior poliomyelitis.

Typhoid Fever at High School.—Numerous cases of typhoid fever have recently been reported among students of the Englewood High School. The source of infection is believed to be a typhoid carrier.

Lectures at Children's Hospital.—A series of lectures on the care of children is to be given at the Children's Memorial Hospital, on Wednesdays, at 11 a. m. The lecturers include Drs. Henry F. Helmholz, Samuel J. Walker, Frank S. Churchill, Coleman G. Buford, Edwin W. Ryerson and Miss Elsie Burks, New York.

Antituberculosis Meeting.—The twenty-second meeting of the Robert Koch Society for the study of tuberculosis was held, October 26, at the Hotel Morrison. Dr. Harry J. Corper spoke on "Some Interesting Laboratory Problems in Tuberculosis," and Dr. Walter A. Gekler discussed the "Clinical Applications of These Problems."

Boats Must Purify Water.—Orders were issued, September 17, by the United States Public Health Service that the passenger steamers on the Great Lakes shall either install water purifying plants or take water on board at port of call. Of the twenty-two passenger steamships entering the port of Chicago, eleven have already complied with the requests, previously made, by the installation of violet ray plants.

Diphtheria Epidemic.—Diphtheria is reported to be prevalent in South Chicago, where forty-seven cases have been reported.——The examination of the pupils at the Frances Willard Public School by the health department physicians revealed more than forty diphtheria carriers. Four children are under quarantine at their homes.——During September, more than 150 cases of diphtheria were reported in the city.

Studies Mental Defectives.—Dr. Henry I. Adler, chief of staff of the Boston Psychopathic Hospital, is spending several months in Chicago at the request of the Civic Club and the Illinois Society for Mental Hygiene, under the auspices of the Rockefeller Foundation. His especial work is to be a survey of the mental defectives of Chicago and Cook County, and he will work in the courts and other institutions where there are facilities for detecting and handling defectives.

MARYLAND

English Physicians in Baltimore.—Sir Henry Burdett and Dr. A. C. Morton, London, England, were the guests of honor at a dinner given by Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, at the Maryland Club, September 30.

State Appropriation for University.—The University of Maryland has recently obtained the state appropriation of $15,000 for medical education for 1915 and a similar amount for 1916, which, owing to the financial embarassment of the state treasury, was not paid when due. The whole amount of $30,000 has now been paid.

Gift to Hopkins.—Isaac F. Nicholson, Baltimore, celebrated his eightieth birthday by giving the Johns Hopkins University $15,000 for the establishment of the Isaac Forester Nicholson Fund, to establish scholarships for needy students from Baltimore or the state of Maryland, or to be used for any other purpose the trustees may desire.

Personal.—Dr. James A. Nydegger, U. S. P. H. S., has resigned the chair of tropical medicine at the University of Maryland, as his public health service duties claim his entire time.——Dr. Arminius C. Pole, after many years' service as professor of anatomy in the Baltimore Medical College and professor of descriptive anatomy in the University of Maryland since the merger of the two schools in 1913, has resigned.——Dr. William L. Smith, Riderwood, who has been in ill health for the last six months, underwent a successful operation at the Union Protestant Infirmary, October 19.

Modification of Infantile Paralysis Quarantine.—A further modification of the infantile paralysis quarantine in Baltimore will permit children 9 years of age and over to return to school and to attend moving picture theaters. The quarantine may be lifted entirely after next week, as the plague seems to be on the wane. During the past week comparatively few cases were reported to the city health department.——The outbreak in Garrett County is being investigated by the state board of health to determine whether or not the disease was imported from Pennsylvania. There have been twenty-two cases in Garrett County since July 1.

MASSACHUSETTS

Health Association Meeting.—At the October meeting of the Massachusetts Association of the Boards of Health, held in Holyoke, October 19, the program included a discussion on the tuberculous cow, quarantine hysteria and anterior poliomyelitis.

Personal.—Dr. Maynard Ladd has succeeded Dr. Arthur A. Howard as physician in chief of the children's department and of the hospital for children of the Boston Dispensary.——Dr. Bernard W. Carey, Fitchburg, chairman of the state board of health, has resumed practice after a long illness from septicemia.

Changes at Harvard.—The following appointments were announced by the overseers of Harvard University: Drs. Edward Hall Nichols and Charles Allen Porter have been elected clinical professors of surgery in the Harvard Medical School, and the following assistants have been appointed:

Donald Mitchell Glover and Joseph Haskill McGuire, histology; MacIver Woody, Harry Saul Bernstein and Francis Lowell Burnett, pathology; George Glymer, alumni assistant in neurology, and Leroy Upson, Gardner, instructor in pathology. The following appointments have been made on the staff of the Collis P. Huntington Memorial Hospital: Dr. Robert Battey Greenough, surgeon in charge; Dr. Edward Hammond Risley, assistant surgeon; Dr. George Adams Leland, Jr., surgeon of outpatients, and Dr. Frank Weld Peabody, consulting physician. The resignations of Albert Alphonso Wood Ghoreyeb, a fellow in pathology; Louis Harry Newburgh, alumni assistant in medicine, and James Earle Ash, instructor in pathology, were accepted.

MINNESOTA

New State Officers.—At the annual meeting of the Minnesota State Medical Association, held in Minneapolis, October 11 to 13, under the presidency of Dr. J. Warren Little, Minneapolis, the following officers were elected: president, Dr. Harper M. Workman, Tracy; vice presidents, Dr. John H. Adair, Owatonna; Arthur C. Rogers, Faribault, and Herman M. Johnson, Dawson; secretary, Dr. Thomas McDavid, St. Paul (reelected); treasurer, Dr. Earl L. Hare, Minneapolis; councilors, Drs. Joseph G. Millspaugh, Little Falls, second district; Warren A. Dennis, St. Paul, third district, and Clarence E. Persons, Marshall, fifth district; delegates to the American Medical Association, Drs. Warren L. Beebe, St. Cloud, and Harry P. Ritchie, St. Paul, and alternates, Drs. George D. Head, Minneapolis, and William H. Magie, Duluth. The next meeting of the association will be held in St. Paul, October, 1917.

Sanatorium Notes.—The Wabasha County Tuberculosis Sanatorium, which is to be known as Buena Vista Sanatorium, near Lake City, was ready for opening, October 15. The buildings consist of an administrative building in the center with a 90-foot wing on each side, each wing having ten rooms, one for men and one for women, and each room having a separate porch. The cost of the sanatorium, including site, construction and equipment, has been about $40,000, of which the state contributes one half.——The plans for the new building at the Glen Lake Tuberculosis Sanatorium, to be erected at a cost of $30,000, with beds for thirty-four patients, were blocked, September 16, when the county commissioners in their request to the board of tax levy cut the appropriation of $57,000 to $35,000.——The Clay Becker Sanatorium, Lake Park, was given its final inspection, September 11, and after acceptance by the commissioners will be ready for opening.——According to the plans of the Lake Julia Sanatorium board, a free clinic is to be established in Bemidji under the charge of Dr. Leo G. Guyer, Lake Park.

NEW MEXICO

Personal.—Dr. Benjamin H. Frayser, Shiprock, first lieutenant, M. R. C., U. S. Army, has been ordered for active duty in the southern department.——Dr. Ignatz D. Loewy has succeeded Dr. Thomas J. Cummins as medical director of St. Joseph's Sanitarium, Silver City.——Dr. Edward A. Montenyohl, Deming, is spending several months as a member of the house staff of the Willard Parker Hospital, New York, in the service of the poliomyelitis wards.

New State Officers.—At the annual meeting of the New Mexico Medical Society, held in Albuquerque, October 11 to 13, Las Cruces was selected as the place of meeting for next year. The following officers were elected: president, Dr. Clifford S. Losey, East Las Vegas; president-elect, Dr. John W. Kingsinger, Roswell; vice presidents, Drs. Charles A. Frank, Albuquerque; Franklin H. Crail, East Las Vegas, and Hugh V. Fall, Roswell; secretary, Dr. Robert E. McBride, Las Cruces; treasurer, Dr. Frank E. Tull, Albuquerque, and councilors, Drs. Walter Kaser, East Las Vegas; Harry A. Miller, Clovis, and George S. McLandress, Albuquerque.

NEW YORK

State Clinics for Poliomyelitis Cripples.—The first clinic for the after-care of cases of poliomyelitis was opened, October 17, at White Plains. Dr. Robert W. Lovett, Boston, will examine each patient and direct the treatment. Later it is planned to hold clinics in other parts of the state. Over thirty patients were examined the first day of the clinic. Clinics were held at Mount Vernon and Port Chester, October 18, in North Tarrytown, October 20, and at Yonkers, October 21.

Personal.—Dr. Earl G. Danser, Buffalo, has been nominated for representative to the assembly from the seventh district. ——Dr. Arthur Eisbein has been appointed city diagnostician. ——Dr. Francis J. Lennon has been appointed city physician, replacing Dr. Herbert H. Bauckus, who has been on a year's leave of absence.——Drs. John and Edward S. Van Duyn, Syracuse, recently returned after several months in the French army hospital service.

Quarantine at Cornell and Vassar.—It is reported that all Cornell students who roomed at a house where a case of infantile paralysis developed have been quarantined for two weeks. This is the first case of infantile paralysis that has appeared at Ithaca for many months. Although there have been no cases of infantile paralysis at Vassar College, that institution has been placed under strict quarantine and students warned against visiting New York.

New York City

Cartwright Lectures.—The Cartwright lectures of the association of the alumni of the College of Physicians and Surgeons were delivered at that institution, October 24 and 25, by Dr. Richard M. Pearce of the University of Pennsylvania on "The Spleen in its Relation to Blood Destruction and Regeneration."

War Antitoxin.—In a hearing on the budget, it is reported that Health Commissioner Emerson made the statement that the laboratories of the department of health have furnished $205,000 worth of antitoxin to Europe since the outbreak of the war, two thirds of which had gone to the allies. The state provides that the city of New York may sell its surplus antitoxins produced by the department, but that the money accruing from such sales must be used in the production of more antitoxins or for the prevention and treatment of infectious diseases.

Case Fatality of Poliomyelitis.—Up to October 16, there have been 9,209 cases of poliomyelitis placed under quarantine in this city. Of these, 250 were found after careful investigation not to be true cases of poliomyelitis. The total number of deaths recorded is 2,362, or a case fatality of 26.24. The total number of cases admitted to hospitals was 5,294, and the total number treated 4,474. This difference in the admissions and number of cases treated was due to transfers from one hospital to another. From August 31 to October 13, there have been discharged from the hospitals of the department of health 2,053 cases. Of these 66 per cent. showed evidences of paralysis to some extent; 15 per cent. showed that paralysis had wholly disappeared, and 15 per cent. had not shown paralysis at any time. It has been estimated that 75 or 80 per cent. of those crippled will fall into the class that will receive free treatment.

Antirabic Work.—The comparative statistics of the health department for 1915 and 1916 show the effect of active antirabic work in diminishing the number of cases of rabies. The number of persons examined for dog bite during the first and second quarters of this year totaled 1,320, while during the corresponding period of 1915 the number was 1,655, a diminution of more than 20 per cent., which may be attributed to the muzzling regulation. The number of dogs suspected of rabies and removed for examination diminished from 3,044 to 699, and the number of cases of rabies in dogs from forty-seven to fourteen, 70 per cent. reduction. There have been no deaths from rabies in the first six months of 1916. The antiglanders work shows an increase in the number of horses examined and tested with mallein from 562 for the first six months of 1915 to 1,866 for 1916. There was a reduction in the number of horses condemned as afflicted with glanders from 393 to 213.

NORTH CAROLINA

Hospital Wards Opened.—October 16, the maternity and baby wards of the Biltmore Hospital were formally opened with appropriate ceremony. These wards were the gifts, respectively, of the widows of the late George W. Vanderbilt and Alfred Gwynne Vanderbilt.

Illegal Practitioner Prosecuted.—The State Board of Medical Examiners, operating under the new statute, has instituted a number of suits against illegal practitioners through the office of the attorney general. Information regarding illegal practitioners in the state sent to the secretary of the board, Dr. Hubert A. Royster, Raleigh, will be received in confidence and placed in the proper hands for prosecution, and the case will be pressed to a prompt trial.

Portrait Presented.—At Raleigh, October 13, Chief Justice Walter Clark, on behalf of the state, received from Dr. Louis

J. Picot an oil painting of the late Dr. George W. Long, Graham. Dr. Long was formerly a member of the State Board of Medical Examiners, president of the state medical society, and was widely known and respected. This gift of his portrait to the state by his professional friends is timely and appropriate.

Personal.—Dr. Lauren O. Gibson, Statesville, has opened a private surgical hospital, and has associated with him in the management Dr. Addison G. Brenizer, Charlotte.——Dr. William H. Smith, Goldsboro, has been elected county physician for Wayne County, succeeding Dr. Richard W. Spicer, resigned to accept service with the National Guard on the southern border.——Lieut. J. W. O'Connell, now on duty with the National Guard at El Paso, has resigned and resumed his duties as college physician and teacher of biology at Davidson College.

PENNSYLVANIA

Personal.—Dr. Claud D. Roop, Lancaster, has entered on his duties as assistant physician at the State Hospital, Norristown.

Dauphin Physicians Organized.—Physicians in the upper end of Dauphin County have organized a branch of the county medical society, with Dr. Charles M. Rickert, Millersburg, as president; Dr. Harry A. Shaffer, Williamstown, as vice president, and Dr. Joseph W. Shaffer, Elizabethville, as secretary.

Railway Surgeons' Association.—The ninth annual convention of the Railway Surgeons' Association of the Pennsylvania lines east of Pittsburgh was held at the Bellevue-Stratford, October 19 to 21. The following officers were elected: president, Dr. W. B. Henderson, Phillipsburg; vice president, Dr. Charles J. Roberts, Berwyn; secretary, Dr. Amos W. Colcord, Clairton, and treasurer, Dr. Joseph C. Egbert, Wayne.

Northumberland County and Clean Milk.—The Northumberland County Medical Society has undertaken a thorough campaign of education on the subject of clean milk. Following a request for such action, made at the August meeting by Dr. George G. Gill, Sunbury, a committee consisting of Dr. Clay H. Weimer and Dr. Henry T. Simmonds, Shamokin, and Dr. Gill was named to carry on the work. The campaign in Sunbury is well under way with Sunday evening addresses by physicians in the principal churches, daily newspaper articles, and illustrated evening lectures thrice weekly in a large, centrally located tabernacle. Great interest in the movement is evident, and the obtaining of one or more producers of certified milk in the county is assured. Compulsory registration of all milk and ice cream dealers and their sources of supply with a grading of 70 per cent. required, and certificates of health for every person employed in the milk industry, are among the regulations demanded by the committee.

Philadelphia

Infantile Paralysis Report.—Since July 1 and up until October 20, there have been 946 cases in Philadelphia, with 282 deaths. An organization known as Lovers of Children collected $1,347 to buy braces and other necessaries for convalescents.

Funds to Send Doctors to Germany.—A festival, to complete a fund of $16,000, most of which has already been raised to send six Philadelphia doctors to Germany, was held at the Philadelphia Turngemeinde, October 23. The physicians are expected to sail within a few weeks. Instead of taking up posts at various war fronts, they will be sent to cities where there is a shortage of medical men. They will remain six months.

Officers Nominated.—At the regular quarterly business meeting of the Medical Club of Philadelphia, held at the Bellevue-Stratford, October 20, the following officers were nominated: president, Dr. Charles K. Mills and Dr. William D. Robinson; first vice presidents, Drs. D. Oram Ring and William Martin, Atlantic City, N. J.; secretary, Dr. William S. Wray; treasurer, Dr. Louis Adler, Jr., and governors, Drs. Paul J. Sartain and McCluney Radcliffe.

New Hospital Formation.—October 14, the new Masonic Memorial Hospital of Elizabethtown was turned over to the Grand Lodge of the State of Pennsylvania. This hospital was contributed by the Philadelphia Masons, and the cornerstone of the institution was laid, September 29. The building is a three-story granite structure, and is arranged to accommodate thirty-eight patients. The cost of the building was $60,000. Two other buildings will be errected in the near future, at a total cost of $200,000.

Personal.—Dr. Theodore Le Boutillier has been appointed pediatrist to the Philadelphia General Hospital.——Dr. Adolph I. Ringer has been appointed professor of clinical medicine in Fordham University, New York.——Dr. Burton Chance has been chosen by the board of city trusts as an attending surgeon at Wills Eye Hospital.——Dr. Hunter W. Scarlett and Dr. Peter McCall Kettine, who recently returned from serving in the American Ambulance in Paris, will relate their experiences at University Hospital on October 31, the annual donation day.

Rebuild Blockley.—Members of the medical board of Philadelphia General Hospital, consisting of the staff of the institution, met October 16, and unanimously approved of the rebuilding of the Philadelphia Hospital on the present site at Thirty-Fourth and Spruce streets, instead of the establishment of district hospitals, a plan approved by the chamber of commerce. The sum of $1,000,000 is available for expenditure on the new building, and plans have already been drawn for it. One of the reasons against the district hospital idea was that it meant about $8,000,000 more debt for the city.

VERMONT

State Society Meeting.—At the annual meeting of the Vermont State Medical Society, held in St. Johnsbury, October 12 and 13, under the presidency of Dr. William W. Townsend, Rutland, the following officers were elected: president, Dr. Charles H. Beecher, Burlington; vice president, Dr. Charles W. Howland, Shoreham; secretary, Dr. William G. Ricker, St. Johnsbury; treasurer, Dr. Edward H. Martin, Middlebury; councilors, Drs. Schuyler W. Hammond, Rutland, second district, and Dr. Clinton J. Rumrill, Randolph, fourth district; nominees, Drs. Winfield S. Nay, Underhill, and Dr. Walter L. Havens, Chester Depot, and alternate and delegate to the American Medical Association, Dr. Fred T. Kidder, Woodstock. The house of delegates elected the following officers: president, Dr. Patrick E. McSweeney, Burlington; vice presidents, Drs. Fred T. Kidder, Woodstock, and William E. LaZell, Barre, and secretary, Dr. Fred E. Steele, Montpelier. Clinics were conducted by Drs. John R. Williams, Rochester, and Ellsworth Eliot, Jr., Albany. Barre was selected as the next place of meeting.

GENERAL

Western Surgeons' Meeting.—The Western Surgical Association will meet in St. Paul, December 15 and 16, under the presidency of Dr. Lawrence W. Littig, Davenport, Iowa, instead of at Indianapolis, as previously announced.

Prevention of Blindness.—The second annual meeting of the national committee for the prevention of blindness will be held, November 24, in the Academy of Medicine, New York, under the presidency of William Fellows Morgan. The principal address will be delivered by Surg. John McMullen, U. S. P. H. S., who will describe his campaign against trachoma.

Railway Surgeons Elected.—At the annual meeting of the American Association of Railway Surgeons, held in Chicago, October 16 to 19, the following officers were elected: president, Dr. William Battle Malone, Memphis, Tenn.; vice president, Drs. Edwin S. McDonald, Cameron, Mo.; Mark L. Bishoff, Fort Madison, Iowa, and William C. McGrath, Eagle Grove, Iowa; secretary, Dr. Louis J. Michell, Chicago (reelected); treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa (reelected), and executive board, Drs. Samuel C. Plummer, Chicago, and David Y. Roberts, Louisville (reelected).

Prevention of Infant Mortality.—The seventh annual meeting of the American Association for the Study and Prevention of Infant Mortality was held in Milwaukee, October 19 to 21, under the presidency of Dr. Samuel M. Hamill, Philadelphia. The following officers were elected: president, Dr. William C. Woodward, Washington, D. C.; president-elect, Dr. Philip Van Ingen, New York; vice presidents, Mrs. William Lowell Putnam, Boston, and Dr. Borden S. Veeder, St. Louis; secretary, Mr. Albert Cross, Philadelphia; treasurer, Mr. Austin McLanahan, Baltimore (reelected), and executive secretary, Miss Gertrude Knepp, Baltimore (reelected).

Courts' Decisions on Public Health.—Reprint No. 342 of the *U. S. Public Health Reports* contains the judicial opinions which were published in the *Public Health Reports* between May 30, 1913, and Dec. 31, 1915. It is divided into two parts: digest of judicial opinions, arranged in topical outline, under suitable headings, and the reports of the cases or excerpts therefrom. The digest covers public health in so far as this subject has been considered by the courts. Opinions relating to house plumbing, noises and offensive odors have not been included. This reprint will be of value to those interested in public health. Its usefulness could be greatly increased, however, by a better index of cases cited. It contains an alphabetical index of the cases published in the second part, but gives the titles only without reference to the official reports; in the digest of the cases, again only the titles are given without official citations. This is most inconvenient if the volume is to be readily used for what is apparently intended, a handy reference to the judicial decisions on public health.

FOREIGN

Festskrift for Professor Müller of Stockholm.—A bulky, finely illustrated volume of 833 pages has been dedicated to Erik Müller, professor of anatomy at the University of Stockholm, by his friends and pupils on the occasion of his fiftieth birthday. It forms No. 3 of volume xlii of the archives of the Swedish Medical Association. Each of the thirty-six articles is accompanied by a summary in German or in French, except one which is to be published in a German medical journal. The *Festskrift* is to be reviewed in the Current Medical Literature Department.

CANADA

Tuberculosis Hospital for Soldiers.—A $50,000 building for soldiers invalided home with tuberculosis will be erected by the London (Ont.) Health Association. This will be established in connection with the Byron Sanatorium in that city. It is being established at the request of the Military Hospitals Commission, and it is expected that the Dominion and provincial governments will each bear one half the cost.

Osler and the Canadian Army Medical Services.—Soon after the war began Sir William Osler was appointed honorary consulting physician at the Queen's Canadian Hospital, Shorncliffe. Since that time he had also been an honorary adviser in connection with the Canadian hospitals generally in England. To express his sympathy with Surgeon-General Jones, Sir William Osler has cabled his resignation to Premier Borden of Canada, and, it is understood, may go to Canada to speak in defense of General Jones.

Colonel Bruce's Report on C. A. M. C. in England.—The report, referred to in The Journal, October 21, p. 1239, continues to be the topic of discussion in medical circles in Canada, as well as to invite further discussion in the public press. A fuller text of the report is now to hand. It is substantially as follows: A complete reorganization of the medical services is recommended; also that the arrangements in Canada, England Overseas Dominions be coordinated. The report advocates the treatment of Canadian casualties in Canadian hospitals; that Canadian hospitals be concentrated, and all voluntary hospitals be abolished. The care of the Canadian sick and wounded should be the first duty of the Canadian Army Medical Corps. Incapacitated Canadian soldiers should be returned to Canada as soon as they are fit to travel to receive further medical treatment at the established hospitals in Canada. It is recommended that the Red Cross hospitals be taken over and the three Canadian hospitals at Saloniki brought back to England if the imperial authorities can spare them from that eastern base. It is further recommended that 1,000-bed hospitals be established at Halifax, Montreal, Toronto, Winnipeg and Vancouver and a smaller one at Ottawa. In these there should be accommodation for a limited number of officers. Canadian medical officers who have had experience at the front should be brought home to organize these hospitals, and medical boards in different sections of Canada should weed out the unfit before they go overseas. No more medical units should be organized in Canada for overseas duty. There should be a director of medical services and a deputy director on the line of communication in France and another deputy with the C. A. M. C. in France. Assistant directors should be with (Canadian) embarkation, nursing service, records, invaliding and supplies. According to the report of Colonel Bruce's committee, the Canadian wounded soldiers want to be taken to Canadian hospitals, and for that purpose the concentration of these hospitals is recommended. It is stated that, up to the present, Canadian doctors who have gone overseas to treat Canadian soldiers have rarely had that opportunity. The use of voluntary aid hospitals is objected to because of inefficiency and cost. The system of sending casualty cases to hospitals is not good, and when there patients have been kept too long. In many cases it is claimed they could have been returned to Canada or to the firing line. In the handling of certain special diseases the service in England has been unsatisfactory, and when experienced doctors have gone over to England from Canada, in many cases, their services have not been properly engaged.

LONDON LETTER

London, Oct. 9, 1916.

The War

THE WORK OF THE ARMY SURGEONS

The work of the army surgeons in this unprecedented war, which has absorbed almost half the physicians of the country, is as full of danger and thrilling episodes as that of the soldiers. The toll taken from them by death is considerable. During the past three months, fifty-three have been killed, four are missing and 208 have been wounded. In the same period 260 of their ambulance men have been killed and 1,212 wounded. For the battle of the Somme the most careful preparations were made by the medical corps. The commander-in-chief, Sir Douglas Haig, himself superintended the arrangement of the regimental aid posts and casualty clearing stations. The terrific bombardment of the present battles has modified the method of dealing with the wounded. In the early days of the war the regimental aid posts used to be placed in some deserted farm house near the front trench. Today as we advance, no structure of any kind is left standing. The only shelter for the surgeon is one of our own trenches or a captured German trench. For safety the advanced dressing stations are placed underground protected by 4 or 5 feet of earth above them. There in cavernous chambers the work is done by artificial light, and electric torches are necessary to pass through the various windings connecting the underground rooms. From this place the wounded are evacuated as rapidly as possible to the corps collecting station, where each man arrives with his wound dressed and a label on which is written the diagnosis. Here there is a field operating theater, but operations are performed only in cases of urgency. The next stopping point is the clearing station, which is often a large building such as a school or mill transformed into a hospital.

Smallpox Without Eruption

Dr. Willoughby, health officer in the port of London, records an outbreak of smallpox among a family of ten persons who, after a visit to the Holy Land, boarded a homeward-bound vessel at Port Said, and states that it derived special interest from clear evidence of smallpox without eruption in two of the cases. The ship's quartermaster, who had taken the disease from one of the children, had as severe an attack of confluent smallpox as had ever been recovered from. Of the twelve sufferers—the family of ten, and two of the crew—two young unvaccinated children died.

Women in the Medical Schools

As stated in previous letters to The Journal, the shortage of physicians due to the war has caused an influx of women students into the profession. Previously they were admitted to very few of the ordinary medical schools and had to take their course in one of the few schools formed for training them alone. Now the war has caused several relaxations of regulations. To most of the London hospitals women students are not admitted. At St. George's Hospital, however, during the war a strictly limited number of women students are eligible for admission. In the event of the war coming to an end before such women students are qualified, they will be allowed to continue their studies until qualification. This school was the pioneer among the metropolitan medical schools in opening its doors during the war to women medical students. The council of Charing Cross Hospital recently decided to throw the school and hospital open to women medical students. It has done this because it feels that the medical education of women should be on lines as broad and comprehensive as those enjoyed by men. The dean of the hospital says: "All the learned professions—and medicine not less than another—demand of those who profess them very high ideals and standards of conduct, and these requirements are more likely to be obtained if the students, whether male or female, are educated under identical conditions. Any possible tendency to overestimation of the attainments of the individual is undesirable."

The hospital and school are now open to women on equal terms with men. St. Mary's Hospital, at the request of the Royal Free Hospital, School of Medicine for Women (the only medical school in London entirely devoted to the training of women students), agreed to take a certain number of women students annually for their clinical course on the same terms and under the same conditions as men. These students were to be drawn exclusively from those who had entered as students at the London School of Medicine for Women and had completed their preliminary and intermediate studies. The scheme has now been in working for four months, and no friction of any kind has arisen. A separate common-room has been provided for the women students, who enjoy exactly the same privileges as the men. King's College, which for some years had women students in its classes for the preliminary medical subjects, lately admitted them to the anatomy department, in the first instance limiting the number to twenty. The final studies of these women students can be taken at Charing Cross, St. George's, and St. Mary's Hospital Medical Schools, in addition to the Royal Free Hospital for Women. It will thus be seen that only one of the great medical schools of London admits women as a matter of principle. At the Royal Free Hospital a great extension of the Medical School for Women has been opened by the queen. The cost was $150,000. It is now possible to give a complete course to 450 students.

The Court of the University of Edinburgh has made a new departure. It has resolved to admit women in the winter session to all the medical classes, systematic and practical, in the university. The systematic lectures in midwifery and gynecology will be given separately to men and women students, and possibly also those in materia medica; but in all other subjects the classes will be mixed. There will be separate sections for women in all practical courses except in advanced courses, and in special cases that may be arranged by the head of the department. Women will be admitted to university clinical instruction as soon as arrangements can be made. They are now under consideration, and it is expected that by next year women students will be able to take their whole curriculum within the university.

PARIS LETTER

Paris, Sept. 28, 1916.

The War

THE PREVENTION OF DEAFNESS DUE TO EXPLOSIONS

Heretofore attention to disorders of the auditory apparatus caused by nearby explosions of projectiles has mainly been directed to treatment. In a communication to the Académie de médecine, Dr. Wicart of Paris has taken up the question of prophylaxis. According to him, the brutal effect of artillery fire or the bursting of shells may be considerably attenuated if the soldier takes precaution before, during and after the explosion, of swallowing his saliva two or three times while pinching the nostrils. Also, during bombardments and artillery fire he should place in his external auditory meatus a bit of cotton soaked in glycerin and place on his head or ear guards padded with cotton. If these simple and quite efficacious precautions have not been taken owing to the unexpectedness of the explosion, it is still necessary to bear in mind that however violent the traumatism of the auditory apparatus may be, it will have no serious consequences if infection can be avoided. Often such an infection has its origin in a previous one of which the patient was unaware: nasal or pharyngeal catarrh, hypertrophy of the turbinates, obstruction of the eustachian tube, old cicatricial otitis, indurated wax, and cephalic congestion in syphilitics, in malarial patients, in those who are subject to some poisonings (such as lead), and in arthritis. For these reasons the absolute cleanliness of the auricular passages is necessary as an insurance against those permanent infirmities of hearing which too often follow these injuries. Therefore the external meatus should be cleaned and dressed with glycerin, as stated, and camphorated oil with 1 per cent. of eucalyptol or of essence of lavender should be instilled into the nostrils. In the absence of these, mentholated petrolatum may be used, but is much less efficacious. These instillations should be made with the patient lying on his back, the head a little drawn back, in which position the patient should remain for five minutes. In every case men deafened and injured by these explosions ought to receive this first aid in the sanitary formations in order to avoid an infection which might transform a simple shock into suppurative otitis.

MANUFACTURE OF CLINICAL THERMOMETERS FOR THE ARMY

Mr. Justin Godart, undersecretary of state of the health service, has installed at the central pharmacy of the army a workshop for the manufacture of clinical thermometers. The object of this is to form an instructional and educational center for war cripples, who will learn the trade at this factory and then will be distributed over the country in order to create an industry of clinical thermometers, an industry which Germany had almost succeeded in monopolizing.

MEDICAL STUDENTS AND THE WAR

Mr. Justin Godart, undersecretary of state of the health service, has decided to enroll all students of medicine as nurses, even those who have taken only two semesters.

EXTRACTION OF PROJECTILES FROM THE LUNGS

Dr. Marquis has made a communication on this subject to the Réunion médico-chirurgicale de la V-e armée in which he insisted on the possibility of extracting projectiles lodged in the lungs without danger and without causing pain or functional trouble. For this purpose, two methods are available, that of Marion, by fixation of the lung to the pleura, and that of Duval, exteriorization of the lung. The presence or absence of pleuropulmonary adhesions revealed by roentgenoscopy decides the choice. Should they be present, the fixation method is preferable, not only because it respects the adhesions which if broken might bleed, but, especially, because these same adhesions are often the result of the localized infection around the projectile and this method avoids a greater extension of the infection of the pleural cavity. In the absence of adhesions, however, it is better to utilize the method of exteriorization of the lung which is more respectful of the pulmonary tissue, does not cause permanent adhesions between the lung and the pleura, and gives healing by first intention and, therefore, much more rapidly. But in order to obtain from this method the best results of which it is capable, drainage must be avoided. Aspiration of the intrapleural air is not indispensable, the pneumothorax being rapidly absorbed spontaneously. Seven patients with wounds with intrapulmonary projectiles have been operated on by Marquis. In two cases, the projectile was not removed; one because it was not detected in a completely retracted lung, and the other, which was a flat piece of metal, because it was firmly adherent to the pericardium; it was thought better to leave it in place rather than to involve this membrane. In five other cases, the removal of the projectile occasioned no difficulty, although in some it was situated at a great depth. In no case was there any serious complication. There was a slight rise of temperature on the day following the operation, especially with the method of fixation. With the same method also, hemoptysis occurred on the evening and the day after the operation. Finally, in one case, a pleural hemorrhage had to be drained. Marquis concludes that with the reserve that the removal of a projectile adherent to a vital organ should not be obstinately persisted in the extraction of intrapulmonary projectile under conditions of rigorous asepsis serves the double purpose of curing a certain number of wounded and maintaining their efficiency to an appreciable extent.

Poliomyelitis

The Conseil supérieur d'hygiène has had its attention called to the question of poliomyelitis by Mr. Brisac, director of the Hygiène publique at the ministry of the interior. In view of the anxiety to which the epidemic in the United States might give rise in public opinion, Mr. Brisac requested the opinion of the council as to whether it was necessary for the French authorities to take measures to prevent a possible extension of the epidemic to France. Should the answer be in the affirmative, he asked what measures should be taken at the maritime frontiers, and finally, if any cases should occur, what prophylactic measures should be applied. Dr. Netter read a report which concluded that poliomyelitis, long known in France (French scientists, Cornil and Charcot especially, were the first to point out the characteristic lesions of the spinal cord), has caused in France only isolated cases. There is no reason to fear that this disease can acquire in this country an epidemic character. In these circumstances the council is of the opinion that no special measures of precaution need be taken. Nevertheless, the Académie de médecine a few weeks ago passed a resolution that poliomyelitis should be placed on the list of notifiable diseases. The council has, in its turn, approved this proposition. In consequence of this double request, the minister of the interior, to whom the resolution of the council of hygiene has been communicated by Mr. Brisac, will in all probability cause a decree to be issued in the sense desired by the council.

Marriages

John Weston Emmons, M.D., Poplar Grove, Ill., to Mrs. Emma Downy of Aurora, Ill., at Rockford, Ill., September 28.

Sophy Ellen Page, M.D., East Bethany, N. Y., to Rev. Charles Leonard Carlucci of Springfield, Mass., October 5.

DeLorme Fordyce, M.D., Conshohocken, Pa., to Miss Anna R. Beishiag of Philadelphia, in New York, September 30.

William Solomon Jones, M.D., Jeffersonville, Ga., to Miss Edith Louise Jackman of Menominee, Mich., October 13.

Zadoc Lawrence Griesemer, M.D., Roselle, N. J., and New York, to Miss Sara L. Crane of New York, October 5.

Edwin Robert Wiese, M.D., Washington, D. C., to Miss Elizabeth Louise Elterich of Pittsburgh, October 11.

Royal Cornelius Van Etten, M.D., New York, to Miss Louise Greenfield of Rome, N. Y., September 20.

John Sims Hawkins, M.D., Cedar Hills, Tenn., to Miss Marion True of Springfield, Tenn., October 4.

Mathias Ambrose Wagner, M.D., Lima, Ohio, to Miss Stella M. Cable of Sandusky, Ohio, October 9.

John B. Floyd, M.D., Waverly Hill, Ky., to Miss Barbara L. Lanahan of Louisville, Ky., October 9.

John Alexander McDonald, M.D., to Miss Julia Loring Haines, both of Indianapolis, October 24.

Edwin W. Wuttke, M.D., Sumner, Iowa, to Mrs. Margaret Young of Des Moines, Iowa, October 12.

Arthur Frederick Schuettler, M.D., to Miss Matilda Genseka, both of Chicago, October 18.

Robert Anderson Cooke, M.D., to Mrs. Florence Rogers Turner, both of New York, October 9.

W. Forrest Lee, M.D., Ithaca, N. Y., to Miss Ruth Jane McClelland of Brooklyn, October 14.

Karl F. E. Wegener, M.D., Exeter, Neb., to Miss Ella Koenig of Lincoln, Neb., October 4.

John Moffett Lee, M.D., to Miss Estelle Pearson Jones of Rushville, Ind., September 27.

Joseph Charles Scal, M.D., to Miss Lillian D. Kaplan, both of New York, October 5.

Roy S. Sumner, M.D., to Miss Niram Willett, both of Owensboro, Ky., October 4.

Jacob T. Bowman, M.D., to Mrs. Bertha Balme, both of Somerset, Pa., October 3.

Deaths

Louis McLane Tiffany, M.D., Baltimore; University of Maryland, Baltimore, 1868; aged 72; a member and once president of the Medical and Chirurgical Faculty of Maryland and a member of the Medical Society of Virginia; demonstrator of anatomy in his alma mater from 1869 to 1874; professor of operative surgery from 1874 to 1880 and professor of surgery from 1880 to 1902, and since that date emeritus professor of surgery; formerly consulting surgeon to Johns Hopkins and St. Joseph's hospitals, the Church Home and other Baltimore institutions; for fifteen years surgeon in chief of the Baltimore and Ohio System; formerly president of the American Surgical Association and Southern Surgical and Gynecological Society; a surgeon of international note; died at his country home, Mount Custis, Accomac County, Va., October 23, from heart disease.

David Braden Kyle, M.D., Philadelphia; Jefferson Medical College, 1891; aged 53; a Fellow of the American Medical Association and president of the American Laryngological Association in 1910; a member of the American Otological Society, American Laryngological, Rhinological and Otological Society and American Climatological Society; professor of laryngology and rhinology in Jefferson Medical College since 1896; chief laryngologist, rhinologist and otologist to St. Mary's Hospital, Philadelphia, from 1891 to 1893 and since that time holding a similar position at St. Agnes' Hospital; bacteriologist to the Philadelphia Orthopedic Hospital; author of a standard work on diseases of the nose and throat which has gone through five editions; died at his home in Philadelphia, October 23, from pneumonia.

James Stewart Kennedy, M.D., First Lieutenant, M. R. C., U. S. Army; Jefferson Medical College, 1880; aged 59; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; formerly captain and assistant surgeon, U. S. V., and acting assistant surgeon, U. S. Army, with service in Cuba and the Philippine Islands; once coroner of Franklin County, Pa.; president of the Chambersburg City Council and county physician; president of the board of health of Selcedo, Samar, P. I., during a cholera epidemic; died in the Walter Reed General Hospital, Washington, D. C., October 7.

William S. Allee, M.D., Olean, Mo.; Missouri Medical College, St. Louis, 1875; aged 64; a Fellow of the American Medical Association; president of the Missouri State Medical Association in 1907, and at the time of his death treasurer of the organization; president of the Miller County Medical Society; for twenty-four years president of the Miller County Exchange Bank, and for four terms a member of the state senate from the twenty-seventh district; died in Wesley Hospital, Kansas City, Mo., October 9, after an operation for intestinal obstruction.

Oleon Clinton Owens, M.D., Covington, Ky.; Jefferson Medical College, 1887; aged 53; formerly a member of the Kentucky State Medical Association; for several years surgeon of the Chesapeake and Ohio Railroad at Maysville, Ky.; a well known alienist; superintendent of the State Home for the Feebleminded, Frankfort, Ky., from 1905 and afterward superintendent of the State Hospital, Lakeland; died at his home, October 8, from the effects of a fracture of the hip sustained two days before in an accident at the Latonia race course.

Walter Milroy Beck, M.D., Clarkfield, Minn.; Medical College of Ohio, Cincinnati, 1886; Jefferson Medical College, 1890; aged 54; a Fellow of the American Medical Association; a member of the hospital corps of the Minnesota regiment which served in the Philippine Islands during the war with Spain; who was injured in an automobile accident, August 20, between Clarkfield and Granite Falls, sustaining a multiple fracture of the skull; died in St. Barnabas' Hospital, Minneapolis, October 10.

Francis Marion Michael, M.D., Eaton, Ohio; Bellevue Hospital Medical College, 1879; aged 67; a Fellow of the American Medical Association; formerly president of the Preble County (Ohio) Medical Society; physician to the Children's Home, Eaton; president of the Preble County board and for several terms a member of the city council; local surgeon of the D. and W. T. Railroad; died at his home, October 8, from cerebral hemorrhage.

Winfield W. McKay, M.D., San Diego, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1873; aged 69; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; acting assistant surgeon, U. S. P. H. S., and in charge of the San Diego Quarantine Station at La Playa for twenty-five years past; died at the quarantine station, September 30, from nephritis.

John Shaffer Sprowl, M.D., Warren, Ind.; University of Michigan, Ann Arbor, 1872; aged 66; a Fellow of the American Medical Association and vice president of the Huntington County Medical Society; president of the Warren Telephone Company; died at his home, October 10, from cerebral hemorrhage. At a meeting of the county medical society, October 10, resolutions of regret were unanimously adopted.

Mark D. Weed, M.D., Captain, Medical Corps, U. S. Army; Jefferson Medical College, Philadelphia, 1905; aged 35; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; was graduated from the Army Medical School in May, 1910, and was promoted to captain in June, 1914; died at his station, Fort Bayard, N. M., September 28, from tuberculosis.

Milton Bennett Titus, M.D., Chicago; New York University, New York, 1881; aged 58; formerly a member of the Illinois State Medical Society and once president of the Allegany County (N. Y.) Medical Society; died in St. Luke's Hospital, Chicago, October 14, from the effects of poison, believed to have been self-administered, with suicidal intent.

Edward G. Hersh, M.D., McComb, Ohio; Cincinnati College of Medicine and Surgery, 1890; aged 50; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association and National Association of Railway Surgeons; president of the Hancock County Medical Society; died at his home, October 3.

Clarence A. Rogers, M.D., Cordova, Tenn.; Memphis (Tenn.) Hospital Medical College, 1903; University of the South, Sewanee, Tenn., 1906; Vanderbilt University, Nashville, Tenn., 1907; aged 38; died at his home, October 10, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

William Boys, M.D., Portland, Ore.; University of Pennsylvania, Philadelphia, 1864; aged 71; formerly a Fellow of the American Medical Association; professor of diseases of women in the medical department of Willamette University, Portland, and gynecologist to the Portland Hospital; died at his home, October 2.

Hayden Austin West, M.D., Sewanee, Tenn.; University of Tennessee, Nashville, 1899; aged 44; formerly a member of the Tennessee State Medical Association; for several years professor of clinical, operative, abdominal and minor surgery in the University of the South, Sewanee; died in an infirmary in Nashville, October 8.

Thomas J. Morton, M.D.; Philadelphia; Jefferson Medical College, 1885; aged 54; for twenty years a member of the Philadelphia City Council and afterward a select councilman; for many years coroner's physician; died at his home, October 12, from pulmonary hemorrhage following an attack of bronchitis.

Charles R. Hart, M.D., Bethel, Conn.; College of Physicians and Surgeons of the City of New York, 1859; aged 79; a member of the Connecticut State Medical Society; surgeon of the Tenth Connecticut Volunteer Infantry throughout the Civil War; died at his home, August 29, from heart disease.

Emmet Alvin Welsh, M.D., Shreveport, La.; University of Maryland, Baltimore, 1887; aged 52; a Fellow of the American Medical Association; pathologist and assistant superintendent of the State Charity Hospital, Shreveport; died October 6, after an operation for acute appendicitis.

Lawrence Yancey King, M.D., Florence, S. C.; Louisville (Ky.) Medical College, 1891; aged 45; a member of the South Carolina Medical Association; while on his way to Richmond, Va., to undergo a surgical operation, died in the station at Richmond, October 1.

Wayne E. J. Bomberger, M.D., Harrisburg, Pa.; Hahnemann Medical College, Philadelphia, 1904; aged 35; died in the Keystone Hospital, Harrisburg, October 6, from typhoid fever, complicated by an acute attack of appendicitis, which necessitated an operation.

Frank Knight Hill, M.D., Rockford, Ill.; New York Homeopathic Medical College, New York, 1875; aged 65; formerly a member of the Illinois State Medical Society; surgeon to St. Anthony Hospital, Rockford; died at his home, October 8, from heart disease.

Robert A. Fitzgerald, M.D., Alton, Ill., formerly of Cairo, Ill.; St. Louis College of Physicians and Surgeons, 1904; aged 42; a member of the Illinois State Medical Society; died in the Missouri Baptist Sanitarium, St. Louis, October 10, from pneumonia.

James R. Thornbury, M.D., Princeton, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 73; a veteran of the Civil War, and for forty-four years a practitioner of Franklin County; died at his home, about October 2.

Chester H. Latham, M.D., Pecatonica, Ill.; Northwestern University Medical School, Chicago, 1876; aged 64; a member of the Illinois State Medical Society; died at the home of his daughter, in Seward, Neb., October 11, from anemia.

David Paulson, M.D., Hinsdale, Ill.; Bellevue Hospital Medical College, 1894; aged 48; a Fellow of the American Medical Association; founder and superintendent of the Hinsdale Sanitarium; died in Asheville, N. C., October 16.

George Bayliss Stillman, M.D., East Cleveland, Ohio; College of Physicians and Surgeons, Baltimore, 1880; aged 64; formerly a member of the Ohio State Medical Association; died in Buffalo, October 12.

George Gray Wilson, M.D., Cleveland; L.R.C.P., L.R.C.S., Edinburgh; L.R.F.P.&S., Glasgow, 1898; aged 44; died at his home, October 4, from pneumonia.

Lafayette Jones, M.D., St. Johns, Mich.; University of Michigan, Ann Arbor, 1872; was found dead from heart disease, in his home, September 30.

Azariah Paris Cobb, M.D., Del Rio, Texas; Mississippi Medical College, Meridian, Miss., 1912; aged 27; died at his home, October 3.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

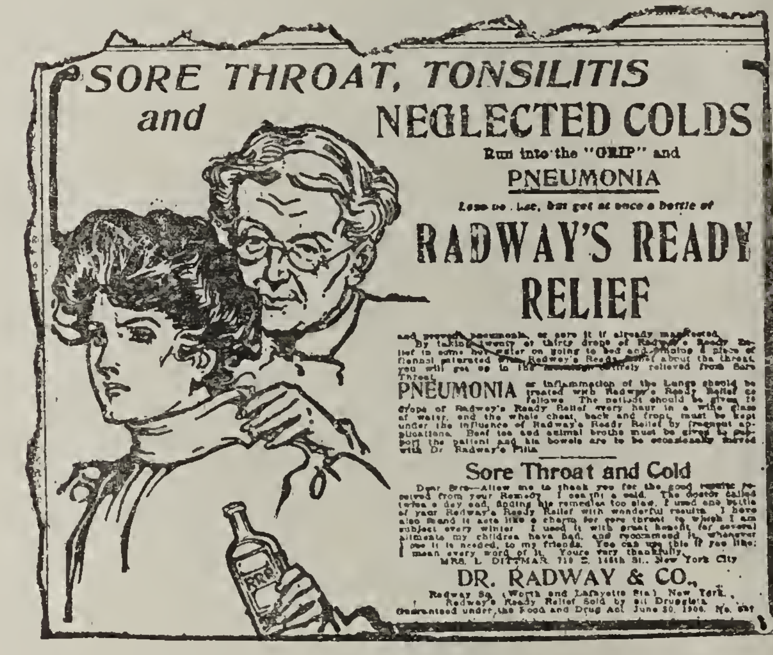
SOME MISBRANDED NOSTRUMS

RADWAY'S READY RELIEF

Radway's Ready Relief, put on the market by Radway & Co., New York, and admittedly containing 27 per cent. alcohol, was sold under such claims as:

> "This remedy will relieve rheumatism, sore throat, pleurisy, pneumonia . . . headache . . .burns and scalds, spinal affections . . . fevers . . . dysentery . . . cholera . . . paralysis."
>
> "Cholera. The Relief is almost a specific in this terrible epidemic; if used in time, will save nearly every case."
>
> "It acts as a preventive against the formation of concretions, gravel, or calculi . . ."
>
> "Radway's Ready Relief . . . is a cure for Rheumatic . . . and Malarious Complaints."

The preparation was analyzed in the Bureau of Chemistry which reported that it was essentially a watery alcoholic solution of oleoresin of capsicum (cayenne pepper), camphor and ammonia. The government officials charged that the product was misbranded in that the statements made regarding the curative effects were "false and fraudulent" and were applied "in disregard of their truth or falsity." The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 3704.*]


SORE THROAT, TONSILITIS
and
NEGLECTED COLDS
Run into the "GRIP" and
PNEUMONIA
RADWAY'S READY RELIEF
PNEUMONIA
Sore Throat and Cold
DR. RADWAY & CO.

A typical R. R. R. advertisement of the older style.

INGHAM'S VEGETABLE EXPECTORANT NERVINE PAIN EXTRACTOR

H. A. Ingham & Co. of Vergennes, Vt., shipped a quantity of this nostrum in interstate commerce. The Bureau of Chemistry analyzed a specimen of this nostrum and reported that it contained "alcohol, 86 per cent., opium alkaloids, camphor, capsicum and vegetable extractive matter." Some of the claims made for this morphin mixture were:

> "For teething and restless children, it is not only safe and harmless, but positively beneficial. . . . If sick it will do good; if well it will do no harm."
>
> "It is . . . perfectly harmless . . ."

It is charged that these statements were "false and fraudulent" and were made "knowingly and in reckless and wanton disregard of their truth or falsity." The concern pleaded guilty and was fined $100.—[*Notice of Judgment No. 3734.*]

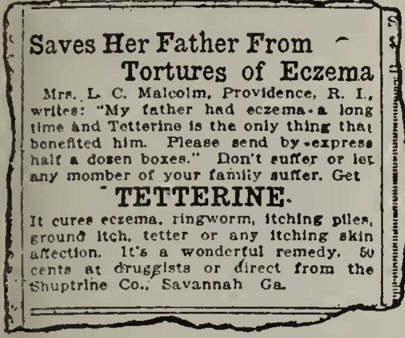
TETTERINE

This ointment, put out by the Shuptrine Company of Savannah, Ga., was sold under such claims as:

> "Tetterine, a marvelous remedy for . . . Tetter, Eczema . . . and all contagious, itching Eruptions."

"The greatest of Skin Remedies in Household Use."
"It is impossible to enumerate the great number of skin disorders for which Tetterine is a most pleasant panacea."

Twelve dozen packages of this product were seized by the federal authorities who alleged that the claims made for Tetterine were misleading, false and fraudulent, and that the curative claims made constituted misbranding. The Shuptrine Company would neither admit nor deny the allegation of misbranding but consented to a decree of condemnation and prayed that it be allowed the privilege of reclaiming the product by giving bond. After the company had paid the costs and furnished a bond in the sum of $250, the United States marshal turned the 12 dozen packages over to it.—[*Notice of Judgment No. 3736.*]

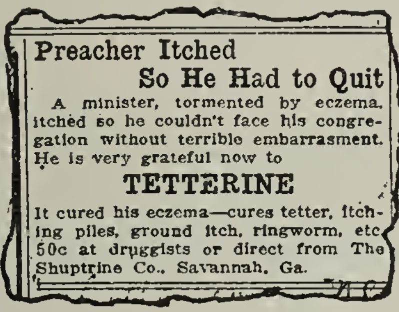


Saves Her Father From Tortures of Eczema

Mrs. L. C. Malcolm, Providence, R. I., writes: "My father had eczema a long time and Tetterine is the only thing that benefited him. Please send by express half a dozen boxes." Don't suffer or let any member of your family suffer. Get

TETTERINE.

It cures eczema, ringworm, itching piles, ground itch, tetter or any itching skin affection. It's a wonderful remedy. 50 cents at druggists or direct from the Shuptrine Co., Savannah Ga.



Preacher Itched So He Had to Quit

A minister, tormented by eczema, itched so he couldn't face his congregation without terrible embarrasment. He is very grateful now to

TETTERINE

It cured his eczema—cures tetter, itching piles, ground itch, ringworm, etc. 50c at druggists or direct from The Shuptrine Co., Savannah, Ga.

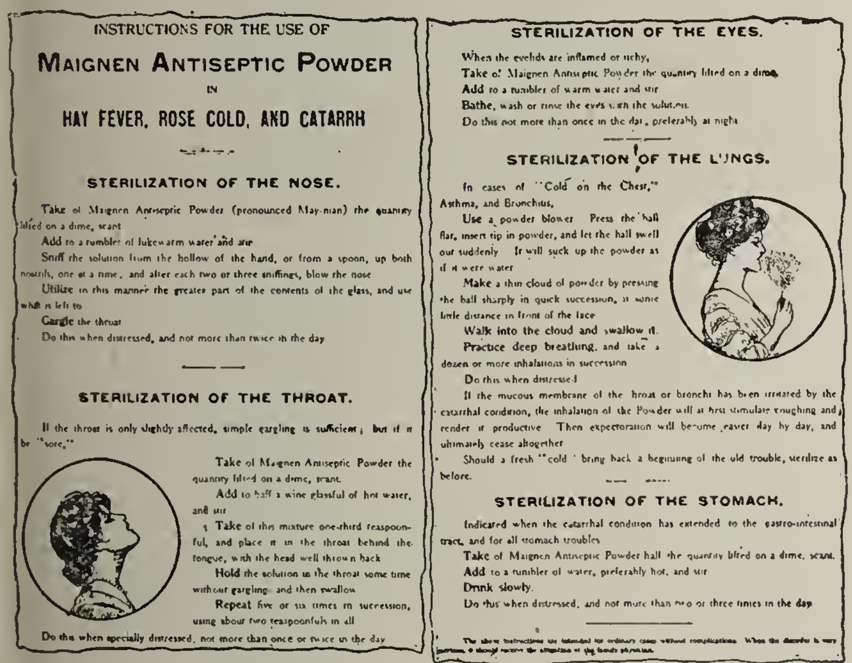
MAIGNEN ANTISEPTIC POWDER

Maignen Antiseptic Powder, put on the market by the Maignen Chemical Company, Philadelphia, was at one time exploited to the medical profession and was exposed in The Journal.[1] It has since been analyzed by the federal chemists who reported that the product had essentially the following composition:

Calcium carbonate	51 per cent.
Borax, aluminum sulphate and sodium carbonate	49 per cent.

The trade package contained such statements regarding curative effects of Maignen Antiseptic Powder as:

"A perfect Germicide . . ."
"A scientific germicide for external and internal use."



INSTRUCTIONS FOR THE USE OF

MAIGNEN ANTISEPTIC POWDER

IN

HAY FEVER, ROSE COLD, AND CATARRH

STERILIZATION OF THE NOSE.

Take of Maignen Antiseptic Powder (pronounced May-nian) the quantity lifted on a dime, scant

Add to a tumbler of lukewarm water and stir

Sniff the solution from the hollow of the hand, or from a spoon, up both nostrils, one at a time, and after each two or three sniffings, blow the nose

Utilize in this manner the greater part of the contents of the glass, and use what is left to

Gargle the throat

Do this when distressed, and not more than twice in the day

STERILIZATION OF THE THROAT.

If the throat is only slightly affected, simple gargling is sufficient; but if it be "sore,"

Take of Maignen Antiseptic Powder the quantity lifted on a dime, scant.

Add to half a wine glassful of hot water, and stir

Take of this mixture one-third teaspoonful, and place it in the throat behind the tongue, with the head well thrown back

Hold the solution in the throat some time without gargling and then swallow

Repeat five or six times in succession, using about two teaspoonfuls in all

Do this when specially distressed, not more than once or twice in the day

STERILIZATION OF THE EYES.

When the eyelids are inflamed or itchy,

Take of Maignen Antiseptic Powder the quantity lifted on a dime.

Add to a tumbler of warm water and stir

Bathe, wash or rinse the eyes with the solution.

Do this not more than once in the day, preferably at night

STERILIZATION OF THE LUNGS.

In cases of "Cold on the Chest," Asthma, and Bronchitis,

Use a powder blower Press the ball flat, insert tip in powder, and let the ball swell out suddenly It will suck up the powder as if it were water

Make a thin cloud of powder by pressing the ball sharply in quick succession, at some little distance in front of the face

Walk into the cloud and swallow it.

Practice deep breathing, and take a dozen or more inhalations in succession

Do this when distressed

If the mucous membrane of the throat or bronchi has been irritated by the catarrhal condition, the inhalation of the Powder will at first stimulate coughing and render it productive Then expectoration will become easier day by day, and ultimately cease altogether

Should a fresh "cold" bring back a beginning of the old trouble, sterilize as before.

STERILIZATION OF THE STOMACH.

Indicated when the catarrhal condition has extended to the gastro-intestinal tract, and for all stomach troubles

Take of Maignen Antiseptic Powder half the quantity lifted on a dime, scant.

Add to a tumbler of water, preferably hot, and stir

Drink slowly.

Do this when distressed, and not more than two or three times in the day

The exploiters of Maignen Antiseptic Powder tried to persuade the public that the preparation would "sterilize" the stomach, throat, nose, lungs, etc.

There also were a number of directions describing how by the use of this preparation the skin, stomach, throat, nose, lungs, etc., might be "sterilized." The federal officials held that these claims were "false and fraudulent," and declared further that the product "could not effect sterilization." No claimant appeared and the court ordered that the United States marshal should destroy the product.—[*Notice of Judgment No. 3753.*]

GREEN MOUNTAIN OIL OR MAGIC PAIN DESTROYER

The Charles N. Crittenton Company, New York, shipped in interstate commerce a quantity of "Green Mountain Oil or Magic Pain Destroyer." According to the claims made on the trade package, this stuff was said to be:

> "A Remedy for Diphtheria, Croup, Deafness and Sore Eyes, Rheumatic Pains, Stiff Joints, Pains in the Back, Side or Breast, Dyspepsia, Asthma, Piles, Burns, Sore Throat, Sprains, Wounds and Bruises, Neuralgia, Croup, Toothache and Headache, Earache and Stiff Neck, Felons, Salt Rheum, Broken Breast, Erysipelas, Chilblains and Frosted Feet. This Oil will relieve all Nervous Complaints."

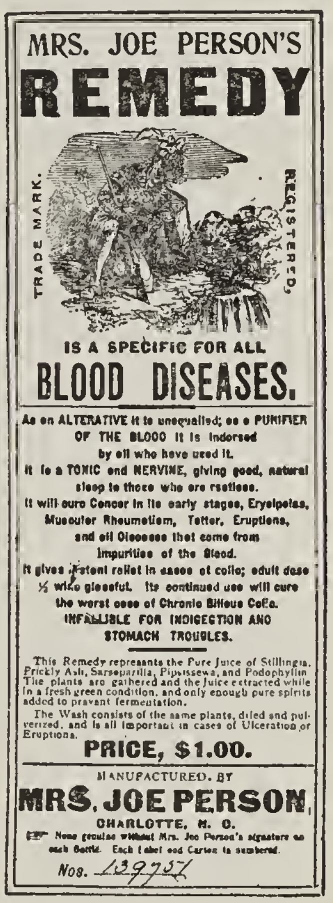
The federal chemists who analyzed the preparation reported that it consisted essentially of 95 per cent. linseed oil, with oil of sassafras, oil of thuja and oil of turpentine with possibly small amounts of camphor. The Crittenton Company, which was charged with making "false and fraudulent" claims for the preparation "in reckless and wanton disregard of their truth or falsity," pleaded guilty and was fined $100.—[*Notice of Judgment No. 3797.*]

MRS. JOE PERSON'S REMEDY

This preparation was sold by the Mrs. Joe Person Remedy Company of Kittrell, N. C., under such claims as:

"It will absolutely cure blood poison."
"Indigestion and nervousness permanently cured."
"A Sure Cure for Eczema."
"Malaria . . . Chills and Fever . . . a complete cure."
"Pellagra Cured."

The federal chemists analyzed Mrs. Joe Person's Remedy and reported that it was a slightly sweetened water-alcohol solution of vegetable drugs with a minute trace of alkaloids and the presence of podophyllin and sarsaparilla indicated. The libel filed by the federal officials was for the seizure and condemnation of seventeen cases of this nostrum on the ground that the curative claims made "were misleading, false and fraudulent." The company in filing its answer neither admitted nor denied the truth of the material allegations. After payment of costs and executing a bond in the sum of $200, the product was turned over to the company.—[*Notice of Judgment No. 3745.*]



MRS. JOE PERSON'S

REMEDY

TRADE MARK.
REGISTERED.

IS A SPECIFIC FOR ALL

BLOOD DISEASES.

As an ALTERATIVE it is unequalled; as a PURIFIER OF THE BLOOD it is indorsed by all who have used it.
It is a TONIC and NERVINE, giving good, natural sleep to those who are restless.
It will cure Cancer in its early stages, Erysipelas, Muscular Rheumatism, Tetter, Eruptions, and all Diseases that come from Impurities of the Blood.
It gives instant relief in cases of colic; adult dose ½ wine glassful. Its continued use will cure the worst case of Chronic Bilious Colic.
INFALLIBLE FOR INDIGESTION AND STOMACH TROUBLES.

This Remedy represents the Pure Juice of Stillingia, Prickly Ash, Sarsaparilla, Pipsissewa, and Podophyllin The plants are gathered and the juice extracted while in a fresh green condition, and only enough pure spirits added to prevent fermentation.

The Wash consists of the same plants, dried and pulverized, and is all important in cases of Ulceration or Eruptions.

PRICE, $1.00.

MANUFACTURED BY

MRS. JOE PERSON,

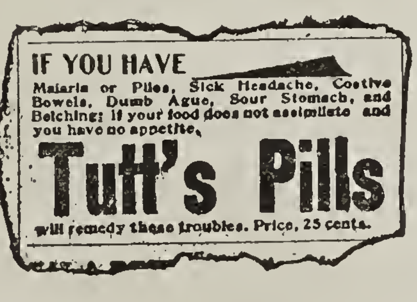
CHARLOTTE, N. C.

☞ None genuine without Mrs. Joe Person's signature on each Bottle. Each Label and Carton is numbered.

Nos. 139757

TUTT'S PILLS

The Dr. Tutt Mfg. Company of New York was a trade name used by Brent Good, Harry H. Good and Susan H. Hoyt. Tutt's Pills, put out by this concern, were analyzed by the federal chemists who reported that they consisted mainly of sugar, aloes, starch and calomel. The nostrum was sold under claims to the effect that it was "a remedy for intermittent and remittent fevers, dropsy, dysentery, diseases of the kidneys and bladder, and all disorders that arise from a diseased liver or impure blood; and effective for relieving painful menstruation, and effective for preventing morning sickness peculiar to females." These claims, the federal authorities charged, were "false and fraudulent" and applied "knowingly and in disregard to their truth or falsity." Brent Good, Harry H. Good and Susan H. Hoyt pleaded guilty and each was fined $10.—[*Notice of Judgment No. 3788.*]

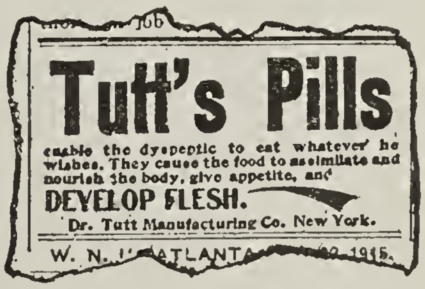


IF YOU HAVE

Malaria or Piles, Sick Headache, Costive Bowels, Dumb Ague, Sour Stomach, and Belching; if your food does not assimilate and you have no appetite,

Tutt's Pills

will remedy these troubles. Price, 25 cents.



Tutt's Pills

enable the dyspeptic to eat whatever he wishes. They cause the food to assimilate and nourish the body, give appetite, and

DEVELOP FLESH.

Dr. Tutt Manufacturing Co. New York.

W. N. U., ATLANTA 1915.

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[1] The Journal A. M. A., Feb. 15, 1913, p. 537; Nov. 14, 1914, p. 1779.

Correspondence

Colon Bacillus and Gastric Ulcer

To the Editor:—I beg to call your attention to that part of your editorial of July 29 on "Gastric Ulcer and Gastric Acidity" which reads to the effect that it has been asserted that gastric ulcer can be produced quite uniformly in certain species by the intravenous injection of *Bacillus coli,* but Hardt has failed to substantiate this work. Now, if you will refer to Hardt's report of his work, carried on under the supervision of Rosenow, you will observe that gastric and duodenal lesions were produced by him in 100 per cent. of the animals injected with a certain strain of *B. coli.* Although his organism may not have been of the most favorable virulence for producing the most extensive possible lesions, still Strain 4 regularly produced gastric and duodenal erosions and ulcerations. To quote Hardt, "Four rabbits were injected with Strain 4 of *B. coli,* and the results of the injection were as follows:

"A. Rabbit I died in less than four hours after injection. The stomach was perforated at the fundus. There were ulcers and hemorrhages near the pyloric end." Compare this with the first case of my series reported in the Boston *Medical and Surgical Journal,* 1913, clxix, 81, and you will see that the animal died two and one-half hours after injection and showed a large perforation of the stomach, apparently a lysis of the stomach wall.

B. Rabbit II of Hardt's series died in less than twenty-four hours after the injection. "There was an ulcerated area near the fundus, and the intestines showed signs of hemorrhage." Compare this with my second rabbit in the article of the *Lancet-Clinic,* 1914, iii, 88, in which the protocol reads as follows: "Full grown hare injected with 3 c.c. of clumped colon bacilli. The animal was chloroformed twenty-four hours later. The stomach was normal except at the pylorus where there were two hemorrhagic erosions. The intestinal canal was negative except at the rectum, which contained considerable dark blood that probably originated in the erosions."

C. Rabbit III and IV of Hardt's series had hemorrhages in the stomach and hemorrhagic areas in the duodenum. Both were killed forty-eight hours after injection. In comparison, read—Rabbit I in the *Lancet-Clinic* article and Protocols III and V of the *Boston Medical and Surgical Journal* article. A necropsy of Rabbit I was held twenty-two hours after receiving the injection. The stomach showed two erosions at the pyloric ring. The lining of the stomach was thickly covered with digested blood. The rabbit of Protocol V showed hemorrhagic elevations of the duodenum and a suspicious area of dissolution in the mucosa of the wall of the stomach near the pylorus.

In the light of the foregoing comparative results, The Journal editorial is misleading. Hardt's statements that (1) gastric lesions were produced in every one of the rabbits injected with *B. coli* of Strain 4 and that (2) there is in all probability a difference in virulence and specificity of the toxin produced by *B. coli* are conclusions which should have been incorporated in the editorial.

It may further be stated that Hardt did not repeat all my experiments, which is probably the chief reason (assuming that the colon strain was of proper virulence) for his failure to substantiate all.

Edgar C. Steinharter, M.D., Cincinnati.

The "Biologic" Detail Man

To the Editor:—Twelve or fourteen years ago, when I first began the practice of medicine, it was customary for "detail men" to visit physicians at more or less frequent intervals, distributing samples of various proprietary nostrums and kindly giving advice as to the treatment of certain diseases and the practice of medicine generally. The good work of The Journal and the Council on Pharmacy and Chemistry has largely eliminated these fellows, and we are practically free from the detail nuisance as we used to know him; but he is with us just the same. He comes nowadays representing some "biologic" concern; but he comes, nevertheless, and he is just as free as ever with his advice and his "buncombe." He kindly tells us poor doctors, who haven't the means of learning otherwise, just how to use this or that serum or vaccine, and just why our results are unsatisfactory and, altogether, sets us right in handling our difficult cases.

To me these men are just as disgusting as the old time nostrum pedlers, and I am finding it more and more difficult to accord them that courtesy which I always try to show visitors to my office.

George W. Wimberly, M.D., Ellensburg, Wash.

Crown Gall and Cancer

To the Editor:—At last I have succeeded in producing small tumors in plants without the use of the crown gall organism (*Bacterium tumefaciens),* that is, simply by means of substances which are by-products of the bacterial growth. The tumors, though small, have been obtained repeatedly on several kinds of plants, and there seems to be no reasonable doubt that they are due to the fleeting chemical stimulus which I have applied. Judging from my experiments, which have been continued for some months, the mechanism of tumor growth appears to be wholly one of changed osmotic pressures brought about by the metabolism of the tumor parasite. A full report will be published later.

Erwin F. Smith, Washington, D. C.

Pathologist, Laboratory of Plant Pathology, Bureau of Plant Industry, U. S. Department of Agriculture.

Comment.—Previous references to Dr. Smith's work are:

Resemblances of Plant and Tree Cancer to Human Cancer, Miscellany, The Journal, March 23, 1912, p. 872.

Is Cancer of Infectious Nature? editorial, The Journal, Aug. 10, 1912, p. 448.

Smith, E. F.: Crown Gall and Cancer, The Journal, March 11, 1916, p. 833.

Is Cancer of Infectious Nature? editorial, The Journal, July 8, 1916, p. 123.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LIME WATER IN INFANT FEEDING

To the Editor:—Has Dr. Holt discontinued the use of lime water in his formulas for modified cow's milk for feeding infants?

E. G. McKeown, Edgerton, Minn.

Answer.—Dr. McKeown's letter was referred to Dr. Holt, who replies:

As a result of our investigations on the mineral constituents of woman's and cow's milk, we have reached the conclusion that the great excess of calcium salts shown in cow's milk — even when it is diluted in the usual milk modifications — indicates that any further addition of lime to cow's milk is unnecessary. As lime water is ordinarily employed, I do not believe that the digestibility of cow's milk is affected to any important degree, and have therefore for some years omitted the addition of lime water to milk mixtures as a routine practice. Occasionally, however, under special conditions I still use it, but in much larger proportions than ordinarily employed. These points are now pretty well understood, and generally accepted, in infant feeding.

BACILLUS WELCHII — BACILLUS OEDEMATIS-MALIGNI — BACILLUS CHAUVAEI

To the Editor:—Jordan's "Text-Book of General Bacteriology," 1914, makes the statement that clinically it is not possible to distinguish between emphysematous gangrene (caused by the *Bacillus welchii*) and malignant edema (caused by the *Bacillus chauvaei*). Culturally, from the discussion in the book, one can pick out a few differences. Is there any attempt by any bacteriologist to assert that the two diseases and the bacilli causing them are identical?

A. B. M.

Answer.—The statement to which our correspondent refers is also repeated in the fifth edition of Jordan's "Text-Book of General Bacteriology," and is based on the discussion of anaerobic infections in the classic work by Ghon and Sachs

(*Centralblatt für Bakteriologie*, 1904, Orig., xxxvi, 200). The statement there made has reference to infections with *Bacillus oedematis-maligni* and not *Bacillus chauvaei*. The latter is the cause of symptomatic anthrax in cattle, a disease which, so far as is known, is not communicable to man. Although the distinctions between the various pathogenic anaerobes are often very subtle, there seems to be general agreement that *Bacillus oedematis-maligni* is quite distinct from *Bacillus welchii*. Consequently no bacteriologist would be likely to assert that the infections were identical, no matter how close the resemblance might be in the clinical picture alone. As is well known, there are many instances in which closely similar, if not identical, clinical symptoms are produced by different pathogenic microbes.

LITERATURE ON OPERATIVE TREATMENT OF EPILEPSY

To the Editor:—Please publish a list of articles in the literature covering operations done, past and present, for epilepsy (exclusive of the jacksonian type), appendicostomy and various abdominal procedures.

W. H. Gardner, M.D., Pittsburgh.

Answer.—In The Journal, Dec. 25, 1915, p. 2257, appeared a list of articles on "Intestinal Causes of Epilepsy." The following references also concern operative treatment of this disease:

Powers, H., and Lahey, F. H.: First Case in Which Abdominal Surgery Was Suggested for Relief of Epilepsy, *Boston Med. and Surg. Jour.*, July, 1916; abstr., The Journal, Aug. 12, 1916, p. 542.
Holmes, B.: Injury of Head with Oncoming Epilepsy, Negative Abderhalden Reactions, Operation, Drainage Cyst, *Lancet-Clinic*, March 6, 1915.
Bloss, J. R.: Indications for and Prognosis of Surgical Procedures in Epilepsy, *West Virginia Med. Jour.*, September, 1913.
Matthiae, K.: Traumatic Epilepsy and Its Operative Treatment, *Deutsch. Ztschr. f. Chir.*, August, 1913; abstr., The Journal, Oct. 11, 1913, p. 1414.
Rauch, F.: Operative Treatment of Epilepsy, *Beitr. z. klin. Chir.*, July, 1913.
Rasumowsky, W. J.: Operative Treatment of Cortical Epilepsy, Traumatic and Non-Traumatic, *Arch. f. klin. Chir.*, July 26, 1913.
Kukula, O.: Surgical Treatment of Epilepsy, *Med. Press and Circular*, July, 1913.
Munson, F. F.: End-Results of Head Surgery in Epilepsy, *New York State Jour. Med.*, November, 1912; abstr., The Journal, Dec. 14, 1912, p. 2187.
Shap, E. A.: Indications for Surgical Intervention in Epilepsy, *New York State Jour. Med.*, November, 1912; abstr., The Journal, Dec. 14, 1912, p. 2187.
Tilmann, O.: Operative Treatment of Epilepsy, *München. med. Wchnschr.*, Dec. 3, 1912.
Collier, G. K.: Practical Results of Surgery in Epilepsy, *New York State Jour. Med.*, November, 1912.
Curtis, R. M.: Case of Trephining in Epilepsy, *Australasian Med. Gaz.*, July 6, 1912.
Ryan, W. A.: Surgery in Epilepsy, *Southern Med. Jour.*, May, 1912; abstr., The Journal, May 25, 1912, p. 1640.
Doberer: Operative Treatment of Epilepsy, *Wien. klin. Wchnschr.*, Feb. 29, 1912; abstr., The Journal, April 13, 1912, p. 1160.
Taylor, W. J.: The Surgical Treatment of Epilepsy, The Journal, March 30, 1912, p. 967.

INTRAVENOUS ADMINISTRATION OF SODIUM SALICYLATE — VENARSEN — BANNERMAN'S SOLUTION

To the Editor:—I am particularly interested in data concerning the intravenous administration of salicylate of soda, guaiacol and glycerin in arthritis.

What contraindications are there to the administration of it? What has been found to be the dose for the average weight patient, say 170 pounds, and what untoward results have been obtained from the administration of it?

I should like also the same data with reference to Venarsen and Bannerman's Solution. Are any two of these incompatible or would the administration of two or more of them in one dose be contraindicated or cause untoward results?

If you care to answer through The Journal, I may be known as a

Medico.

Answer.—Sodium salicylate is absorbed rapidly and acts promptly when given by mouth. Intravenous administration, therefore, seems uncalled for, particularly since it does not avoid the gastric side effects of the salicylates, which are due to stimulation of the vomiting center (Eggleston and Hatcher: *Jour. Pharmacol. and Exper. Therap.*, 1915, vii, 225). The intravenous method is said to be painful, and renal irritation has been observed following the injection of 5 gm. of the salicylate. There appears to be no reason for administering guaiacol intravenously, either alone or in combination with sodium salicylate.

From reports of the Council on Pharmacy and Chemistry on Venarsen (The Journal, May 22, 1915, p. 1780; Propaganda for Reform, Ed. 9, p. 212) and Bannerman's Intravenous Solution (The Journal, Jan. 2, 1915, p. 70; Propaganda for Reform, Ed. 9, p. 105) it will be seen that both are irrational preparations. Their employment, singly or together, is unwarranted.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

Connecticut: Regular, New Haven, Nov. 14-15. Sec., Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, Nov. 14-15. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Florida: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka; Homeopathic, Jacksonville, Nov. 10. Sec., Dr. J. B. Griffin, St. Augustine.

Louisiana: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Mississippi: Jackson, Oct. 24-25. Sec., Dr. J. D. Gilleylen, Jackson.

Missouri: Jefferson City, Nov. 14-16. Sec., Dr. J. A. B. Adcock, Jefferson City.

Nevada: Carson City, Nov. 6. Sec., Dr. S. L. Lee, Carson City.

Ohio: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.

Rhode Island: Providence, Nov. 15-16. Sec., Dr. Gardner S. Swarts, 70 Waterman St., Providence.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

West Virginia: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

Utah January Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Jan. 6-7, 1916. The total number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1915)	83.9
University of Oklahoma	(1915)	82

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Tulane University of Louisiana	(1909)	Louisiana
Missouri Medical College	(1882)	Missouri

Utah April Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 5-6, 1916. The total number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 3, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1915)	78.5
Johns Hopkins University	(1912)	*
University of Oklahoma	(1915)	*

* No grade given.

Arkansas Eclectic May Report

Dr. C. E. Laws, secretary of the Arkansas Eclectic Medical Board, reports the written examination held at Little Rock, May 9-10, and Fort Smith, May 15-16, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 21, of whom 17 passed and 4 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgia College of Eclectic Med. and Surg.	(1916)	75.3, 75.8, 90.7, 93.8, 96.7
Kansas City College of Medicine and Surgery	(1916)	78.1, 79, 79.1, 80.2, 81.1, 81.6, 81.6, 82.1, 83.6, 84.1, 85.1, 88.4
FAILED		
California Eclectic Medical College	(1909)	70.2
Georgia College of Eclectic Med. and Surg.	(1916)	63.1, 67.7, 74.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
California Eclectic Medical College	(1903)	Nevada
Georgia College of Eclectic Medicine and Surgery	(1912)	Georgia

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 19-21, 1916. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 74, of whom 72 passed and 2 failed. One candidate was granted a reregistration license. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University	(1916)	89.5
Northwestern University	(1916)	88.4, 89.9
University of Illinois	(1916)	91
Tulane University of Louisiana	(1905)	83.6
Detroit College of Med. and Surg.	(1916)	83
University of Michigan Medical School	(1916)	82.5, 82.7, 82.7, 82.8, 83.2, 83.4, 83.6, 83.6, 84.2, 84.3, 84.3, 84.8, 84.8, 85.1, 85.2, 85.4, 85.4, 85.4, 85.5, 85.7, 85.9, 85.9, 86.1, 86.4, 86.5, 86.6, 86.9, 87.2, 87.3, 87.3, 87.6, 87.6, 87.6, 87.7, 87.8, 87.9, 88, 88, 88.1, 88.2, 88.3, 88.6, 88.7, 88.8, 88.9, 88.9, 89, 89.4, 89.6, 89.8, 90, 90, 90.2, 91.5.
University of Michigan Homeo. Med. School	(1916)	81.6, 83.3, 86, 86.1, 86.7, 87.1, 88.7.
University of Buffalo	(1915)	82.4
University of Cincinnati	(1916)	85.4
Jefferson Medical College	(1916)	88.5
Vanderbilt University	(1915)	89.9
University of Jassy, Roumania	(1904)	81.5
FAILED		
Central Medical Coll. of St. Joseph	(1902)	38.4
Vanderbilt University	(1915)	82.9*

* Fell below the required average in one subject.

Missouri June Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, June 12-14, 1916. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 126, of whom 117 passed and 9 failed. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Bennett Medical College	(1915)	2
Chicago College of Medicine and Surgery	(1916)	3
Coll. of Phys. and Surgs., Chicago	(1905)	1
Loyola University	(1916)	1
Northwestern University	(1915)	1
University of Illinois	(1915)	1
University of Louisville	(1909)	1
Johns Hopkins University	(1915)	2
Harvard University	(1915)	1
Missouri Medical College	(1888)	1
National Univ. of Arts and Sciences	(1916)	50
St. Louis University	(1916)	34
Washington University	(1916)	13
Ohio State Univ. Coll. of Med	(1916)	1
Meharry Medical College	(1916)	2
University of Tennessee	(1916)	1
University of West Tennessee	(1915)	1
University of Texas	(1916)	1
FAILED		
St. Louis Coll. of Phys. and Surgs.	(1910)	1
National Univ. of Arts and Sciences	(1916)	4
Meharry Medical College	(1915)	2
Univ. of West Tennessee	(1914) (1915)	2

LICENSED THROUGH RECIPROCITY

Twenty-eight candidates were licensed through reciprocity from Jan. 1 to July 1, 1916. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Colorado	(1907)	Colorado
Atlanta Coll. of Phys. and Surgs	(1909)	Georgia
Bennett Medical College	(1914)	Illinois
Chicago Coll. of Med. and Surg.	(1911) (1912) (1913, 2)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1896) (1900)	Kansas; Michigan.
Northwestern University	(1902)	Kansas
Rush Medical College	(1901) (1912) (1915)	Iowa; Illinois
College of Phys. and Surgs., Chicago	(1912)	Illinois
Drake University	(1913)	Iowa
Sioux City Coll. of Medicine	(1900)	Nebraska
University of Kansas	(1906) (1907)	Kansas
Kentucky University	(1903)	Indiana
Louisville Medical College	(1878)	W. Virginia
University of Louisville	(1911)	Indiana
University of Michigan Medical School	(1907)	Michigan
Barnes Medical College	(1906) (1910) (1911)	Illinois; Oklahoma; Tennessee.
Kansas City Hahnemann Med. Coll	(1914)	Kansas
John A. Creighton Medical College	(1913)	Kansas
University of Pennsylvania	(1907)	Penna.

Book Notices

Cerebellar Abscess. Its Etiology, Pathology, Diagnosis and Treatment, Including Anatomy and Physiology of the Cerebellum. By Isidore Friesner, M.D., Adjunct Professor of Otology, and Alfred Braun, M.D., F.A.C.S., Assistant Aural Surgeon, Manhattan Eye, Ear and Throat Hospital. Cloth. Price, $2.50 net. Pp. 186, with 26 illustrations. New York: Paul B. Hoeber, 1916.

The progress made recently in knowledge of the cerebellum, especially in its relation to the vestibular system, makes a book on the subject of cerebellar abscess, presented in the light of the latest researches, timely. The authors, both otologists, limited themselves in the clinical part of their work to a consideration of cerebellar abscess. The book, however, is much more comprehensive. It includes chapters on the anatomy and physiology of the cerebellum, a chapter on the symptomatology of cerebellar abscess, and a discussion of the diagnostic methods employed to distinguish cerebellar from labyrinthine diseases which apply equally well to other lesions of the cerebellum.

Original photographs and illustrations help to make the reading matter easily intelligible. While the volume is small, details are not omitted. The chapter on the anatomy of the cerebellum describes all the known fiber tracts which pass to and from the cerebellum, as well as those which are connected with Deiter's complex. The chapter on the pathology of cerebellar abscess discusses with creditable thoroughness the modus operandi in the spread of infection from the middle ear to the cerebellum, and the same is true of the chapters on the symptomatology and treatment of cerebellar abscess. The chapter on the physiology of the cerebellum, while perhaps too brief and not commensurate with the magnitude and importance of the subject, answers the purpose.

The book makes available for the first time in the English language, a detailed description of the theory and technic of the past-pointing test as worked out by Bárány.

Generally speaking, the book may be said to be in accord with our present state of knowledge. Attention should be called, however, to a few possible exceptions. The authors describe forced movements, vertigo and nystagmus as phenomena resulting from lesions of the cerebellum itself, the latter two symptoms as resulting from the interruption of the vestibulocerebellar tracts. This seems to vary from present general opinion. Vertigo is cerebral in origin and entirely independent of the cerebellum. It may be produced (galvanic vertigo) after complete extirpation of the cerebellum, as shown experimentally by Purkinje and Hitzig. Forced movements, in the light of recent research, are likewise independent of the cerebellum. They are produced by the interruption of the centrifugal or centripetal vestibulomesencephalic tracts in the posterior longitudinal bundle and their prolongation into the central nuclei of the cerebrum. In speaking of forced movements, the authors mention falling to the side, curvature of the trunk and extension of the limbs, phenomena which are but seldom designated that way, and take no cognizance of the most impressive form of such movements, namely, the rolling movements and circus movements. The latter phenomena cannot be explained by the assumption that "the tonic impulses on the normal side predominate and thus produce the forced movements" (pp. 53 and 58). Section of the posterior roots resulting in hypotonicity on the side of the lesion may be followed by stumbling and falling of the animal—and this without reference to the side of the lesion—but never by rolling movements. The forced movements, the rolling movements and circus movements as well as their minor forms, such as conjugate deviation of the head and eyes, and skew deviation (the Hertwig-Mejendie squint) are now looked on as dynamic, and not as paralytic, phenomena. They are the expression of disturbances in spatial orientation, in which consciousness of the direction toward which the movements take place becomes predominant, and seem to be allied to vertigo, essentially a sense of rotatory movement. Like vertigo, they have their origin above the brain stem, and are totally independent of the cerebellum of its afferent and efferent tracts.

The chapter on the anatomy of the cerebellum might have perhaps with advantage omitted a description of the fiber tracts, direct or indirect, from the posterior columns (and their nuclei) to the cerebellum. The existence of these tracts is denied by the researches of Mott, Sherrington, Tooth, Van Gehuchten and Bruce, and confirmation is lent to their studies by our knowledge of the function of these tracts as worked out by Petrén, Head and others. These tracts, it appears, subserve the sense of pressure, the recognition of the size, shape and form of objects, and the appreciation of the point of contact. These sensations are, however, never disturbed in lesions of the cerebellum.

The book is based on the reports of eighty-six cases of cerebellar abscess, collected from the literature since 1906. It is noteworthy that optic neuritis, which is practically constant and intense in cerebellar tumors, has been noted in only fourteen out of the eighty-six cases of cerebellar abscess reported. This is all the more remarkable in view of the fact that the other symptoms of intracranial pressure, such as headache, vomiting, vertigo and bradycardia, have been observed with comparative frequency.

The Problems of Physiological and Pathological Chemistry of Metabolism for Students, Physicians, Biologists and Chemists. By Dr. Otto von Fürth, Professor Extraordinary of Applied Medical Chemistry in the University of Vienna. Translation by Allen J. Smith, Professor of Pathology, University of Pennsylvania. Cloth. Price, $6. Pp. 667. Philadelphia: J. B. Lippincott Company, 1916.

Von Fürth's original work, published as a series of lectures in Germany three or four years ago, was at once recognized as a masterly survey of the many puzzling problems in the difficult but fascinating field of biochemistry. The judicial, logical, clear cut reasoning, and especially the lucid and stimulating presentation, stamped the work as a model of its kind and one which was certain to have a powerful influence in the development and broadening of interest in physiologic and pathologic chemistry. The translator and the publisher have done a distinct service for medicine in making this valuable work available to a great number of readers who otherwise would not have become acquainted with it. Von Fürth's "Probleme" may be looked on as an extension and revision to date of the field covered in von Noorden's work on metabolism, the translation of which noticeably stimulated American medicine. The original work consisted of two volumes, the first discussing especially the chemistry of tissues, the second dealing with normal and pathologic metabolism. Only the second volume, obviously of greater immediate interest to physicians, has been translated. The subjects covered include digestion, autolysis, urinary constituents, purin metabolism and gout, carbohydrate metabolism and diabetes, fat metabolism and obesity, acetone bodies and acidosis, nutrition, fever, and oxidative processes. Probably no other work considers the present state and future possibilities of these topics so well and at the same time so readably. The translator has succeeded well in rendering the easy, interesting style of the lecturer into English. In spite of a statement to the contrary, it would seem that the necessary annotations to bring the work quite up to date would have added to its value. Von Fürth shows an excellent familiarity with the work of biochemistry done in this country.

The Pathology of Tumors. By E. H. Kettle, M.D., B.S., Assistant Pathologist, St. Mary's Hospital Medical School. Cloth. Price, $3. Pp. 224, with 126 illustrations. New York: Paul B. Hoeber, 1916.

This book gives a straightforward account of tumor pathology as understood at the present day. Its attitude in regard to all disputed and unsettled problems is safe and sane, and it gives as much information as is possible in the brief limit of the volume. The entire sum of our knowledge of tumor pathology is so great as to require many large volumes for its full presentation, as is demonstrated by the massive works of Borst and Wolff. For those wishing a concise, readable and thoroughly trustworthy discussion of tumors, Dr. Kettle's small treatise can be recommended without reservation. One entertaining misprint under Figure 71 shows a psammoma with many "lamented psammoma bodies."

Miscellany

THE IMPORTANT FACTOR IN DEALING WITH TUBERCULOSIS

GEORGE THOMAS PALMER, M.D.
President of the Illinois State Association for the Prevention of Tuberculosis; Director of the Springfield Open Air Colony
Springfield, Ill.

If I were asked to write the most significant chapter on the treatment and the prevention of tuberculosis, it would be this chapter. If I were asked to set forth the most important truth regarding the disease for the consideration of the layman, the sociologist, the physician and the purely scientific man, that chapter would have nothing to do with bacteriology, serums, vaccines, climate, outdoor living or diet. If I dealt with pathology at all, I should ignore the lungs, the glands and other structures ordinarily affected by tuberculosis, and should dwell on the weakness, if not the pathology, of the human mind. On that—on mental instability and moral unreliability—I should place the blame for the distressing and tremendously costly delay in adequately meeting the tuberculosis problem.

If the mental—the human side of tuberculosis, could be effectively presented to our learned, deliberative bodies of medical men, it would go farther toward obtaining early diagnosis and accurate treatment than all of the purely scientific lore we now possess.

No stone must be placed in the way of those who laboriously seek the one great specific; but a clear understanding of the conditions which perpetuate the disease and which stand in the way of successful treatment is more important today than all of the learned facts obscured by the technical verbiage of our modern alchemists. The scientific contribution to tuberculosis has been enormous; but the real warfare against the disease will not be fought in the laboratory. The places in which it must be fought out are in the public schools, in the streets, in the homes, in the doctors' offices, in the churches, in the secrecy of the closets in which men search their souls and struggle with their consciences. There must be a thorough course of mental and moral education in which both physicians and laymen should occupy the students' benches. Our present knowledge of diagnosis and treatment, limited though it may be, is adequate for a reasonably successful warfare against the disease, if physicians and people were ready to accept that knowledge and act on it.

How to bring about this moral and intellectual awakening among medical men and the people should have an important place on the programs of the most learned and serious-minded medical societies of the nation, simply for the reason that it has more to do with the cure of disease and the saving of human life than any other problem they can consider.

It is the custom of scientific men, in presenting facts and theories for the consideration of their confrères, to support their contentions with case histories. Perhaps when this simple and tremendously important truth is said before the councils of physicians, it will be supported by such histories as these, which have been taken from the records of my cases during a period of two weeks:

REPORT OF CASES

Case 1.—*History.*—A railroad man, aged 48, married and father of four young children, had pneumonia three times, the last time (December, 1915) remaining ill for three months. In 1900 he was "down with chills" and completely lost his voice for three months. He had coughed for the past seven months (since last pneumonia) and produced large amounts of sputum. The normal weight was 180; present weight, 131; temperature, 99.6; pulse, 100. The sputum contained tubercle bacilli. There was dulness in both apexes with moist râles. The diagnosis of moderately advanced tuberculosis plus was rendered indisputable by sputum examination. All facts were laid frankly before the patient.

Human or Mental Phase.—The patient was unable and unwilling to enter a sanatorium, although assistance was offered. When a nurse was sent to arrange living conditions for him at home, he refused her services, and declared that the diagnosis was wrong and that he would continue to work. When urged to consult another competent physician to confirm the diagnosis, he refused to do so. He would receive no suggestions as to coughing, disposal of sputum or protection of his wife and family. Finally he admitted that he had seen another physician who advised him "to settle up his affairs as he had only a short time left to work."

Causal Factors of Present Hopeless Condition.—1. Delay in diagnosis, which was so late (probably sixteen years too late) that outlook was discouraging at best. 2. Hopelessness of prognosis made by last physician. 3. Lack of knowledge of tuberculosis, and mental strabismus on the part of the patient.

Case 2.—*History.*—A man, aged 24, had lost weight, and complained of poor appetite and constant weariness. Finally while working, he had a slight hemorrhage. The young man attributed this to his throat, and in this his physician agreeably acquiesced. The general condition was such that suspicion was aroused sufficiently to have a sputum specimen examined. There were no bacilli present in the first specimen. A second was not taken. Growing weaker, the young man asked for a vacation, and suggested that he go into camp with the state militia, of which he was a member. In this he was encouraged by his physician on account of the exercise and fresh air in a tent (!). During the first evening in camp, the boy had a profuse hemorrhage. Diagnosis of moderately advanced pulmonary tuberculosis was made by a consultant who was called in after the general alarm caused by the second hemorrhage, and the boy was placed in a sanatorium.

Human or Mental Phase.—While strongly suspecting he was tuberculous, this young man persistently refused to see any physician especially familiar with tuberculosis. He said he did not want to be *told* he had the disease. An interesting question arises in the attitude of the physician in (*a*) agreeing with the patient's very improbable explanation of his first hemorrhage; (*b*) being content with one sputum specimen in a case highly suspicious, and (*c*) concurring in the exceedingly injudicious course of exercise of militia camp life for a tuberculous person. This young man was saved from the hopeless stage by fortunately having a profuse hemorrhage early in his misguided course.

Case 3.—*History.* — A man, aged 26, single, chauffeur, with no relatives or close friends in this country, had steadily lost ground since 1914, when he had a severe attack of measles. He had pleurisy with effusion two months ago; indigestion for a year or more, and took cold easily. He had lost 17 pounds in the last six months; his voice was husky; appetite finicky; he vomited on coughing; he had coughed for two months; there was pain in the left chest; the temperature was 101, pulse 90; the sputum contained tubercle bacilli; chest findings were very slight. He had chest examination a short time before and physician stated "no diagnosis; but certainly *not* tuberculosis." A diagnosis of moderately advanced tuberculosis, plus, was made, and the patient was sent home and to bed.

Human and Mental Phase. — When a nurse visited this patient to arrange for sanatorium care, the patient had gone to work, denying absolutely that he was tuberculous. Another physician had confirmed the patient's own diagnosis of "bronchitis and stomach trouble" (!). The patient stated that he had come to the dispensary merely to prove that he did not have lung trouble. He deeply resented the diagnosis of tuberculosis, and now does not speak to the physician who made that diagnosis. Persons for whom this boy worked "hardly thought it likely that he had tuberculosis," and said that "even if so, the exercise of caring for the car outdoors would be beneficial." It may be noted that these are educated and generally intelligent people.

Causal Factors of Present Hopeless Condition.—1. Delay in diagnosis, which should have been made two years ago. 2. Ignorance and mental squint on the part of the patient. 3. Opinion of the first physician that the case was not tuberculous, and willingness of the last physician to concur in the obviously absurd self-diagnosis of "bronchitis and stomach trouble." 4. Ignorance of "educated" employers that outdoor exercise can be safe for a tuberculous person carrying a high temperature. This young man will doubtless die.

Case 4.—*History.*—Woman, aged 16, clerk in department store, had a severe attack of grip a few months before followed by pleurisy. She had lost weight and complained of weariness and nervousness since the grip attack. Her voice was husky at times; there was a hacking cough, particularly after meals, and a moderate quantity of sputum containing tubercle bacilli. There was pain in the left side at the seat of previous pleurisy. Temperature was 100; pulse, 112. Chest findings were slight. There was muscle spasm in the left upper back. A diagnosis of moderately advanced pulmonary tuberculosis was made indisputable by the presence of bacilli in the sputum.

Human and Mental Phase.—This young woman is engaged to be married and, on account of feeling so bad had asked for her vacation early so that she could take a two-week automobile trip over dusty, Illinois roads. The girl was told that she must go to bed outdoors at once and was told that she would be seriously ill with tuberculosis if she did not do so. A nurse was to have been sent to arrange the details of her living. The following day the girl's father, a bartender, called over the telephone, stated that the nurse need not come; that, in his opinion, the girl did not have tuberculosis, and that he had advised her to go on the automobile trip originally proposed. The attitude of patient and father was resentful. The girl will probably die.

Causal Factors in Present Hopeless Condition.—1. The mental attitude of the patient and parents, denying the unquestioned presence of tuberculosis, and resenting the diagnosis. This is a very common feeling among people, even of considerable education. It must be overcome by publicity, in which the family physician must take an active part.

Case 5.—*History.*—A man, aged 43, train dispatcher, father of three young children, whose father died of "complication of diseases," suffered from "rheumatism of the left shoulder" for a considerable length of time and, one year before, had a profuse hemorrhage. It was diagnosed by the attending physician as "nontuberculous bronchial hemorrhage." The patient continued at work without objection from the physician. Six months after the initial hemorrhage, there was a well established cough with profuse sputum, at times streaked with blood, and there were periods of definite hoarseness. The patient had been steadily losing ground. No sputum specimen was examined. Following a second hemorrhage with chill and fever, six months after the first hemorrhage, the patient stopped work because he was physically unable to continue. No diagnosis was made or, what is equivalent, none was announced to the patient or to members of his family. Another physician was employed who made a diagnosis of pulmonary tuberculosis and ordered the patient to sleep outdoors, to take milk and eggs, and *to work in the garden.* He also administered tuberculin. The patient was hemorrhagic and had high temperature at the time. The actual diagnosis was advanced pulmonary tuberculosis, very active.

Human and Mental Phase.—This patient is reasonable and intelligent; he accepted the actual diagnosis calmly and settled down to a prolonged period of rest in bed without discussion. He expressed regret that he had not known his actual condition sooner.

Causal Factors in Present Hopeless Condition.—1. Failure of physician to advise patient of diagnosis at least one year before breakdown. 2. Permission of patient to work after the first pulmonary hemorrhage. 3. Permission of patient to work in the garden after breakdown, and when hemorrhagic and having fever. 4. Administration of tuberculin when patient had a tendency to hemorrhage and had elevated temperature.

CONCLUSIONS

1. The most important factors in meeting the tuberculosis problem—with which only the prevailing carelessness of diagnostic methods can compare—are the mental attitude of many laymen and the moral and mental attitude of many physicians toward the disease.

2. There is a decided tendency to make self-diagnoses and to deny a diagnosis disagreeable to them on the part of laymen otherwise ordinarily intelligent.

3. Aside from the lack of knowledge as to making the diagnosis, which is, in a way, excusable, there is a tendency on the part of many physicians to do one of several things wholly inexcusable.

(*a*) To make examinations so superficial and hasty in character that they are useless, regardless of the knowledge and skill of the examiner.

(*b*) To make negative diagnosis based on such wholly inadequate examinations.

(*c*) To make false or deceptive and obviously absurd diagnoses—"weak lungs," "threatened lung trouble," etc.—for the purpose of lulling the patient to a false sense of security.

(*d*) To concur in the obviously ridiculous self-diagnosis of patients for the purpose of retaining their friendship or patronage.

4. There is also an astonishing lack of appreciation of the danger from the employment of exercise or tuberculin in those cases in which there is any degree of disease activity. It is possible that more harm is done by the use of tuberculin in the wrong class of cases than there is good from its use in the right class of cases. It is likely that more harm is being done by exercise than there is good accomplished by open air life.

Recovery of Adult from Meningitis After Intraventricular Injection of Antimeningitis Serum

Verbizier and Chauvel report a case of epidemic meningitis of the "walled off" type, in a man of 43. Intraventricular injection of the antiserum was followed by recovery—the first case of which they know in an adult. They cite three successful cases in children on record. The fact that the antiserum injected into the spinal cavity was not being absorbed first gave warning of obstructive trouble. Its nonabsorption was manifest from the persisting yellow tint of the cerebrospinal fluid, this xanthochromia being an important sign of obstruction of communication. Another sign of this was that the pressure in the fluid drawn by repeated lumbar puncture was much less each time. The inefficacy of the intraspinal injections of the antiserum and the abrupt aggravation of the general symptoms confirmed the assumption that the meningococci were not being reached by the antiserum. Still another sign was the fact that the patient did not have severe headache during and after the lumbar puncture, as headache is almost inevitable with lumbar puncture in meningitis, probably from change in the pressure in the ventricles as fluid escapes from the lumbar puncture opening. In the case reported the meningitis was at the seventh day when the signs above described demonstrated that other measures must be resorted to. Under general anesthesia a semicircular incision was made in the upper part of the frontal bone, a little to the left of the median line, the convexity toward the back. A lumbar puncture needle was then pushed into the brain, slanting inward, toward the right auditory canal. At a depth of 5 cm. an aspirating syringe was attached and about 20 c.c. of a colorless fluid was withdrawn, and a corresponding amount of warm antimeningitis serum was injected and the flap sutured. The fluid contained innumerable meningococci. Gradual improvement followed to recovery in about two weeks. The only complication was retention of urine after the operation on the brain. Catheterization became necessary and led to slight and transient cystitis which soon yielded to the usual measures and clinically normal conditions were restored. The case is described in minute detail in the *Bulletins et mémoires de la Société médicale des hôpitaux de Paris,* 1916, xxxii, 1138.

Medicolegal

Powers of Health Officers and Boards of Health—Requiring Vaccination

(*Board of Trustees et al. vs. McMurtry et al.* (*Ky.*), *184 S. W. R. 390*)

The Court of Appeals of Kentucky affirms a judgment dismissing the petition of the plaintiffs in this suit, which was brought by the board of trustees of the Highland Park graded common school district No. 46 and others against the members of the county board of health of Jefferson County and the county health officer, for the purpose of enjoining them from enforcing an order directing vaccination by a day named of all the children attending the school who had not been vaccinated within seven years. The court says that the health officer of the county is primarily the agent and executive officer of the local board of health, and is charged with the duty of enforcing such rules and regulations as the state board or the county board may adopt within the scope of the powers conferred on them by the statute. But the court is not prepared to say that without express authority from either the state board or the county board the health officer would have power to demand that each child enrolled at a public school shall bring a certificate of successful vaccination or be vaccinated by a certain date, or be denied the privilege of attending the school. By this the court does not mean to hold that before the health officer can act in any case he must be armed with express authority from one of the boards, because many matters might come up in connection with the duties of his office that he should be permitted to perform, in the exercise of a sound discretion and within the scope of his general authority, without having the express sanction of either the state or county board. Each of these boards is charged independently with preserving the public health and with taking such action as in the exercise of a reasonable discretion may be deemed necessary to suppress and prevent the spread of infectious or contagious diseases. The only substantial difference in their powers, in respect to taking such measures as may be necessary to conserve the health of the people of the state, is that the state board is invested by the statute with larger power and greater jurisdiction than the local boards. But the local boards may under the statute exercise the authority conferred on them without asking the advice or the consent of the state board. The court is further of the opinion that the language of the statute is broad enough to confer on the state board and on the local boards the authority to issue an order such as the one here in question when they believe there is reasonable apprehension of an epidemic of smallpox in a school district, and that the vaccination of the schoolchildren is the only means by which it can be prevented. The argument was made that this construction gives to these boards great power. This is true, but necessarily so. The conditions which they were created to deal with could not be successfully met, unless they had large power and discretion. In the very nature of things it would be utterly impracticable for the legislative department of the state to undertake to define the conditions that must exist before these boards could take such action as might be necessary to control situations that are constantly coming up in various forms; and so if these agencies of the state created for the purpose of conserving the health of the people are to accomplish the objects for which they were created, they must needs be given authority to take such prompt and effective action, in each case as it comes up, as in the exercise of their reasonable judgment and discretion may be deemed necessary to meet the exigencies of the occasion. They are not required to wait until an epidemic actually exists before taking action. Indeed, one of the chief purposes of their existence is to adopt and enforce such timely measures as will prevent epidemics. What they shall do and how it shall be done are matters left to their sound discretion. But of course these boards cannot adopt unreasonable or arbitrary rules or regulations or, without cause, harass the public or needlessly subject individuals to expense or inconvenience or act, unless they have reasonable grounds to believe that the action taken is necessary to prevent or suppress the disease sought to be controlled.

Liability on Note Given in Buying Out Physician

(*Harshbarger vs. Eby et al.* (*Idaho*), *156 Pac. R. 619*)

The Supreme Court of Idaho affirms a judgment in favor of the plaintiff, a physician, who sued the defendants, a physician and his wife, on a promissory note for $2,500 given as the balance of the purchase price agreed to be paid by the defendant physician for the business, property and good will of the plaintiff. The court says that an instrument designated a contract of sale, which was executed by the parties, set out in full and described the real and personal property purchased and the total sum to be paid for the business, the good will, and the property enumerated, being $5,500, of which $3,000 was paid in cash. The defendants sought to introduce evidence of the value of each article of personal property and the real estate separately for the purpose of establishing that the business, personal property, real estate and good will purchased were not of the value that had been theretofore agreed on between the parties, but that the personal property and real estate were worth only $1,750, and that the business and good will were valueless, and that therefore the note in suit had been obtained without consideration. But it was not important that it should appear that there was a full consideration for the note, as the defense would fail if there was any consideration whatever for the note, no matter how small. This court has heretofore held that inadequacy of consideration is no defense to an action on a promissory note unless there was also fraud on the part of the promisee, that it is not the duty of the court to relieve parties from the obligations of their contracts fairly made because they are disadvantageous or foolish, but to enforce them, and that courts, both of law and of equity, refuse to disturb contracts on the grounds of mere inadequacy, whether the consideration is of benefit to the promisor or of injury to the promisee. It was not contended in this case that there was any fraud perpetrated on the defendants in the inception of the contract, but, on the other hand, it was contended that they did not receive the practice that the plaintiff had represented that he had enjoyed, that the good will of the business had not brought them the expected returns, and that collections were not as good as the plaintiff had claimed they were. These were not such statements as, under the facts in this case, would constitute fraud, even should it be conceded that fraud was properly alleged. The defendants had by their own showing ample opportunity to advise themselves on these matters. Moreover, it was error, under the circumstances, to permit the defendant physician to testify to the value of each article of personal property and of the real estate separately, for the reason that the value of the business, property and good will had been fixed by the parties in the contract, and it varied the express terms of a written contract which was admitted by the defendants to be the contract entered into in which the price to be paid for the business, the property and the good will was fixed.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Clinical Congress of Surgeons, Philadelphia, Oct. 23-28.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
Southern Medical Association, Atlanta, Nov. 13-16.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-Ninth Annual Meeting, held at Indianapolis, Sept. 25-27, 1916

(*Concluded from page 1252*)

Rupture of the Cesarean Scar

Dr. Abraham J. Rongy, New York: Spontaneous rupture of the cesarean scar occurs in about 3 per cent. of cases, usually during labor, sometimes during the latter half of pregnancy, especially in the last six weeks. Rupture will occur in cases which run an afebrile course and in which union of the wound was apparently by first intention. One third of all cases in which operation is performed for reoperated section show evidence of inflammatory reaction in and about the uterine wound. The result in such cases is a weakened scar. Proper suturing of the uterine wound and exact approximation of the edges will not always prevent subsequent rupture of the scar. The mortality rate of repeated section is smaller than that of primary cesarean section, because these patients are more carefully watched by competent men. A patient who has had cesarean section should not be allowed to go through a tedious or severe labor. If labor does not progress rapidly, repeated section should be performed. When advising a patient to have a cesarean section, the management of subsequent pregnancies should be taken into consideration and discussed with one of the members of the family. Fully 75 per cent. of women who have had a cesarean section are delivered by repeated section during their subsequent labors. Cesarean section creates a new problem for the woman, and therefore we must carefully weigh the indications before deciding on the abdominal route. The dictum "once a cesarean section always a cesarean section" holds true in fully 75 per cent. of cases.

Discussion on Uterine Rupture

Dr. Palmer Findley, Omaha: If ninety-seven women out of a hundred go through labor with a cesarean scar successfully without intervention, the thing to do is to put the woman in a hospital, if possible, and be ready to interfere; but we should not adopt the method of cesareanizing every woman who has had a previous cesarean scar in the uterus. We should not be guided by any 3 per cent. of changes except this: we should take every precaution to safeguard the woman in the event of imminent rupture of the scar.

Dr. J. Henry Carstens, Detroit: I have had about fifteen patients on whom I have performed cesarean section a second time. In all of the cases there was pelvic deformity. Not one of them was cesareanized for placenta praevia or eclampsia. I have these patients go to the hospital early, if possible, and operate on them two weeks before the expected time of labor.

Dr. Henry Schwarz, St. Louis: I endorse every word Dr. Findley said. Three years ago I did a cesarean section on a woman who had a temperature of 104 F. She was intensely sapremic, with a dead macerated fetus in the uterus. She was a young woman, and this was her first pregnancy. After emptying the uterus and removing a subserous fibroid which was situated on the left side of the uterus close to the external os and was blocking the pelvis, and removing a smaller fibroid near the fundus, I closed the uterus. I delivered this woman about seven months ago through the natural passages.

Dr. James E. Davis, Detroit: The problem from a pathologic standpoint is this: first, a reduction of muscle tissue, a degradation of a normal tissue, then a degradation of the connective tissue by the interposition within the connective tissue cells of syncytial cells. The connective tissue, while it may be in certain instances as strong as the muscle tissue, yet is not as resistant to the syncytiolysins. It is a tissue of very low resistance so far as its ability to withstand pressure is concerned.

Dr. Maurice I. Rosenthal, Fort Wayne: The important thing is infection, and that infection is predisposed by intra-uterine pressure. If the lochia are kept free from the internal surface, the entire suture line closes together by the absence of the intra-uterine pressure, and that is a point in safeguarding against the infection of the wound and in securing perfect wound healing.

Dr. Irving W. Potter, Buffalo: I have done cesarean section on a number of patients a second time without any trouble. You cannot see the scar, but if you feel from below up, you will find a thinning in many of the cases, although it is not enough to make any special difference.

Gunshot Wounds of the Abdomen in Pregnant Women

Dr. Lewis F. Smead, Toledo, Ohio: A woman was shot through the abdomen. The bullet perforated the colon, the uterus, the placenta, and the hand of the child. Mother recovered. In cases of gunshot wounds of the abdomen during pregnancy, the uterus at full term should be emptied by cesarean section, and at earlier periods if the organ is badly injured. A uterus during labor is liable to spread any infection which is free in the abdomen, and a pregnant uterus is therefore a menace to the patient if peritonitis develops. Hysterectomy is usually not indicated unless the uterus is badly lacerated. Drainage should always be used and irrigation very rarely.

DISCUSSION

Dr. John D. S. Davis, Birmingham, Ala.: A woman, pregnant three and a half months, was handling a small rifle when it was discharged and the bullet entered the abdomen, producing twenty-five perforations, six through the transverse colon, and nineteen through the small intestine. She was brought a distance of 85 miles. I saw her twelve hours after the reception of the injury. Instead of doing two resections of the intestine, I took out 5 feet of the intestine between the nineteen perforations. She recovered and gave birth to a living child at the ninth month.

Version, With Report of Five Hundred Cases

Dr. Irving W. Potter, Buffalo: In these 500 cases there was not a maternal death; there were no injuries to the mother's soft parts that required repair. There were no alarming hemorrhages, and the period of involution was shorter than ordinary, with less flow during the puerperium. The convalescence was more rapid, owing to the elimination of the shock experienced by patients going through a long second stage of labor. There was also apparent greater strength of the patient at the end of the puerperium. In reference to the fetus, there were fifty-seven stillbirths, the greatest cause being prolapsed cord; in thirty cases alone death was due to this cause.

Blood Pressures During Operations

Dr. Charles W. Moots, Toledo, Ohio: Having made observations and records of the pressures in 98 per cent. of our cases for the past eight years, we have come to certain conclusions: The systolic pressure alone is of very slight, if any value. The diastolic pressure alone is of much more value than the systolic alone. The pressure ratio is the essential factor and offers the earliest danger signal. There are certain elements in technic which have marked and constant effect on the pressures. These are as follows: (*a*) the psychic or emotional state of the patient; (*b*) the position of the patient on the table, the extreme Trendelenburg being the worst; (*c*) overdosing by the anesthetist; (*d*) the amount of traumatism inflicted by the actual operation, such as cutting and tearing the tissues with scissors, the hands, and other dull instruments; the packing of large gauze packs instead of rubber tissue into the abdominal cavity, and (*e*) the preservation of the fluids in the body up to the hour of the operation, this being absolutely necessary to maintain the usual pressures.

DISCUSSION

Dr. R. R. Huggins, Pittsburgh: If any one cares to take the blood pressures of patients previous to operation, when he is suspicious of any weakness on the part of the circulatory apparatus of the patient, if he will take the pressure pulse with the patient in the prone position and find that it goes down, that patient is a bad risk. There will always be trouble, particularly if the inhalation form of anesthesia is used. A patient with a blood pressure of 170 or 180, with low diastolic pressure, should always be watched. The same is true of low blood pressure.

Dr. J. H. Carstens, Detroit: I have for some time insisted on taking the blood pressure of patients a day or two before operation. If a patient has a blood pressure of 170, it is dangerous to operate before adopting some measures to reduce it.

Prolapse of the Uterus in Nulliparous Women

Dr. Palmer Findley, Omaha: One hundred and fifty-one cases of procidentia uteri in nulliparous women are on record. In my judgment there is an element of infantilism in most, if not all, the cases of procidentia in nulliparous women. The fact that these women are sterile is highly suggestive. Kepler collected reports of eighty cases of procidentia in nulliparous women, and of this number thirty-eight were mentally defective. In this group were dementia praecox, imbecility, idiocy, chronic mania, hysterical insanity, cretinism, and nervousness of high degree.

Radium, a Palliative

Dr. Douglas C. Moriarta, Saratoga Springs, N. Y.: Radium overcomes the disagreeable odor which accompanies the breaking down of cancerous tissue. Further, it controls hemorrhage. In six cases in which I used radium pain was relieved, the odor was remarkably controlled, hemorrhage ceased, and there was a change in or a disappearance of the local pathologic tissues. Two patients died in coma two months after the treatment; four are alive and hopeful. In one case the uterine hemorrhage was not of cancerous origin, but the condition was a terminal one. I am sure the patient would have died had it not been for the use of radium. In using radium it is possible to produce a toxemia which may prove fatal, and I am sure I have seen the end hastened in this way. I would suggest two precautions when applying radium locally; first, a patient with a low leukocyte count should not be given prolonged applications; and second, it should be accompanied by the liberal administration of alkalies. No case of this type is so desperate, and no postoperative condition so hopeless, that radium should not be used with an expectation of the alleviation of the distressing symptoms.

A Modified Gilliam Operation and Its Ultimate Results

Dr. Albert Goldspohn, Chicago: An effective and lasting cure is best obtained through overcorrection, suspending the uterus at a higher plane than it normally occupies, by a substantial implantation of round ligament loops, reenforced by their peritoneal covering, into the recti muscles and their aponeurosis, best after the Gilliam technic, in addition to correction of the version. To secure the desirable degree of anteversion, and also to avoid intestinal complications, the implantation should not be more than from 3 to 4 cm. from the edge of the symphysis pubis, and it should bring the distal unused segment of the ligament and its uterine origin both in contact with the abdominal wall. The efficiency of this modification of the Gilliam operation is shown in the 127 examined cases, including the double test of pregnancy of twenty-one, nearly all natural and mature births, with a return of displacement in only 1.6 per cent.; with both pelvic and general health "good" or "excellent" in 88 per cent.; improved in 10.2 per cent., and unimproved in only 1.6 per cent. in a total number of 164 cases observed from two to seven years, or over three and one-half years on the average. Its harmlessness is shown by the utter absence of any deleterious effects at all traceable to it in the twenty-one births noted, and likewise from the absence of intestinal complications and of discomfort to the patients.

The Surgical Treatment of Uterine Cancer

Dr. J. H. Jacobson, Toledo, Ohio: The radical abdominal operation thus far has given the highest percentage of cures in operable cases. Until radium, Roentgen ray or Percy's operation shall have proved their superiority to operation, their use should be limited to the inoperable cases. There is abundant clinical evidence at hand to prove the value of radiotherapy; it therefore seems logical to follow every palliative or radical operation with radiotherapy.

The Mechanics of the Stomach After Gastro-Enterostomy

Dr. J. H. Jacobson and Dr. John T. Murphy, Toledo, Ohio: All patients examined in this series were well. Gastro-enterostomy openings properly made and placed do not obliterate, and functionate equally as well in the presence of either an open or closed pylorus. To secure the maximum amount of drainage, the opening must be of ample size and placed as near the pylorus as possible, preferably in the antrum pylori. Such openings must not be made on the fundus of the stomach or on the lesser curvature. Gastro-enterostomy is essentially a drainage operation. Serious distention in the jejunum does not occur. The food is seen to pass rapidly through the many loops of the small intestine before it stops. Even in those patients who are entirely relieved of their former symptoms, food can be forced backward into the stomach from the jejunum, and although this can be done easily, such regurgitations do not seem to make any difference.

Excessive Drainage Complicating Surgery on the Common Bile Duct

Dr. J. E. Sadlier, Poughkeepsie, N. Y.: Both of my cases were long-standing cases of common duct infection and incomplete obstruction. The latter was a result of the duct being filled with gallstones. In each case there was well-marked dilatation of the duct. In one case there was an alcoholic history and in the other case there was involvement of the pancreas. These two conditions can be eliminated as complete causative factors, but cannot be disregarded as partial influencing conditions in provoking the excessive drainage. I am unable to state the positive cause for this complication, but I am disposed to believe that it is due to back pressure. Is it not probable that in partial obstruction to the outflow of the bile, there occurs a dilatation of the smaller biliary radicles in the liver? Increased back pressure, which, when suddenly relieved by operative removal of the obstruction, produces a condition of venous engorgement of the liver with resulting outflow of fluid which is more in the nature of a transudation than an actual biliary secretion, and this coupled with a back flow of pancreatic fluid through the dilated duct, would account for the excessive drainage. In our operative work on the common bile duct we must consider the possibility of excessive drainage and be prepared to combat it before the patient becomes dehydrated to the danger point.

Inguinal Hernia Attached to the Cord, Undescended Testicle, Uterus, Tubes and Broad Ligament

Dr. Edmund D. Clark, Indianapolis: My case is a very good example of hermaphroditism in a man, and it illustrates what is exceedingly rare in the hernial sac of a male. The external conformation of the patient was that of a normal male. The hernial sac contained a uterus, broad ligament and fallopian tubes. Although he has been married to an apparently normal woman for six years, no pregnancies have resulted.

Relation of So-Called Ether Pneumonia to Pelvic and Abdominal Surgery

Dr. William Edgar Darnell, Atlantic City, N. J.: Ether is administered in most hospitals many times every day, yet the condition known as "ether pneumonia" is a rare occurrence compared with the number of ether administrations given. If the pneumonia were the result of the ether, we ought to expect to have many cases every week. Rovsing proved experimentally that although ether does occasion increased secretion of the salivary glands of the mouth, the larynx, the trachea and the bronchi are not irritated at all, even when the animals are killed by administering ether through a tracheotomy tube until they are dead. The only way, therefore, that ether can produce pneumonia is by the aspiration of the accumulated saliva in the throat, usually the result of technical error on the part of the anesthetist, who should not allow the secretion to accumulate in the throat. Such secretions may be infected from the buccal cavity. It is quite possible that tonsillar infections and involvement of the nasal accessory sinuses or the teeth may be one of the causes of postoperative pneumonia which has been attributed to ether. It would seem proper to conclude, therefore, that cases of pneumonia following operations are not due to the ether. The term "ether pneumonia" should be discarded and forgotten. Postoperative pneumonia occurs with great rarity, except after abdominal operations, and is then probably due to an infection already existing in the bronchi or lungs at the time of operation, or to imperfect aeration and ventilation of the lungs by reason of the fear of taking deep breaths after a laparotomy; but most often such pneumonia is a secondary infection of the lung following a septic abdominal condition.

Removal of the Appendix for the Cure of Trifacial Neuralgia and Other Nerve Pain About the Head and Face

Dr. Maurice I. Rosenthal, Fort Wayne: I do not claim that we have established a new pathology for trifacial tic and kindred affections, but I do claim that in seven cases we fixed the pathologic condition in the vermiform appendix, even though the physical and subjective evidence of appendicitis was so obscure as to be entirely overlooked. In all but one case there was present almost symptomless chronic appendicitis of the obliterating type; the odd case was a symptomless pus case. One case was on the order of migraine or so-called sick headache. It has not been uncommon in my experience to note the cure of migraine and so-called sick headache after removal of a diseased appendix. It is quite possible that many of these cases come under the same pathology as does tic douloureux and other nerve pains about the face and head.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Fort Wayne, Sept. 27-29, 1916

(*Continued from page 1251*)

The president, Dr. George F. Keiper, LaFayette, in the Chair

Influence of Modern Immunity Research on Surgery

Dr. Murray N. Hadley, Indianapolis: The question of immunity should be viewed in the broad, biologic sense. By the biologic conception of disease we mean recognition of the fact that the defensive mechanism of the individual must be increased. The problem of surgical infections has been shifted to the field of biochemistry. We now recognize that when an individual becomes the host of pathogenic micro-organisms his entire physiochemical balance has been disturbed and under such conditions recovery is to be sought by resort to those remedies and measures which strengthen and stimulate normal body defense.

Dr. C. B. Danruther, Laporte: Immunity in its broadest sense is the effective resistance of the host against any deleterious substance; in the usual and more restricted application, the resistance of the host to infective micro-organisms and their products. A more recent theory advanced by Vaughan explains all forms of immunity by the inability of a micro-organism to grow in the body of the host because of the presence or lack of certain ferments which either destroy the organism directly or prevent it from obtaining suitable nutrition. The fundamental principles are the same, being one complex set of phenomena viewed from different angles.

DISCUSSION

Dr. V. H. Moon, Indianapolis: The specificity of immunity lies at the very foundation of a large amount of treatment of infectious disease. To establish an immunity by therapeutic means, such as the application of vaccines, we must use the causative organism of that infection as our antigen.

Dr. George Spohn, Elkhart: When an appendix is removed, and there is infection existing before the operation, would there be any advantage in using vaccines?

Dr. Leonard F. Schmauss, Alexandria: The principles Dr. Hadley emphasized ought to be encouraged, but I would caution against going to the other extreme. I would not want to discourage the use of antiseptics, especially in infected wounds, and depend on the outside application of salts to draw away the infection.

Dr. M. N. Hadley, Indianapolis: The question of vaccines in acute appendicitis involves their use in all acute infections. If you agree that the use of vaccines is indicated in an acute surgical infection, you would use them under these circumstances. It seems to me not a wise thing to do. The question of antiseptics must be governed by facts. All wounds are treated at first with antiseptics, but the problem is entirely different then to what it is forty-eight or seventy-two hours later when the organisms are scattered through the tissues. If you can use antiseptics immediately or within six hours after the wound has been made, use them.

Visceral Syphilis

Dr. George W. McCaskey, Fort Wayne: The treatment of visceral syphilis, with one or two very notable exceptions, is simply the treatment of syphilis. By a judicious combination of mercury and the iodids with salvarsan and neosalvarsan, the patient is best served.

DISCUSSION

Dr. A. W. Brayton, Indianapolis: I consider syphilis wonderfully amenable to treatment, as much so as typhoid. The only drugs which destroy the syphilitic organism are the mercurial salts and the arsenical compounds introduced by Ehrlich—all inexpensive and easily given. We must diagnose our cases carefully. Patients must be kept under observation for several years. Syphilis, like tuberculosis, may be dormant for fifty years and then break out in various forms.

Dr. Henry A. Christian, Boston: The Wassermann test has both increased and decreased our diagnostic difficulties. In cases of latent syphilis we have received great assistance, because there was nothing in the case prior to our securing a positive Wassermann that would indicate that the patient had syphilis. On the other hand, a positive Wassermann brings about the necessity of deciding whether that has anything to do with the patient's present condition. Sometimes it does, and sometimes it does not. I know of nothing that requires keener diagnostic skill than that decision. When we weigh the two sides against each other, however, I think the aid we have received outweighs the difficulties added. The Wassermann should be a routine diagnostic measure in all cases in which any difficulty exists.

Dr. Charles P. Emerson, Indianapolis: There is value in the Wassermann test, but not nearly so much as we sometimes try to obtain from it. A Wassermann which is not 100 per cent. positive, or a negative Wassermann, should be considered as though the test had not been made. On the other hand, not all patients showing a positive Wassermann are suffering from syphilis. The fact that a patient has a 100 per cent. Wassermann only opens up the possibility of syphilis, and we must not take the Wassermann test as adequate diagnosis without considering the essential physical signs. The earlier we diagnose syphilis and begin our treatment, the less damage will be done; especially is this true of the central nervous system and the arterial system.

Dr. F. W. Cregor, Indianapolis: If we look on the Wassermann test as an aid to diagnosis and not a guide to diagnosis, I think we shall place it in the proper light. Unquestionably we find more visceral syphilis in women than in men, especially about the pelvis and lower bowel, owing to the fact that women suffer more from constipation and the consequent irritation, and syphilis is prone to manifest itself at points of irritation.

Dr. Albert E. Sterne, Indianapolis: We should regard laboratory findings (in syphilis diagnosis) wholly as symptoms which may or may not be present, just as any other set of symptoms. The fact that a symptom is absent does not exclude a disease so long as other symptoms speak for the presence of that disease. The absence of findings in a Wassermann test does not necessarily mean that there is no syphilis; its presence means that there is syphilitic infection, but it may not be active, and other symptoms must be taken into consideration with this test. I want to emphasize the fact that the central nervous system is invaded early in the course of syphilis, and it is a very great mistake to neglect the routine serologic examination until the symptoms of lesions of the central nervous system have been definitely shown. If there is a positive Wassermann reaction of the spinal fluid, that is the time when intraspinal treatment should be given, and not several years later. It is too late to expect definite improvement when the patient shows unmistakable signs of tabes and paresis. With our old methods our results were almost as good as they are today. After several years of careful investigation we cannot say that we can register a single cure in instances of syphilis of the central nervous system by our newer methods of treatment. I believe we delay the results, but we cannot say that we find a single cure.

Necessity of Coordinating Methods in the Definitive Diagnosis of Lesions in Pulmonary Tuberculosis

Drs. F. B. Wynn and R. C. Beeler, Indianapolis: Formerly the whole burden of responsibility for diagnosis and treatment was placed on the pathologist. Now we have reached the group of serologic tests, and on them are being placed most onerous burdens. Equally interesting and instructive are the revelations coming through physical laboratory methods. The knowledge obtained through the Roentgen ray has been so marvelous oftentimes that it is not strange to find overzealous roentgenologists making unwarrantable claims for its efficiency in diagnosis, and just as often practitioners rely on this "short-cut" to diagnosis, neglecting time-honored methods and defeating broader ideals in diagnostic procedure. Among the particular diseases in which this error has been committed, pulmonary tuberculosis has been most sinned against. It is not fair that the practitioner should put on the laboratory the whole burden in the diagnosis of tuberculosis. He should exhaust every other means to determine the truth. Careful examination of sputum does offer an absolute means of diagnosis in a majority of cases, but negative reports have often led practitioners to give unwarrantable assurance that tuberculosis does not exist. A careful study of the possible sources of infection, due consideration to the mode of life and previous diseases, and careful analysis of the development of the complaint will often give a clue to diagnosis when laboratory methods fail.

Radium Therapy

Dr. T. C. Kennedy, Indianapolis: The great value of radium in cancer can be judged only by keeping constantly in mind the fact that only the hopelessly inoperable, or patients with postoperative recurrences are sent for radium therapy. If we relieve a small percentage and occasionally cure a patient who has been operated on or been refused operation on account of the seriousness of the condition, we have done much for suffering humanity.

DISCUSSION

Dr. M. I. Rosenthal, Fort Wayne: Radium is a most valuable adjunct to surgery in the treatment of malignant growths, fibroids, and many other conditions. A woman with cancer of the uterus was operated on by the radical method, made a beautiful recovery and remained well for four years, then returned with a recurrence in the scar—a rare occurrence. We used radium, and after the ordinary treatment this carcinomatous condition has evidently disappeared. In cases such as this, radium is the only treatment; it is the last resort.

Diagnosis in Certain Gastric Disorders

Dr. H. H. Miller, South Bend: In the diagnosis of diseases of the digestive tract, early diagnosis is of prime importance. Most of the failures are due to carelessness in not getting all of the evidence and then considering it as a whole. Exploration should always be considered when the diagnosis remains in doubt after every other means has been used to come to a decision.

DISCUSSION

Dr. A. B. Graham, Indianapolis: The great mistake today is insufficient cooperation between internist and surgeon, especially in the treatment of gastric disorders. We criticize each other instead of getting together, working hand in hand, and trying to avoid the mistakes which we are making as individuals. The Roentgen ray is the most valuable method of diagnosis in diseases of the gastro-intestinal tract, but we must all work together—surgeon, internist and roentgenologist.

Dr. Miles F. Porter, Jr., Fort Wayne: A most important point in diagnosis and one often neglected is history taking. It is done too hurriedly. It is a good plan to take a history a week or ten days after the first time. It does not sound the same. I think it would be a fairly safe rule in the majority of gastro-intestinal disorders of the subacute or chronic type to make your diagnosis, make your plans for what you intend to do, and then start all over again. You will notice a difference. It is the same patient and the same doctor, but the history is different.

Dr. F. W. Foxworthy, Indianapolis: The surgeons of the United States Army make an effort to prevent these gastro-intestinal disturbances by correction of diet, so that they will not have to make this diagnosis, and I think the future will show that to be the proper method of treatment—prophylactic instead of curative.

(To be continued)

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Sixth Annual Meeting, held at Scranton, Sept. 18-21, 1916

(Continued from page 1181)

Acidosis

Dr. J. Harold Austin, Philadelphia: Acidosis is an abnormal diminution in the amount of carbonates and phosphates of the blood. In severe acidosis the deepened respiration at an increased rate constitutes the most characteristic feature of the clinical syndrome. The term "acid intoxication" may be used for the severe grades of acidosis with a clinical syndrome of which the most characteristic feature is the peculiar hyperpnea without cyanosis. In the severe acid intoxication of childhood with acetonuria, the withdrawal of fats, or perhaps of all food except glucose, the washing out of the stomach and the cleansing of the intestinal tract with castor oil and enemas are of first importance. The administration of alkali may bring about a cessation of the hyperpnea of acid intoxication, and diminish the laboratory evidence of acidosis. In the severest cases of acid intoxication, however, death occurs even when the urine has been rendered alkaline. This is probably due to the fact that although the buffer value of the blood has been restored, the altered condition in the tissue cells is less readily reached or the injury done is irreparable.

DISCUSSION

Dr. Alfred Stengel, Philadelphia: When we are directing our therapeutics against a definitely ascertained disease, we are apt to overlook the possible presence of subsidiary conditions much more important than the original disease. In treating cardiac decompensation, under certain circumstances such a patient may be more seriously threatened by the acidosis encountered than by the cardiac decompensation. Similarly in renal disease, the patient may be more seriously threatened, if such a thing is possible, by the accompanying acidosis than by the renal disease. Occasionally, patients with acid intoxication do recover under treatment. I have seen two such instances. The general attitude of the medical profession that patients with diabetic coma cannot recover is wrong. The severe intoxication should be fought to the end, even though we may be defeated in ninety-nine cases out of a hundred.

The Failing Heart

Dr. Howard S. Anders, Philadelphia: The failing heart indicates loss of reserve force, and is almost invariably curable. Heart failure represents the end-result. The stability and expectancy of life are dependent not alone on mere ventricular power and vigor, but also on a permanence of reserve force. A fibrillatory character of ventricular function is probably one of the best danger signals of a failing heart. One of the most palpable causes of a heart that is failing functionally is that of intestinal autotoxemia. Digestive disturbances with gastric and colonic distention and acidosis are also frequent elements in failing heart.

DISCUSSION

Dr. James D. Heard, Pittsburgh: The underlying pathologic process in cardiac failure may elude the investigator even after the most careful histologic examination. Of the many tests for determining latent heart weakness, we have none that are satisfactory. The method of Barringer of estimating functional capacity of the heart through a study of the delayed rise in blood pressure appears to be worthy of further examination. The early recognition of alternation of the pulse is of great prognostic value. The longest survival of any case recorded in which this condition was found was that of a patient of Tabora who was alive six years after the arrhythmia was demonstrable. It is probable that the majority of such patients will not live more than a year after the onset of the alternation.

Typhoid and Typhophors

Dr. Samuel G. Dixon, Harrisburg: In 1906 there were in Pennsylvania 3,917 deaths from typhoid; in 1915 they numbered 1,025. In 1906 there were reported sick of typhoid 24,471; in 1915 the number was 8,048. One source of danger against which no adequate protection has been found is the carrier. For one who carries typhoid the name of typhophor is proposed as brief and distinctive. The law of 1915 makes possible the exclusion of typhoid carriers from the kitchen and other parts of hotels and restaurants. Similar legislation concerning the producer or distributor is desirable. The examination of each potential carrier would be a great gain in controlling typhoid. The protection of our watersheds from pollution and against possible carriers among construction and repair workers is a question of much importance.

DISCUSSION

Dr. Alfred Stengel, Philadelphia: The employment of kaolin in these cases on the chemical principle of absorption offers a beautiful illustration of the introduction of physical chemistry into medicine and surgery, the credit of which is due to our bacteriologists. Kaolin may also be used for spraying the throats of diphtheria carriers. Possibly the value of our use of bismuth and other inert substances in the treatment of gastro-intestinal disturbances may also rest on the principle of absorption.

Significance of Hunger Pain

Dr. J. W. Luther, Palmerton: I am inclined to agree with Einhorn, who states that Moynihan's syndrome may occur with or without ulcer, and favors the theory that hunger pain is caused by a spasm of the pylorus induced by hyperchlorhydria, which is often associated with hypersecretion and which is in a large percentage of cases complicated by a justopyloric ulcer. When "hunger pain and food relief" occur with a painful pressure point and occult or microscopic blood in the feces, the roentgenologic examination shows gastric hypermobility and a shortened duodenal cap; and possibly also when Einhorn's string test, if used, is positive a diagnosis of duodenal ulcer may be made, though many authorities claim that even then it cannot be accurate and that a diagnosis of the position of the ulcer by the lateness of the onset of pain is impossible.

DISCUSSION

Dr. William H. Howell, Altoona: Hunger pain signifies duodenal ulcer. It is not pathognomonic by any means, but helps to confirm suspicions. The Roentgen rays and a careful and thorough history of the case are essential to a diagnosis. The symptom should never be drawn from the patient, but should be volunteered by him.

Dr. J. B. McAlister, Harrisburg: As hunger pain is most commonly encountered in cases of duodenal ulcer, it is a most valuable symptom in the diagnosis of that disease. Yet pain which closely resembles it is often present when a patient is suffering from other affections. Hunger pain is not an accompaniment of any definite chemical state of the stomach. As a rule, acidity is high; but even low degrees have been found. Hunger pain may be a symptom of acid gastritis, and is also found in catarrhal gastritis; it is also present in gastrectoptosis, enteroptosis or nephroptosis. In hyperorexia, or parorexia, the sensation of hunger might become so intense as to amount to actual pain. Physicians are warned against making a diagnosis of gastric neurosis because a patient happens to be a neurasthenic. The patient may present the appearance and symptoms of a neurasthenic and yet harbor a gastric ulcer or carcinoma.

Dr. J. A. Lichty, Pittsburgh: I agree fully that the etiologic interpretation of this symptom is not clear, and I think that the interpretation Luther gives is probably the correct one. There is one point to which I do not believe I could go with Dr. Luther, and that is that it is due to a hyperchlorhydria. Pylorospasm can be caused by other conditions than hyperchlorhydria. Mr. Moynihan's expression of some ten years ago that hunger pain is duodenal ulcer can certainly not be substantiated.

Dr. Ernest Laplace, Philadelphia: I think that by common consent the pain described as hunger pain is usually a contraction of the pylorus. Surgically speaking, I have almost never failed to find some sort of a lesion around the stomach or even down as far as the rectum when there has been persistent hunger pain.

Dr. Herbert B. Gibby, Wilkes-Barre: There is no doubt that the most prominent symptom in ulcer is hunger pain, but I cannot agree that pains of this character mean only duodenal ulcer. It may mean a gastric ulcer.

Facts and Fallacies Concerning Electrotherapeutics

Dr. W. L. Clark, Philadelphia: Progress in the use of electricity in therapeutics has been retarded by the ancient teaching that electricity is purely psychic in its action, by the absence of teaching of the subject in the majority of medical schools, and by the prejudice which has arisen on account of the association of electricity with irregular practice. I would urge on superenthusiastic electrotherapeutic advocates the necessity of being guarded in their claims, and that teaching in electrotherapeutics be established in all medical schools. Electricity, though always the same force, when modified with knowledge, intelligence and skill may be made to produce different effects, and it is on this principle that the whole superstructure of electrotherapeutics rests. The effects produced by electricity may be classified as mechanical, chemical, thermic, actinic and psychic. Some of the future possibilities of electricity in therapeutics are the abstraction of metallic poisons from the body by ionization, safe local and general anesthesia with loss of consciousness and relaxation, and relief of pain and the production of sleep, thus lessening the need of opiates.

DISCUSSION

Dr. J. Torrance Rugh, Philadelphia: The trouble partially lies with the electrotherapeutists themselves. To make unguarded statements, such as I hear from some of the electrotherapeutists, is unwise.

Dr. G. G. Davis, Philadelphia: There is no reason why we should not have a chair of electrical therapeutics in our colleges in the same way that we have the other specialties.

Value and Limitation of Radiotherapy in Gynecology

Dr. Floyd E. Keene, Philadelphia: I analyzed 116 cases. Sixty-nine cases were of malignant growths of the vagina, cervix or urethra, and forty-seven cases of benign hemorrhage of myomatous or myopathic origin. The majority of cases received from 85 to 110 mg. of radium for twenty-four hours. In one case of cauliflower growth, in a woman of 28, who was six months pregnant, 210 mg. were applied with complete cure. The only immediate effects were nausea and vomiting, which usually ceased from twenty-four to thirty-six hours after removal of the radium. In 44 per cent. of cases of cancer there was complete healing, and in only two cases was there no benefit. In not a single instance has there been a failure to check bleeding in the case of benign hemorrhage. Mild symptoms of menopause were developed in ten cases. In cancer of the fundus, operation is preferable to radium; this is also true of early cervical cancer. In cases of small myoma, when the only symptom is hemorrhage, 100 per cent. of cures may be expected. This work is still on probation.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

October, CLII, No. 4

1 Diagnosis and General Treatment of Syphilis. J. A. Fordyce, New York.—p. 469.
2 Treatment of Syphilis of Central Nervous System. H. F. Swift, New York.—p. 490.
3 *Persistence of Active Lesions and Spirochaetes in Tissues of Clinically Inactive or "Cured" Syphilis. A. S. Warthin, Ann Arbor, Mich.—p. 508.
4 Hereditary Syphilis in Light of Recent Clinical Studies. B. S. Veeder, St. Louis.—p. 522.
5 *Case Illustrating Anatomic Seat of Mobile Spasms. C. L. Dana and B. Gere, New York.—p. 535.
6 Relation of Hypophysis to Certain Clinical Manifestations and Therapeutic Application of Its Extracts. J. L. Miller, Chicago. —p. 549.
7 Value of Ambard Quotient in Estimation of Renal Function. L. Jonas and J. H. Austin, Philadelphia.—p. 560.
8 *Expectorant Action of Ammonium Chlorid. W. Coleman, New York.—p. 569.
9 Study of Proximo-Ataxia and Acro-Ataxia in Tabes Dorsalis. F. B. Clarke, Milwaukee, Wis.—p. 574.
10 *Tuberculosis (Concealed): Hitherto Unrecognized Clinical Type. G. D. Head, Minneapolis.—p. 582.
11 *Acute Heart Block Occurring as First Sign of Rheumatic Fever. P. D. White, Boston.—p. 589.

3. Abstracted in The Journal, June 17, p. 2032.

5. **Anatomic Seat of Mobile Spasms.**—The case of a child who, from the age of 6 months to 6 years when he died, suffered from continual choreic and tonic spasms, involving nearly all the muscles of his body, including the neck and face, is reported by Dana and Gere. The child was normal until the fourth month; then he had an attack of stupor, etc., diagnosed as "meningitis," then development of clonic and tonic movements involving face, throat, neck, trunk, arms and legs, the legs being mainly rigid, so that the child could only imperfectly stand or walk; no paralyses, no atrophies, no anesthesias, special senses normal, intelligence retarded, but not seriously. Duration of condition five and one-half years. Death occurred following an operation to resect the posterior spinal roots. The tonic and clonic spasms with some permanent rigidity of the lower extremities were the main features of the case. The tonic spasms caused an apparent spastic paraplegia, although there was no real paralysis, nor objective evidence of involvement of the pyramidal tracts, and both the corticospinal and the peripheral motor neurons showed no or slight signs of degeneration.

The conclusions from this case are that the patient had at the fourth month a low grade infectious polioencephalitis affecting especially the motor cortex and impairing the sensori-motor mechanism, that is, the dendrites and fibrils. This led not to paralysis but to irregular motor discharges and loss of muscular control. The authors believe that the cortical changes that were found are sufficient to explain the spasmodic symptoms, and as these lesions were induced by some infection four months after birth it is a fair inference that they were primary and not secondary factors in the disease. The case presented clinically some of the features of Little's disease, with clonic and tonic spasms, but there was no real paralysis and no involvement of the pyramidal or extrapyramidal tracts, at all adequate to explain the essential features of the symptoms.

8. **Expectorant Action of Ammonium Chlorid.**—It has been denied that ammonium chlorid in the usual therapeutic doses acts as an expectorant on patients suffering from bronchitis. Therefore, Coleman decided to reinvestigate its action on the bronchial secretion in man. Patients with acute or chronic bronchitis were selected as subjects for the experiment. The sputum of patients suffering from acute or chronic bronchitis was examined for the ammonia nitrogen content, and observations were made on the subjective symptoms referable to the respiratory passages following the administration of ammonium chlorid. The sputum was collected before the administration of the ammonium chlorid was begun and at various times thereafter. The doses of ammonium chlorid varied from one-half grain every two hours to 5 grains every two hours. In one case of mild bronchitis of only several days' duration, treatment began on the second day of the attack with one-half grain doses of ammonium chlorid at two-hour intervals. Distinct loosening of the sputum and diminished roughness of the tracheal and bronchial mucous membrane followed. The taste of ammonium chlorid was evident in the sputum at first, later the sense of taste for all substances was blunted. Whenever the drug was stopped the sputum became less abundant, more tenacious, and more difficult to expel, and a sensation of dryness or tightness developed in the chest. When the drug was resumed the opposite effects were observed. The action of the drug always developed within one-half to one hour. The experiment was repeated often to eliminate doubt as to the accuracy of the observations. Therefore, Coleman is convinced that ammonium chlorid is an expectorant within the definition of the term. It probably acts by increasing the water of secretion and softening the mucus.

10. **Tuberculosis; Unrecognized Clinical Type.**—The symptoms of nervous and physical exhaustion associated with recognizable tuberculosis have been long recognized and dwelt on by all writers on this subject; but that persons showing symptoms of nervous and physical exhaustion (toxic symptoms) and exhibiting no clinical evidence of tuberculosis could still be tuberculous, and that the quiescent, silent process could serve as the etiologic factor for the symptoms of physical and nervous exhaustion of which they complain, Head says, has been overlooked.

Head cites the history of the patient whose complaint dates back over a number of years and includes a long series of symptoms of indigestion, abdominal pain, backache, insomnia, constipation, fermentative indigestion, attacks of mental depression, crying spells, dizziness, aching in the neck, headache and eyeache. Patient stated that she never had a good appetite, that the daily routine of her life exhausted her, and year after year found her building up from one attack of exhaustion only to relapse into another. She had lived a semi-invalid existence. She had tried to work at various times, but always had to give up because she became so tired and exhausted. She had had a slight nervous cough at times, but had never coughed sputum. Many consultants had examined her lungs, but had found nothing. In the last year the patient had lost 15 pounds in weight. In order to improve her digestion, she had dieted to such an extent that she could scarcely eat solid food of any kind.

A careful physical examination of the patient, including a searching examination of the lungs, revealed no evidence of organic disease. She had occasional rises in temperature to 99.2; pulse 85 to 100. No definite diagnosis could be made. Roentgen-ray examinations of the spinal column and lungs were negative. A tuberculin test was made and the reaction was positive. The clinical diagnosis of neurasthenia was abandoned and the diagnosis made of tuberculosis (concealed), focus not determined, with chronic tuberculous toxemia exhibiting symptoms of physical and nervous exhaustion. Head urges that this is a clinical type of tuberculosis which should be recognized. It is a clinical picture of tuberculous toxemia without the focal evidence of the disease. It is tuberculosis revealed by a specific test.

11. **Heart Block as Sign of Rheumatic Fever.**—A case is recorded by White in which acute and transient heart block appeared as the first sign of an acute rheumatic fever. The conduction time between auricle and ventricle showed great delay before the onset of the joint symptoms and returned to normal about six weeks after the block was discovered. In this case the myocardium not only gave the first evidence of the importance of the illness but also showed at least temporary damage while no evidence was found of endocardial or pericardial involvement.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October, LXXIV, No. 4

12 *Fetal and Placental Syphilis. E. D. Plass, Baltimore.—p. 561.
13 Primary Carcinoma of Vulva; Report of Two Cases. A. Stein, New York.—p. 577.
14 *Correction of Obese and Relaxed Abdominal Wall with Especial Reference to Use of Buried Silver Chain. W. W. Babcock, Philadelphia.—p. 596.
15 Uteroscopic Findings; Preliminary Report. Collection of Uterine Scrapings. A. Heineberg, Philadelphia.—p. 612.
16 Examination of Semen with Special Reference to Its Gynecologic Aspects. W. H. Cary, Brooklyn.—p. 615.
17 *Wassermann Reaction in Gynecology. P. F. Williams and J. A. Kolmer, Philadelphia.—p. 638.
18 Chronic Focal Infection of Pelvic Organs and Its Relation to Systemic Disease. F. H. Maier, Philadelphia.—p. 652.
19 Case of Krukenberg's Tumor of Ovaries. C. Foulkrod, Philadelphia.—p. 657.
20 Impacted Tumor of Pelvis with Acute Urinary Obstruction. Pelvic Pneumococcus Abscess. G. E. Shoemaker, Philadelphia.—p. 660.
21 Relation of Convulsions to Pelvic Disease. J. L. Riggles, Washington, D. C.—p. 662.
22 Acute Lymphatic Leukemia; Report of Case. T. S. D. Grasty, Washington, D. C.—p. 669.
23 Troubles of Newborn. J. Epstein, New York.—p. 714.

12. **Fetal and Placental Syphilis.**—The syphilitic placenta, Plass says, is characterized by increased size and weight, abnormal proliferation of the stroma cells and an obliterative endarteritis and endophlebitis. For practical purposes the changes are specific and offer very strong evidence of the presence of fetal syphilis, whereas their absence does not exclude the disease.

14. **Correction of Relaxed Abdominal Wall.**—An especial advantage claimed for the silver chain by Babcock is the fact that it is adapted for any size of defect and that it may be as quickly introduced as a strand of catgut or silk. The terminal link of the chain is tied to the eye of a suitable round-pointed needle by a loop of silk or linen thread, and if the needle has a size equal to that of the chain, the chain slips through the tissues almost as readily as does catgut. As it is threaded through the tissues and not merely laid or tacked in place, it is not readily displaced, and has a fixation and support which is especially desirable.

17. **Wassermann Reaction in Gynecology.**—The Wassermann reactions of 300 gynecologic and obstetric patients were investigated by Williams and Kolmer. The percentage of positive reactions (22.6) corresponds closely with the generally accepted incidence of syphilis in adults. Of particular interest is the relatively high percentage of positive reactions observed in the following conditions: stillbirths, 75 per cent.; rectal diseases, 50 per cent.; amenorrhea, 50 per cent.; habitual abortion, 50 per cent.; pelvic inflammatory disease, 36 per cent.; sterility, 33 per cent.; abortion and miscarriage, 29 per cent.; metrorrhagia, 20 per cent.; myomas of the uterus, 16 per cent.; gonorrheal vaginitis, 10 per cent.; pregnancy, 17 per cent. The authors urge that the high degree of latent syphilis in women should make a routine Wassermann test in gynecologic and obstetric practice as advisable as any other laboratory procedure.

American Journal of Orthopedic Surgery, Boston

October, XIV, No. 10

24 Standardization of Conditions Affecting Posture. H. L. Taylor, New York.—p. 569.
25 Fixation of Sacrum; Report of Cases. E. H. Arnold, New Haven, Conn.—p. 574.
26 Operative Treatment of Residual Paralysis of Poliomyelitis at Children's Hospital, Buffalo. B. Bartow and W. W. Plummer, Buffalo.—p. 594.
27 *Shortening Long Legs and Lengthening Short Legs. New Surgical Procedure. R. T. Taylor, Baltimore.—p. 598.
28 Fatal Hemorrhage in Bone Tuberculosis. Case Report and Necropsy. R. C. Paterson, Saranac Lake, N. Y.—p. 607.

27. **Shortening Long Legs and Lengthening Short Legs.**—The operation of shortening proposed by Taylor consists in the removal of the length of bone determined on, the bone ends being mortised with the upper fragment posterior to offset muscle pull and affording closer approximation. Bone pegs or dowels are driven in from the front, passing through the entire bone. The dowels are made from a tibial graft. The second procedure, or that of lengthening the femur, is more difficult, but can be accomplished with little or no postoperative pain from muscle spasm, even when myotomy and tenotomy are not done, but, Taylor says, it is preferable to divide the adductors, ileotibial band and hamstrings freely to facilitate lengthening after the bone is shaped for mortising. This operation should be done in two sittings four or five days apart. At the first, the tendons and muscles are cut, and the dowels are made from the tibial crest and kept in sterile salt solution on ice. At the second sitting the incision is made in the thigh and the fibers of the vastus separated to the bone as in the shortening operation. With the circular electric saw a linear incision is made in the long axis of the bone on the outer side of the desired length, that is, at least 2 cm. longer than it is desired to lengthen the limb.

With a thin rounded end or guarded end handsaw, a half section is made on the anterior aspect of bone down to the upper end of the longitudinal incision. Similarly, a half section is made on the posterior aspect of the bone up to the longitudinal incision at the lower end. The sickle-shaped, grooved director and retractor acts as a safeguard in these procedures. Next a nickel-plated spatula is passed around the bone on the inner side to protect the vessels, while a small electric drill cuts the cortex at intervals through on the inner side of the bone by passing it from the outside longitudinal incision through the medullary cavity to the cortex beyond. The nickeled spatula will enable the assistant to see when the inner cortex is punctured. With a series of these holes, it is then easy, with a small, thin osteotome, to cause separation of the two halves of the mortise without any splintering or cracking of the bone in an undesired direction.

Prior to operation, from the knee down, the patient has had applied swansdown adhesive traction straps and webbing, is supplied and fixed with double perineal straps on a Bradford bed frame on the operation table. At the bottom of the Bradford bed frame is a windlass attachment for the reception of the webbing traction straps. By means of the key on the windlass the desired degree of traction is made, and with an electric drill holes are now made opposite each other for the dowels in the drawn apart lengthened bone. Two dowels are inserted and hold the bone fragments in perfect apposition, while the soft parts are sutured without drainage, and the cast is applied from the toes up to and over the costal margin as a long spica, the extension straps having been removed. Only one case of lengthening has been done by the author so far, and with no untoward symptoms, showing that the procedure is safe and possible.

American Journal of Physiology, Baltimore

October, XLI, No. 4

29 *Relation of Acid to Gastric Discharge and Duodenal Regurgitation in Dog. W. E. Morse, Chicago.—p. 439.
30 Studies on Bioluminescence. Presence of Luciferin in Luminous Bacteria. E. N. Harvey, Princeton, N. J.—p. 449.
31 Id. Production of Light by Certain Substances in Presence of Oxidases. E. N. Harvey, Princeton, N. J.—p. 454.
32 Corpuscles, Hemoglobin Content and Specific Gravity of Blood During Hibernation in Woodchuck (Marmota Monax). A. T. Rasmussen, Ithaca, N. Y.—p. 464.
33 Diastase in Saliva of Ox. C. C. Palmer, St. Paul, Minn.—p. 483.
34 *Conditions of Activity in Endocrine Glands. Effect of Thyroid Secretion on Pressor Action of Epinephrin. R. L. Levy, Boston.—p. 492.

35 Effects of Epinephrin on Distribution of Blood. Volume Changes and Venous Discharge in Limb. R. G. Hoskins, R. E. L. Gunning and E. L. Berry, Chicago.—p. 513.
36 Effect of Pituitary Extract on Frog's Esophagus. J. A. Waddell, Charlottesville, Va.—p. 529.

29. **Relation of Acid to Motor Function of Stomach.**—The relation of gastric acidity to motility, discharge and duodenal regurgitation was investigated by Morse. The conditions imposed in this research were first, a normal fasting animal stomach; second, fluid injections of constant temperature and quantity but of varying acidities; third, abolishment of inhibiting sympathetic reflexes by pithing the spinal cord. He found that water is discharged from the fasting stomach of anesthetized pithed dogs more rapidly than any percentage of acid. The rate of discharge is decreased with increase of acidity. Duodenal regurgitation, as evident by increase in the contents of the stomach, often occurred at 0.2 per cent. acidity and in nearly all trials occurred at or before 0.3 per cent. acidity was reached. Increase in acidity increases the frequency and amount of regurgitation from the duodenum.

34. **Effect of Thyroid Secretion on Action of Epinephrin.**—When the thyroid has been previously removed, says Levy, cervical sympathetic stimulation or epinephrin injection does not produce an increase in the pressor response to epinephrin. It is therefore justifiable to conclude that (*a*) stimulation of the cervical sympathetic or epinephrin injection induces secretory activity in the thyroid, and (*b*) thyroid secretion renders more excitable the sympathetic structures acted on by epinephrin in raising arterial pressure. Stimulation of the cervical sympathetic causes the thyroid to secrete promptly, since thyroidectomy immediately after stimulation is followed by a progressive augmentation in pressor response similar to that observed when the glands are left in the animal throughout the course of the experiment. Intravenous injection into thyroidectomized cats of a solution of the crystalline, iodin containing compound isolated from the thyroid by Kendall, is followed by an increase in the efficacy of epinephrin as a pressor agent. The effect is demonstrable almost immediately after injection and is of relatively shorter duration than in the stimulation experiments. This substance causes no appreciable alteration in blood pressure or pulse rate. Neither during nor after stimulation of the thyroid through its secretory nerves is there any significant change in blood pressure or pulse rate. After thyroid stimulation, even at the time when epinephrin is more effective as a pressor agent, there is no increase in the augmentation of pulse rate produced by epinephrin injection. This Levy believes indicates a selective action of thyroid secretion in sensitizing sympathetic tissues to the action of epinephrin, since the increase in vascular response is not associated with greater excitability of the augmentors of the heart. In cats whose suprarenals have been previously removed, there can be demonstrated, after thyroid stimulation, an increase in pressor response similar to that seen in unoperated animals. Though there is some evidence in the literature indicating that thyroid secretion acts as a secretory stimulant to the suprarenals, the increased effectiveness of epinephrin as a pressor agent after thyroid stimulation is not dependent on a greater amount of circulating epinephrin.

Annals of Otology, Rhinology and Laryngology, St. Louis

June, XXV, No. 2

37 Bacteriology of So-Called Coccobacillus Fetidus Ozenae (Perez) with Additional Notes on Treatment of Clinical Ozena by Means of Polyvalent Vaccines Made from Same Organism. H. Horn and E. A. Victors, San Francisco.—p. 251.
38 Experience with Suspension Laryngoscopy in Over Two Hundred Cases; Report of Case. J. C. Beck, Chicago.—p. 330.
39 Gram Stain in Making Bacteriologic Diagnosis in Otolaryngology. A. B. Bennett, Washington, D. C.—p. 375.
40 Improved Method for Draining Tympanic Cavity in Purulent Otitis Media. J. Guttman, New York.—p. 389.
41 Sarcoma of Nose; Report of Fatal Case with Metastases in Cervical Glands and in Brain. J. P. Clark, Boston.—p. 392.
42 Disseminated Myelitis as Complication of Acute Mastoid Infection. J. R. Hunt, New York.—p. 407.
43 Bronchoscopic and Esophagoscopic Postulates. C. Jackson, Pittsburgh.—p. 414.
44 Cartilage and Bone in Tonsils. W. E. Grove, Milwaukee, Wis. —p. 417.
45 Air and Rhinitis. W. J. Wurtz, Buffalo.—p. 425.
46 Intubation. U. S. Bird, Tampa, Fla.—p. 434.
47 Complications in Tonsil and Adenoid Work, with Especial Reference to Chronic Suppurative Otitis Media. H. M. Becker, Sunbury, Pa.—p. 439.
48 Importance of Vestibular Mechanism in Neurology. J. R. Hunt, New York.—p. 446.
49 Rôle of Eyes in Equilibration and Orientation. A. Knapp, New York.—p. 453.
50 Suggestion Regarding Rinne Test. R. Sonnenschein, Chicago.—p. 455.
51 Chloroform as General Anesthetic in Nasopharyngeal Surgery. W. H. Nardin, Anderson, S. C.—p. 463.
52 New Mastoid Flap. A. Dighton, Liverpool.—p. 467.
53 Paper Clip in Bronchus Seventeen Years, Removed by Superior Bronchoscopy. E. Beer, New York.—p. 469.

Archives of Internal Medicine, Chicago

October, XVIII, No. 4

54 *Renal Function in Pernicious Anemia. H. A. Christian, Boston. —p. 429.
55 *Autogenous Defibrinated Blood in Treatment of Bronchial Asthma. M. H. Kahn and H. W. Emsheimer, New York.—p. 445.
56 *Albumin and Globulin Content of Human Blood Serum in Health, Syphilis, Pneumonia and Certain Other Infections, with Bearing of Globulin on Wassermann Reaction. A. H. Rowe, Oakland, Calif.—p. 455.
57 *Blood Platelets in Hemophilia. G. R. Minot and R. I. Lee, Boston. —p. 474.
58 *Excretion of Chlorids and Water and Renal Function in Serum Disease. F. M. Rackemann, W. T. Longcope and J. P. Peters, New York.—p. 496.
59 *Influence of Age and Sex on Hemoglobin. C. S. Williamson, Chicago.—p. 505.
60 Autolysis of Nitrogenous Compounds of Blood Serum in General Paralysis and Dementia Praecox. H. D. Singer and W. B. Quantz, Hospital.—p. 529.
61 Ammonium Salts and Abderhalden Test. H. D. Singer and W. B. Quantz, Hospital.—p. 538.
62 *Case of Hematochyluria; Observations on Fat Content of Urine and Pathology of Condition. D. W. Carter, Jr., Boston.—p. 541.
63 *Metabolism Studies in Case of Angioneurotic Edema. T. G. Miller and O. H. P. Pepper, Philadelphia.—p. 551.

54. **Renal Function in Pernicious Anemia.**—The data given by Christian indicates that in a severe anemia renal function, as measured by dietary tests, is disturbed in much the same way as is found in patients with advanced chronic nephritis, but in only one of these patients was there any evidence in the way of symptoms or physical findings of a renal lesion of the nature of chronic nephritis. It seems more probable to Christian that this disturbance in excretion is the result of the anemia, either a nutritional or a toxic disturbance in renal cellular activity. This view is supported by the improvement in renal function with improvement in blood condition and by the absence of fixation in the case in which anemia was very slight and the excretion picture very different from the other cases. Inasmuch as in pernicious anemia the dietary renal test gives a picture similar to that in quite advanced nephritis, Christian states that caution is required in the interpretation of the results of these tests in patients supposed to have nephritis.

55. **Autogenous Defibrinated Blood in Treatment of Bronchial Asthma.**—Inasmuch as bronchial asthma, in the authors' opinion, is due to sensitization by a foreign protein, immunization by injection of the causal protein should be of benefit. Autogenous defibrinated blood, obtained preferably during the attacks of asthma, may serve as antigen for treatment by active immunization. Six successive patients with bronchial asthma, treated by repeated injections of autogenous defibrinated blood, have shown definite improvement as indicated by diminution in frequency and severity of attacks, gain in weight, increased ability to work and improved subjective symptoms. In each case phlebotomy was performed by venepuncture, with a sterile needle. From 20 to 30 c.c. of blood were withdrawn and received in a sterile 1-ounce flask containing a number of glass beads. The contents were agitated for from five to seven minutes to separate the fibrin. The defibrinated blood was then drawn into a 30 c.c. syringe and immediately injected subcutaneously into the loin of the patient. Ten injections at intervals of about one week were made in each case. Whenever possible blood was withdrawn during an asthmatic attack, but for obvious reasons this was not always feasible. There were no local or immediate general effects following the injections.

56. **Albumin and Globulin Content of Human Blood Serum.**—A series of normal cases examined by Rowe shows that serum albumin varies between 4.6 and 6.7 per cent., that globulin varies between 1.2 and 2.3 per cent., that total proteins vary between 6.5 and 8.2 per cent., that nonproteins vary between 1.1 and 1.3 per cent., while the percentage of globulin in the total protein varies from 16 to 32 per cent. The average value for albumin was found to be 5.6 per cent., for globulin 1.9 per cent., for total protein 7.5 per cent., for nonprotein 1.24 per cent. and for globulin 25.5 per cent. In syphilis the globulin is definitely increased, while the total protein remains about normal. In pneumonia the globulin is increased more in relation to the total protein than in syphilis, while the total protein is reduced, due, probably, in large measure to a dilution of blood serum by water retention, which occurs in fever. In many chronic septic conditions, in mild infections and typhoid, the total protein is not decreased, as it is in pneumonia. Globulin seems definitely increased in all infections, except in acute tonsillitis, typhoid, and in certain mild infections, such as chronic bronchitis. The marked dilution of serum which occurs with anasarca is shown in two cases of acute infection associated with acute nephritis, which were investigated. The evidence presented shows that the Wassermann reaction is not due to a quantitative increase in the serum globulins.

57. **Blood Platelets in Hemophilia.**—The blood platelets from two typical cases of hemophilia were studied by Minot and Lee. They present the theory that the active coagulating principle of the tissue juice is derived in part, if not wholly, from the blood platelets. As evidence on this point they present the fact that in hemophilia with a normal number of abnormally resistant platelets there is a very abnormal coagulation time, but a normal bleeding time. In purpura hemorrhagica these conditions are just the opposite. The normal number of platelets, though few in number, are sufficient to form a little thrombin and clot fibrinogen in essentially normal time. The value of an excess of platelets seems to be to furnish the active coagulating principle of the tissue juice. On one of the hemophilic patients transfusion was performed with 600 c.c. of normal blood. The coagulation time before transfusion was from sixty to 120 minutes. After transfusion it was seven minutes. A gradual lengthening of the coagulation time occurred for three days, when it was again sixty minutes. Since about three days is generally assumed to be the length of life of the blood platelet, the actual clinical findings seem to corroborate the findings in vitro. Minot and Lee conclude that in hemophilia they have an hereditary defect in the blood platelets. This defect consists of a slow availability of the platelets for the purposes of coagulation.

58. **Excretion of Chlorids and Water and Renal Function in Serum Disease.**—Ten cases of serum disease were studied by the authors. These studies show very definitely that during serum disease there is often a marked but transient retention of chlorids and of water, associated frequently with slight albuminuria and cylindruria and occasionally with impairment of the excretion of phenolsulphonephthalein. In five of the ten cases there was obvious edema with gain in weight. In the other cases there was no edema and no gain in weight. In the first group it is probable, since the plasma chlorids were below normal, that some disturbance occurred primarily in the tissues during the intoxication, which caused a retention of salt and water in this situation, and was associated with a generalized edema. There may also have been some functional impairment in the excretory action of the kidneys. In the second group, in which the plasma chlorids were high, the disturbance consisted principally in the impaired elimination of chlorids and the inability to concentrate these organic salts in the urine. In the two cases in this group edema was not observed.

59. **Influence of Age and Sex on Hemoglobin.**—The amount of hemoglobin in the blood of normal persons varies so greatly at different ages that in determining whether a given blood contains more or less hemoglobin than normal, Williamson says it is imperative to consider the age. These variations are greatest from birth to 16 years of age. Between the ages of 16 and 60 there is a marked difference between the two sexes, this difference growing less after 60 years. In view of these facts, it is evident that hemoglobinometers should be standardized in absolute terms, most conveniently in grams of hemoglobin per 100 c.c. of blood. Whether or not a given blood contains a greater or less amount of hemoglobin than the normal can be determined only by a comparison of the absolute value obtained by a hemoglobinometer thus standardized.

62. **Hematochyluria.**—In the case of chyluria reported by Carter the fat content of the urine varied markedly with the fat content of ingested food. On a fat-poor diet it averaged 0.35 per cent. and on the house diet it rose from 1 to 1.4 per cent. With diet containing a daily average of 66.39 gm. of fat the average daily output of fat in the urine was 6.45 gm. The amount of fat in the urine, however, did not increase in direct proportion to the amount of ingested fat. In some cases, Carter says, chyle escapes directly into the bladder or ureter through a fistulous opening; in other cases the chyle finds its way into the urine within the kidney. In some cases the fluid entering the bladder is true chyle, in others it is lymph.

63. **Metabolism Studies of Angioneurotic Edema.**—According to Miller and Pepper the attacks of swelling in an individual with an obscure type of angioneurotic edema are associated with a retention of nitrogen, which is greater than appears in intervening periods. The excretion of acid bodies is not altered during these attacks. A disturbance of the sodium chlorid metabolism is evidenced by a reduced elimination during the three or four days preceding the maximum swelling and by a corresponding excess of excretion afterward. The convulsions from which the patient suffers are not associated with a nitrogen balance which is significantly different from that of normal periods, and there is no coincident change in the acid, ammonia, or sodium chlorid excretion. A low chlorid intake appears to have a beneficial effect on the attacks of edema, but does not influence the convulsions.

California State Journal of Medicine, San Francisco

October, XVI, No. 10

64 Infection Psychoses and Symptom Picture of Mental Confusion. A. W. Hoisholt and W. T. Harrison, Napa.—p. 392.
65 Selected Points in Gastro-Intestinal Diagnosis. C. W. Lippman, San Francisco.—p. 399.
66 Septic Teeth. J. S. Marshall, U. S. Army.—p. 405. To be continued.
67 Rocky Mountain Spotted Fever; Its Prevalence and Distribution in Modoc and Lassen Counties, California. F. L. Kelly, Berkeley, —p. 407.
68 Consideration of Rectal and Colonic Disease in Life Insurance Examinations. A. J. Zobel, San Francisco.—p. 410.
69 Resumé of Epidemiologic Investigations of Epidemics of Poliomyelitis with Reference to Contagiousness. J. C. Geiger and F. L. Kelly, Berkeley.—p. 413.
70 Federal Supervision and Licensure of Clinical Laboratories Under Postal Regulations — Public Health Measure. F. I. Lackenbach, San Francisco.—p. 415.

Illinois Medical Journal, Chicago

October, XXX, No. 4

71 Obligation of State to Growing Child. C. J. Whalen.—p. 225.
72 Use of Clean, Raw Cow's Milk in Feeding of Infants. G. H. Campbell, Chicago.—p. 229.
73 Convalescent Hospitals — Their Economic Value. J. A. Robison, Chicago.—p. 233.
74 Public Health Legislation — Recent and Contemplated. C. St. C. Drake, Springfield.—p. 235.
75 Health Department Under Commission Form of Government. F. C. Vandervort, Bloomington.—p. 240.
76 Classification of Medical Institutions and Its Effects on Medical Education and Medical Profession of America. B. H. Breakstone, Chicago.—p. 243.
77 Epidemic of Typhoid Due to Use of Polluted Water Supply at 1915 Assembly of Old Salem Chautauqua. H. F. Ferguson, Urbana.—p. 247.
78 Importance of Bacillus Carriers in Propagation of Diphtheria. G. F. Ruediger, La Salle.—p. 255.
79 Results After Four Years Use of Artificial Pneumothorax. L. S. Peters, Albuquerque.—p. 258.
80 Poliomyelitis. C. S. Nelson, Springfield.—p. 260.
81 Case of Infantile Paralysis. C. F. Hewins, Loda.—p. 264.
82 Therapeutic Starvation in Infancy. J. Brennemann, Chicago.—p. 265.

83 Efficiency in Medical Practice. C. M. Jack, Decatur.—p. 271.
84 Experimental Reproduction of Accessory Sinus Suppuration. M. F. Arbuckle, East St. Louis.—p. 274.
85 Roentgen Ray Value in Localization of Foreign Bodies in Eyeball. H. P. Wells, Chicago.—p. 274.
86 Pneumococcal Corneal Ulcers and Their Treatment. W. H. Peck, Chicago.—p. 280.
87 Two Years' Clinical Research on Trachoma Question in Southern Illinois. E. E. Edmondson, Mt. Vernon.—p. 283.
88 Psychotherapy. H. W. Long, Elmwood.—p. 286.

Journal of Bacteriology, Baltimore

July, I, No. 4

89 Biologic Variations of Bacteria. Induced Variations in Cultural Characters of Bacillus Coli. M. R. Smirnow, New Haven, Conn. —p. 385.
90 *New Culture Medium for Tubercle Bacillus. W. W. Williams and W. Burdick, Denver.—p. 411.
91 Bacillus Abortus (Bang) as Etiologic Factor in Infectious Abortion in Swine. E. S. Good and W. V. Smith, Lexington, Ky.—p. 415.
92 Relation of Protozoa to Certain Groups of Soil Bacteria. T. L. Hills, Madison, Wis.—p. 423.
93 Study of Boas-Oppler Bacillus. P. G. Heinemann and E. E. Ecker, Chicago.—p. 435.
94 Bacteriology of Silage. J. M. Sherman, Madison, Wis.—p. 445.

90. **Culture Medium for Tubercle Bacillus.**—Preparation of the medium used by Williams and Burdick: 1. Egg-white solution; dilute egg-white with ten parts of distilled water and shake thoroughly. To clear it, pass through a thin layer of cotton and then heat to 100 C. to hasten precipitation. Filter through paper. 2. Egg-yolk solution; dilute yolks with ten parts of water and stir well. Clarify by adding normal sodium hydroxid. Complete solution of the yolk is not desirable. The emulsion should be slightly turbid. To attain the proper degree of turbidity, 1 c.c. of normal sodium hydroxid is usually added to each 100 c.c. of the emulsion. The solution is heated to 100 C. and filtered. 3. Meat infusion; 500 gm. of finely chopped lean veal are covered with 1 liter of water containing 15 per cent. of glycerin, allowed to infuse for twenty-four hours and filtered; 5 gm. of sodium chlorid are added, and the infusion heated to boiling. It is again filtered and then rendered plus 1 per cent. alkaline. Place 300 c.c. of the 10 per cent. egg-white solution in a liter flask; 300 c.c. of the 10 per cent. egg-yolk solution in another flask; and 400 c.c. of the meat infusion, to which is added 15 gm. of powdered agar-agar, in a third flask. Sterilize in autoclave at 15 pounds pressure for fifteen minutes. While hot, 1 c.c. of a 1 per cent. alcoholic solution of gentian violet is added to the broth agar. The contents of this flask are now poured into that containing the egg-white and then the egg-yolk is added. The whole is poured back and forth from this flask to another so as to insure thorough mixing and then it is tubed and slanted. The tubes are left in their slanted position for about seventy-two hours at room temperature until the contents are well set. The cotton plugs are then trimmed and flamed and the tubes sealed with corks. This medium presents the same smooth inoculating surface as ordinary agar slants, contains as much moisture, is quickly made and is rendered absolutely sterile.

Journal of Immunology, Baltimore

August, I, No. 4

95 Studies on Antibacterial Serums. Standardization of Antimeningitis Serum. A. P. Hitchens and G. H. Robinson, Glenolden, Pa. —p. 345.
96 Id. Stable Bacterial Antigen with Special Reference to Meningococci. A. P. Hitchens and G. Hansen, Glenolden, Pa.—p. 355.
97 Elective Localization of Streptococcus from Case of Pulpitis, Dental Neuritis and Myositis. E. C. Rosenow, Rochester, Minn.—p. 363.
98 Phagocytosis of Erythrocytes During Stage of Hyperleukocytosis Following Injection of Typhoid Bacilli. T. G. Miller and O. H. P. Pepper. Philadelphia.—p. 383.
99 *Convalescent Typhoid Serum in Treatment of Typhoid. A. L. Garbat, New York.—p. 387.
100 Complement Fixation Test After Prophylactic Typhoid Immunization and Comparison with Agglutination Test. A. L. Garbat, New York.—p. 391.
101 Evidence as to Independence of Hemolysins and Precipitins. R. C. Johnson, Chicago.—p. 397.
102 Endothelial Opsonins. W. H. Manwaring and H. C. Coe, San Francisco.—p. 401.
103 *Relation of Typhoidin Skin Reaction to Immunity in Typhoid. Anaphylactic Skin Reactions in Relation to Immunity. J. A. Kolmer and J. H. Berge, Jr., Philadelphia.—p. 409.
104 *Relation of Luetin Skin Reaction to Immunity in Syphilis (Including Treponemicidal Action of Human Serum in Syphilis). J. A. Kolmer and S. Broadwell, Jr., Philadelphia.—p. 429.
105 *Relation of Diphtherin Skin Reaction to Immunity in Diphtheria. J. A. Kolmer, Philadelphia.—p. 443.
106 Antigenic Properties of Tubercle Wax. B. Lucke, Philadelphia. —p. 457.

99. **Convalescent Typhoid Serum.**—The serum from convalescent typhoid patients has been employed by Garbat with distinct benefit in three very severe acute typhoid cases.

103. **Typhoidin Skin Reaction.**—While the bactericidal power of human serums over *Bacillus typhosus* is increased in a proportion of persons following typhoid or active immunization with a vaccine, Kolmer and Berge claim that there is no direct relation between the typhoidin skin reaction and the results of bactericidal tests in vitro. Agglutinins or complement fixing antibodies or both are present in the blood serum of the majority of persons reacting positively in the skin test and particularly among those actively immunized, but there is no definite relation between these as either may be in evidence in the absence of the other. Powdered typhoidin and its control produce severe reactions when injected intracutaneously in doses of 0.0005 to 0.001 mg.; these reactions, and particularly that produced by the control, render the reading and interpretation of the test quite difficult and subject to much error. Cutaneous anaphylaxis to typhoidin was found apparently to persist for a longer time among those who have had typhoid than among those actively immunized with the vaccine. Among the latter the highest percentage of reactions was found during the first year following immunization. While the typhoidin reaction indicates sensitization to typhoid protein, there is not yet sufficient evidence to warrant its acceptance as an index of immunity in typhoid.

104. **Luetin Skin Reaction.**—The anaphylactic luetin test according to Kolmer and Broadwell cannot be regarded as an index of resistance to treponema pallidum; these experiments and the failure of others to produce active immunity in animals to syphilis indicate that a lytic type of immunity is absent in syphilis or, at least, that it plays but a minor rôle in this infection.

105. **Diphtherin Skin Reaction.**—The results of this study indicate that hypersensitiveness to diphtheria protein cannot be taken as an index to immunity to diphtheria and that the anaphylactic state bears no constant nor direct relation to the presence or absence of such antibodies as may be detected by experiments in vitro.

Military Surgeon, Washington, D. C.

October, XXXIX, No. 4

107 Naval Aviation Personnel. G. P. Cottle, U. S. Navy.—p. 353.
108 Experiences with Combined Vaccines in Present War, with Special References to Tetravaccine Typhoid, Paratyphoid A and B, and Cholera. R. W. Mendelson.—p. 361.
109 Etiology and Prevention of Beriberi. E. B. Vedder, U. S. Army. —p. 368.
110 Use of Habit Forming Drugs by Enlisted Men. E. King, U. S. Army.—p. 380.
111 Penetrating Gunshot Wounds of Chest. W. T. Fitzsimons.—p. 385.
112 Hospital Train De Luxe. P. L. Jones, U. S. Army.—p. 389.
113 Proposed Motor Ambulance Company. M. Ashford, U. S. Army. —p. 392.
114 Duties of Medical Supply Officers and Their Methods. H. I. Raymond and E. P. Wolfe, U. S. Army.—p. 398.

New Jersey Medical Society Journal, Orange

October, XIII, No. 10

115 *Classification and Treatment of Nephritides. M. H. Fischer, Cincinnati.—p. 555.
116 Dawn of Better Day for the Tuberculous. R. C. Newton, Montclair.—p. 580.

115. Abstracted in The Journal, July 29, p. 391.

Ophthalmic Record, Chicago

October, XXV, No. 10

117 Glaucoma Simplex and "Mule Shoe" Drain. A. E. Prince, Springfield.—p. 487.
118 Certain Eye and Ear Affections in Association with Head Injuries. H. C. Naffziger, San Francisco.—p. 502.
119 Postoperative Hemorrhage in Hemophiliac Following Enucleation of Eyeball. F. W. Alter, Toledo.—p. 512.

120 Parinaud's Conjunctivitis; Report of Case. E. S. Connell, Kansas City, Mo.—p. 516.
121 New Anterior Capsule Forceps. D. T. Vail, Cincinnati.—p. 520.
122 Rectal (Oil-Ether) Anesthesia in Ophthalmic Operations. T. L. Dagg, Chicago.—p. 522.
123 Case of Congenital Coloboma of Temporal Edge of Lens and Perinuclear Cataract. L. M. Francis, Buffalo.—p. 526.
124 Simple and Rapid Operation for Removal of Lacrymal Sac. F. H. Verhoeff, Boston.—p. 528.

Southern Medical Journal, Birmingham, Ala.

October, IX, No. 10

125 Roentgen Ray Treatment of Exophthalmic Goiter. C. A. Simpson, Washington, D. C.—p. 857.
126 *Scurvy vs. Rheumatism. D. P. West, New Orleans.—p. 861.
127 *Autogenous Bacterial Vaccines in Treatment of Bronchitis. J. E. Robinson and D. W. Queen, Temple, Texas.—p. 864.
128 Border-Line Problems in Digestive Pathology Involving Both Medical and Surgical Treatment. T. R. Brown, Baltimore.—p. 867.
129 *Syphilis in Its Relation to Public Health. L. Thompson, Hot Springs, Ark.—p. 879.
130 Some Public Health Aspects of Cancer Problem. C. E. Lakeman, New York.—p. 883.
131 Symptoms and Surgical Treatment of Certain Conditions Produced by Presence of Adventitious Bands and Membranes Within Abdominal Cavity; Report of Ten Cases. R. B. Williams, Washington, D. C.—p. 895.
132 Significance of Ammonia Coefficient in Obstetric Work. J. R. Garber, Birmingham.—p. 900.
133 Local Anesthesia in Abdominal Surgery. L. W. Grove, Tuscaloosa.—p. 905.
134 Case of Intestinal Stasis and Its Treatment. J. T. Nix, Jr., New Orleans.—p. 908.
135 Relation of Prostate and Seminal Vesicles to Arthritis; Report of Cases. C. W. Shropshire and C. Watterston, Birmingham.—p. 911.
136 Nervomuscular Mechanism of Eyes. G. C. Savage, Nashville, Tenn.—p. 915.
137 Foreign Bodies in Esophagus and Air Passages; Report of Cases. J. L. Burgess, Waco, Texas.—p. 924.
138 Endoscopy in Ambulatory Clinic. A. I. Weil, New Orleans.—p. 928.
139 Dominant Mendelian Inheritance, Principal Factor in Occurrence of Cataract and Ectopia Lentis; Report of Cases. L. H. Buxton, Oklahoma City.—p. 933.

126. Abstracted in The Journal, Dec. 11, 1915, p. 2119.

127. **Autogenous Bacterial Vaccines in Treatment of Bronchitis.**—The authors' experience is based on the preparation of 300 autogenous vaccines for pulmonary infections. Of these, practically all were administered in part or entirely by other physicians under direction. Of these, Robinson and Queen have complete reports on thirty. Twenty-two were reported cured after one year. Eight were not benefited or suffered relapse. Of the forty cases with partial report, thirty-six reported an improved condition and four reported no change.

129. Abstracted in The Journal, Dec. 11, 1915, p. 2118.

United States Naval Medical Bulletin, Washington, D. C.

October, X, No. 4

140 Studies of Industrial Accidents Which Occurred in Navy Yard at Washington, D. C. W. A. Bloedorn, U. S. Navy.—p. 585.
141 Intoxication by Detonation and Explosion Gases Aboard Ship. K. Ohnesorg, U. S. Navy.—p. 625.
142 Flat-Foot and Its Measurements. M. Clements, U. S. Navy.—p. 634.
143 Prevention of Malaria in Field. F. X. Koltes, U. S. Navy.—p. 640.
144 Wassermann Survey on Five Hundred Apprentice Seamen. C. B. Munger, U. S. Navy.—p. 642.
145 Malingering in Mental Disease. R. Sheehan, U. S. Navy.—p. 646.
146 Reorganization of Hospital Corps. W. E. Eaton, U. S. Navy.—p. 654.
147 Relation of Septic Mouth to Arthritis. F. L. Morey, U. S. Navy. p. 658.
148 Climatic Bubo. C. E. Treibly, U. S. Navy.—p. 661.
149 Dental Fountain for Crew's Use. W. M. Kerr, U. S. Navy.—p. 666.
150 Case of Gangosa. L. W. Johnson and C. W. Depping, U. S. Navy.—p. 667.
151 Chronic Lymphatic Leukemia with Acute Exacerbation and Fatal Termination. C. H. Weaver, U. S. Navy.—p. 668.
152 Acute Intestinal Obstruction Due to Volvulus. C. I. Wood, U. S. Navy.—p. 673.
153 Splenitis; Report of Case. T. Wilson, U. S. Navy.—p. 674.
154 Some Unusual Cases of Syphilis. M. B. Hiden, U. S. Navy.—p. 676.
155 Gunshot Wound of Kidney; Report of Case. C. W. Depping, U. S. Navy.—p. 679.
156 Vesical Calculus; Report of Case. T. W. Reed, U. S. Navy.—p. 680.
157 Case of Gasoline Poisoning. O. C. Foote, U. S. Navy.—p. 681.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 30, II, No. 2909

1 *Radical Abdominal Operation for Carcinoma of Cervix Uteri. C. Berkeley and V. Bonney.—p. 445.
2 Use of Insecticides (Cysticine) Against Lice. A. Bacot.—p. 447.
3 Fatal Case of Gastro-Enteritis Due to Bacillus Aertrycke vel Suipestifer. E. J. McWeeney.—p. 451.
4 Perchlorid of Mercury Poisoning by Absorption from Vagina. A. F. W. Millar.—p. 453.
5 *Case of Puerperal Septicemia Treated by Autogenous Vaccine, with Recovery. W. Grier.—p. 454.
6 New Solid Medium for Isolation of Cholera Vibrio. H. G. Gibson.—p. 454.
7 Value of Hexamine in Aural Suppuration and in Meningitis. D. Guthrie.—p. 455.

1. **Operation for Carcinoma of Cervix Uteri.**—Between April, 1907, and September, 1911, Berkeley and Bonney operated on 100 cases of carcinoma of the cervix uteri by the radical abdominal method. The operation consists in the removal of the uterus with its cervix contained in a bag formed of the upper half or two thirds of the vagina, closed by a clamp designed for the purpose. Together with the uterus and upper portion of the vagina are removed the ovaries, Fallopian tubes, and broad ligaments, the parametric and paravaginal tissue down to the upper surface of the levator ani, and the glands and cellular tissue occupying the obturator fossae and investing the external and internal iliac arteries and veins. To effect this wide clearance the ureters are entirely isolated throughout the anterior two thirds of their pelvic course. In certain cases part of one ureter has been deliberately resected, and the upper end implanted in the bladder. Similarly on occasion a portion of the bladder has been excised in cases in which separation of that viscus from the cervix was impossible by reason of advanced growth. In cases in which the glands about the external iliac artery and vein are obviously carcinomatous Berkeley and Bonney extend the dissection up to the bifurcation of the aorta.

Twenty died of the operation; 32 died of recurrent growth; 2 died of other diseases; 7 were lost sight of and 39 cured. In every case the regional glands removed at the operation were microscopically examined, and in 35 were found to be malignant. These 35 cases show a much higher operative mortality and a much greater percentage of recurrences than do the 65 cases in which the regional glands were not malignant, but nevertheless a certain proportion of them are cured. Nine died of the operation, glands were carcinomatous, 11 glands not carcinomatous; 16 died of recurrent growth, glands carcinomatous, 16 glands not carcinomatous; 1 died of other disease, glands carcinomatous, 1 gland not carcinomatous; 2 were lost sight of, glands carcinomatous, 5 glands not carcinomatous; 7 cured, glands carcinomatous and 32 glands not carcinomatous. The total carcinomatous glands were 35 and the total glands not carcinomatous were 65. Death from recurrence occurred in 32 cases, as follows: 4 cases under a year; 11 between 1 and 1½ years; 5 between 1½ and 2 years; 5 between 2 and 2½ years; 1 between 3 and 3½ years; 5 between 3½ and 4 years, and 1 between 4 and 4½ years. Two patients died of disease other than carcinoma. The first had pulmonary tuberculosis at the time she was operated on, which proved fatal a year afterward. The second died of acute urinary sepsis following an operation to close a vesical fistula a year after the radical extirpation of which it was the sequel. Neither of these patients had any sign of recurrent growth.

5. **Puerperal Septicemia Treated with Autogenous Vaccine.**—The vaccine was prepared from the patient's own blood, the culture being a pure growth of a short chained diplostreptococcus. Of this 25 million organisms were injected on the sixteenth day of her illness, and on the eighteenth day 50 million. Every third day thereafter she was given 50 million until near the end of her illness, when she had 75 million.

Journal of Tropical Medicine and Hygiene, London

September 15, XIX, No. 18

8 Equine and Bovine Streptococci as Causal Agents of Human Infections. A. J. Chalmers and A. Marshall.—p. 213. To be continued.

Lancet, London

September 30, II, No. 4857

9 *Natural History of Septic Wounds. K. Goadby.—p. 585.
10 After-Care of Persons Suffering from Pulmonary Tuberculosis. P. C. Varrier-Jones.—p. 596.
11 Clinical and Radiologic Diagnosis of Intrathoracic Tuberculosis in Children of School Age. W. Overend and C. Riviere.—p. 598.
12 Enucleation of Tonsils. W. G. Howarth.—p. 600.
13 Treatment of Cloth by Antiseptic Substances (Pyxol) in Relation to Wound Infections. M. Davies.—p. 603.

9. **Natural History of Septic Wounds.**—As a result of his investigations Goadby suggests the following routine treatment of septic wounds. Polyvalent vaccines should be prepared from strains of organisms isolated from the infected wounds, consisting of (1) streptococci (aerobic and anaerobic varieties), sensitized with antistreptococcal serum; (2) *B. proteus;* (3) *B. lactis-aerogenes,* and (4) *B. coli.* A mixed vaccine of sensitized polyvalent streptococcus 5,000,000, with *B. proteus* 10,000,000 should be given to all septic cases when admitted, pending the bacteriologic report. In cases of gas gangrene streptococcal vaccine combined with *B. proteus* and *B. lactis-aerogenes* should be used in strengths of 10,000,000 each. The inoculations as indicated by the bacteriologic examination should be repeated on the third day, and the dose raised to 10,000,000 streptococcus with 20,000,000 of the appropriate bacilli. Meanwhile, autogenous vaccine may, if necessary, be prepared for special cases when desirable; otherwise the appropriate polyvalent vaccine may be continued as determined by the bacteriologic indications. Goadby emphasizes the fact that methods which are employed to increase physiologic activity must be in logical accord, and that all proper physiologic conditions demanded by the nature of the process must be maintained. To omit such elementary principles implies a complete ignorance of the therapeutic use and action of bacterial antigens.

Medical Journal of Australia, Sydney

September 2, II, No. 10

14 Notes from No. 2 Casualty Clearing Station. H. S. Stacy.—p. 175.
15 Transmission of Australian Dengue by Mosquito Stegomyia Fasciata. J. B. Cleland, B. Bradley and W. McDonald.—p. 179. To be continued.

September 9, No. 11

16 Fibrosis Uteri. A. N. McArthur.—p. 199.
17 Transmission of Australian Dengue by Mosquito Stegomyia Fasciata. J. B. Cleland, B. Bradley and W. McDonald.—p. 200.
18 Case of Carcinoma of Male Breast. H. Rischbieth.—p. 205.

Sei-I-Kwai Medical Journal, Tokyo

September, XXXV, No. 9

19 Diabetes Mellitus Among Japanese. S. Iwai.—p. 49. To be continued.

Bulletin de l'Académie de Médecine, Paris

September 12, LXXVI, No. 36, pp. 183-201

20 Deafness from Explosion in Vicinity. (Les surdités par obusite.) I. Ranjard.—p. 195.
21 Slow Interrupters of Advantage in Radioscopy. (Il y a interêt à se servir des interrupteurs lents en radioscopie.) A. Zimmern. —p. 198.
22 Historical Sketch of Malaria in France and Need to Enforce Measures Against Mosquitoes. (Sur la nécessité de donner aux autorités sanitaires, en France, le droit de rechercher et de détruire les larves de moustiques.) R. Wurtz and others—p. 189.

Lyon Chirurgical

July-August, XIII, No. 4, pp. 537-684

23 *Extraction of Projectiles. (De l'extraction primitive des projectiles de guerre.) L. Sencert and J. Le Grand.—p. 537; (Extractions de corps étrangers au compas de Hirtz dans une ambulance fixe de première ligne.) B. Desplas and D. Chevalier.—p. 565; (Localisation orthoradioscopique des projectiles.) J. Coste.—p. 572; (De l'extraction de quelques projectiles: cerveau, etc.) Goullioud.—p. 583; (Traitement des corps étrangers du poumon.) L. Desgouttes and E. Perrin.—p. 590; (Extraction d'une balle mobile dans la plèvre gauche après établissement d'un pneumothorax artificiel.) Goullioud and Arcelin.—p. 612; (Note sur une extraction tardive de projectile dans la région du genou.) J. Rhenter.—p. 645.
24 *Arthrotomy for Shell Wounds of the Knee. (Indications et valeur de l'arthrotomie dans les plaies du genou par éclat d'obus.) L. Tavernier.—p. 616.
25 *Early Treatment of Wounds of the Knee Without Shattering of Bone. (Traitement précoce des plaies du genou, à l'exception des éclatements osseux.) J. Bosquette.—p. 633.
26 Biologic Research on War Wounds. (Les phénomènes de protéolyse dans les plaies de guerre.) A. Policard.—p. 647.
27 *Research on Early Secondary Suture of Wounds. B. Desplas.—p. 660.
28 Tardy Tetanus. Jullien.—p. 666.
29 *Operative Sterilization, without Antiseptics, of Recently Clinically Infected Wounds. R. Leriche.—p. 676.

23. **Immediate Extraction of Projectiles.**—Sencert and Le Grand have become convinced from twenty months of experience in an ambulance at the front that projectiles should be removed without delay in the well equipped ambulances at the front. The extraction of the projectiles is the complement of the mechanical clearing out of the wound. It is often indispensable and is always useful. The only exceptions are very small projectiles buried deep in muscle or bone tissue and not causing any trouble; also projectiles in the brain that cannot be reached from the wound, and likewise —at least for the moment—intrapulmonary projectiles. All others should be removed at once; they can be extracted then under local anesthesia, as a rule, while general anesthesia is required at a later date. They operate with the aid of a roentgenologist, but insist on seeing for themselves the screen picture unless the foreign body is reached at once from the roentgenologist's directions. If not, the electric light is turned off and the Roentgen rays turned on for the surgeon to see for himself the foreign body. They say that to trust to the directions of another is like a blind man's carrying a paralytic—the combination is not as efficient as one normal man. By thus alternating electric light and the Roentgen light they were successful in locating and removing at the first inspection of the wound all the projectiles in 257 cases of grave wounds.

23. **Improved Technic for Localization of Projectiles in the Tissues.**—Coste extols the advantages of records obtained by Roentgen orthodiascopy from below and also from the side, recording on a sheet of paper the findings with both, centering the shadow cast by the projectile. He describes a number of technical points with illustrations and expatiates on the special advantages of this method.

23. **Removal of Projectiles in the Lungs.**—Desgouttes and Perrin have been surprised at the facility of operative extraction of a projectile in lung tissue causing pain and dyspnea. They proceed by preliminary fixation of the lung, when it is free, if not, by systematically inducing pneumothorax, their experience having confirmed the harmlessness of pneumothorax when it develops slowly. Fifteen typical cases are described in detail, with radiographs of some.

24-25. **Shell Wounds of Knee.**—Tavernier says that the abstentionist theories of the early months had more disastrous effects on shell wounds of the knee than in any other class of wounds. Better counsels have prevailed since, and he describes a series of eleven cases in which the knee healed aseptically in eight cases. The knee is firm and in good position, the only limitation being more or less inability to bend the knee. Only one patient was left with nearly complete ankylosis; this was one of the two cases with severe infection. The technic followed and the details of the cases are described in full.

Bosquette declares that when the bone has not been shattered or the epiphysis extensively fissured, early suitable intervention wards off purulent arthritis with its sequels. Lesions of the culdesac below the triceps may heal after mere arthrotomy of this culdesac. Lesions of the interlinear region require arthrotomy in the shape of a capital H. This alone permits the adequate toilet of the interlinear region. Wounds involving merely the edges of the culdesacs, with or without injury of the bone, require simple gauze wick drainage of the breach in the joint, and secondary arthrotomy only in case of necessity.

27. **Secondary Suture of Wounds.**—The nine cases of severe wounds here described show that whenever a wound is mechanically thoroughly cleared out, it can be sutured with

confidence. It seems to be immaterial for this what method of treatment has been applied. The mechanical clearing out is the main thing.

29. **Operative Sterilization of Wounds.**—Leriche asserts that it is almost invariably possible to arrest suppuration of less than a month's duration by surgical removal of everything pathologic or of lessened vitality, leaving only healthy tissues. Some removable local cause can always be found for the suppuration. Blue pus disappears under the influence of fifteen minutes of heliotherapy or a little longer application of superheated air.

Therapeutische Monatshefte, Berlin

September, XXX, No. 9, pp. 409-464

30 *Modern Methods of Treating Syphilis; Technic of Different Clinicians. (Die moderne Salvarsan-Syphilistherapie der Autoren.) O. Naegeli.—p. 409. To be continued.
31 *Amaurosis Following Administration of Optochin; Three Cases. (Drei Fälle von Optochinamaurose.) A. Adler.—p. 420.
32 Advantages of Desiccated Potato in the Diet of the Sick. (Ueber die Verwendung der Trockenkartoffel zur menschlichen Nahrung.) Hochhaus.—p. 424.
33 *Case of Chronic Trional Poisoning. (Fall von chronischer Trionalvergiftung.) C. von Noorden.—p. 426.
34 Experiences with Substitute for Cod Liver Oil. Riehn.—p. 429.
35 Yeast in Infant Feeding. (Zur praktischen Verwendbarkeit der Hefe im frühesten Kindesalter.) Riehn.—p. 429.
36 *Significance and Treatment of Infants' Vomiting. (Beiträge zur Bedeutung und Behandlung des Erbrechens im frühen Kindesalter.) H. Nothmann.—p. 435.

30. **Modern Treatment of Syphilis.**—This long article by Naegeli analyzes the literature on the treatment of syphilis with salvarsan, bringing it down to 1913 in this instalment, comparing the technic and results of the different writers. Naegeli has been the assistant of Professor Jadassohn at Bern, and states that Jadassohn's method of treating children with inherited syphilis has proved very satisfactory. This is the intravenous injection of 0.005 gm. salvarsan per kilogram of body weight once a week. He has lately been using neosalvarsan in a concentrated solution; this permits a larger dose for older children than is possible with salvarsan. The drugs can be injected into a muscle, computing the dose from the body weight and proportional to the adult dose. He has had good experiences with wrapping infants in mercurialized gauze. They are given mercuric chlorid at the same time and the older children get calomel injected into a muscle. All the dosage is regulated by the Wassermann reaction. Baginski thinks that intravenous treatment is too dangerous in children. He had good results from intramuscular injections in 115 cases. He ascribes the same importance to the Wassermann reaction in children as in adults, no more and no less. Attempts to give the salvarsan to infants in the milk of the mother or of goats were soon abandoned, mainly on account of the uncertainty of the dosage. The same fate befell Meirowski's method of treating with serum from horses treated with salvarsan. A vein in the head or neck was occasionally utilized for the intravenous injection in some infants.

31. **Optochin Amaurosis.**—Adler warns that even the therapeutic dose of optochin is liable to seriously impair vision. In the first of the three cases he reports the amaurosis lasted for twelve hours but then subsided, leaving permanent severe changes in the retina. In the second case the impairment of vision kept up for several months and vision is not completely normal even nearly a year later. The drug was suspended at the first signs of trouble but the condition grew worse to complete amaurosis the following day. These patients were young women. In the third case the patient was a child under 2 and the amaurosis was complete and persisted for a week after suspension of the optochin. In the seven cases on record in which the ophthalmoscopic findings are reported, the findings were closely similar to those in Adler's three cases. They suggest that the amaurosis is a quinin amaurosis. With the latter drug, however, it develops only when large doses are given, while relatively small doses of the optochin have sufficed to bring it on, in one case only two 0.25 gm. doses. The visual disturbances occur in a far larger proportion of the patients using optochin than with quinin. In conclusion he states that he will not feel justified henceforth in using or in recommending optochin until further study of the subject. It may be possible to obtain equally good results with smaller doses or to eliminate from the drug the special constituent which acts on the apparatus of vision.

33. **Chronic Trional Poisoning.**—Von Noorden's patient was a woman of 68 who for twenty years had been taking from 0.75 to 1 gm. trional about twenty times a month, on retiring. An alarming syndrome developed finally, the main features of which were weak heart action, anemia and polyneuritis, following a month of general malaise and weakness. The absence of skin disturbances may have been due to the fact that the patient kept quietly indoors and that heavy curtains prevented the ingress of light—the presence of hematoporphyrin in the blood is a powerful sensitizer to injury from sunlight. In cases of this kind there are usually associated methemoglobinuria and nephritis which this indoors-keeping elderly woman escaped, although the urine was cherry red for a time.

36. **Vomiting in Young Children.**—Nothmann is inclined to explain the vomiting with which any and every infectious disease begins in many children as a manifestation of an actual stomach disturbance—the first local phenomenon from the invading infection. The vomit may contain particles of food which under normal conditions would long since have been digested and passed along. Or the vomit may contain mucus. In certain cases the vomiting seems to be the effect on the vomiting center of the fever or of infectious products. In some infants he has found swollen mesenteric glands responsible for local tenderness and vomiting. The abdomen otherwise seems normal, and the glands generally subside to normal size in a day or two. The lymphoid organs in the abdomen may swell, the same as the lymphoid organs in the throat, with oncoming or installed infection, especially in children with the exudative diathesis.

He warns further that a cough, even a mild cough, may start a susceptible child to vomiting, and thus mislead the physician to assume stomach trouble when the main cause is in the respiratory passages. Here the tendency to vomit can be arrested by reducing the irritation in the throat eliciting the vomiting reflex; a little of some anesthetic will accomplish this. Some children vomit as the sole symptom of an infectious process in the nasopharynx. It would escape attention if it were not for the child's being brought to the physician on account of the vomiting. Children in this group are generally of a neuropathic tendency, inclined to urticaria and other vasomotor disturbances, with the facialis phenomenon. Every new "cold" starts the vomiting anew. Treatment is simple and effectual. The food should be given cooler than usual, solid food should be finely chopped and the diet should be more of a fluid form. In severe cases the throat will have to be anesthetized with codein or the like, even although the throat may not be inflamed. In the hypersensitive neuropathic condition of these children the mere passage of food through the throat elicits the vomiting reflex. Nothmann has witnessed cases of so-called nervous vomiting develop in connection with vomiting from this cause—a pathologic conditional vomiting reflex thus having been evolved. It is sometimes finely differentiated. Some children vomit only at the meal and at the same food as at the time of the primary vomiting. Children who vomit only after one certain meal or one special dish usually belong in this category, and treatment should be by suppressing for a time the cause which brings on the conditional reflex. In many cases one or two weeks of complete change of the taste and composition of the meal in question will break up the tendency to vomit.

Vomiting may also appear as a symptom of disease in the nasopharynx not accompanied by cough. The vomit contains masses of secretions from the diseased nose or throat, the children vomiting when the secretions swallowed reach a certain bulk. By feeding chilled food in spoonfuls the tendency to vomit may be held in check and the children not be further debilitated by loss of their nourishment. If nothing else helps, lavage of the stomach will ward off vomiting for hours and days thereafter. This permits the children to etain their needed food. He rinses out the infant's stomach vith warm Carlsbad or Ems water and waits for fifteen ninutes before giving the food. He adds that lavage of the nfant stomach is so simple when done by a practiced hand nd the benefit therefrom is so great in these cases that he ommends it warmly, to be repeated at need.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 10, XXXVII, No. 73, pp. 1137-1152

37 *Lavage and Local Medication of Spinal Canal in Traumatic Meningitis. (Il lavaggio e l'antisepsi del canale rachideo in un caso di meningite traumatica.) P. Costantini.—p. 1143.

September 14, No. 74, pp. 1153-1168

38 Necessity for Excluding Tuberculosis Suspects from the Active Army. (Gravi problemi nel giudizio di abilita al servizio militare.) E. Villa.—p. 1167.

September 17, No. 75, pp. 1169-1184

39 *Prophylaxis of Abdominal Ptosis. (La profilassi delle enteroptosi occulte.) S. Salaghi.—p. 1172.

37. **Local Medication in Traumatic Meningitis.**—A young nan developed severe meningitis four days after a bicyle ccident with probable fracture of the base of the skull. umbar puncture showed the cerebrospinal fluid under high ressure and turbid. After withdrawal of 100 c.c., 5 c.c. of n isotonic solution of a colloidal silver preparation was njected into the spinal canal. Improvement was evident at nce and a complete cure followed in less than three weeks rom the first signs of trouble. He repeated this local medi-ation daily for five, for three and for two days with inter-nissions of three days. The course was concluded with four laily injections of 3 c.c. of a 3 per cent. solution of phenol nstead of the silver salt. He did not hesitate to withdraw rom 80 to 100 c.c. of the fluid. The head was lowered below he rest of the body as soon as the drug was injected. The erebrospinal fluid showed signs of acute inflammation but acteriologic tests were constantly negative. In Costantini's ighteen other cases of meningitis, meningococci were always ound.

39. **Prophylaxis of Enteroptosis.**—Salaghi remarks that he as found downward displacement of viscera in many patients resenting no outward signs of this tendency to abdominal tosis. The abdomen does not noticeably protrude and does ot sag but it is large and prominent and in a certain number f cases there is digestive disturbance. These digestive dis-urbances increase and become more common as the ptosis ncreases, and a vicious circle is soon set up, leading to ronounced enteroptosis in time with its train of symptoms. The disturbances are generally ascribed to indigestion but hey are mitigated by reclining. Supporting the abdomen lso gives relief. This is tested with one hand raising the bdomen, the other hand on the back. As loss of fat is an mportant factor in the etiology of enteroptosis it is impor-ant to combat this, and while waiting for the abdominal walls to regain their adipose tissue and the walls of the iscera and the sustaining ligaments to regain their tonicity, t is important to restore the viscera to place and hold them here by some supporting band device. He warns physicians hat they may be indirectly responsible for the development f enteroptosis in the predisposed, by needlessly reducing he diet in case of slight and transient digestive disturbance. 'It seems incredible," Salaghi remarks in conclusion, "that hysicians can be incriminated in the development of a con-enital anomaly, but this too often is the case. The anomaly s compensated for naturally, but the unstable balance is asily upset, and the physician's orders—possibly too strictly ollowed—may bring the upset."

Policlinico, Rome

September 17, XXIII, No. 38, pp. 1119-1142

40 Typhoid and Paratyphoid in the Vaccinated. (Osservazioni intorno alla vaccinazione antitifica.) F. Ravenna and A. Azzolini.—p. 1119.

41 Treatment of the Wounded at Rome Hospital. (I feriti curati nell' ospedale di riserva al Policlinico nel reparto del prof. R. Alessandri, dall' agosto 1915 all'aprile 1916.) V. Grossi.—p. 1126. Commenced in No. 36, p. 1076.

42 The War Has Saved France from Ravages of Alcoholism. (La guerra ha salvato la Francia dalle stragi dell'alcoolismo.) L. Luzzatti.—p. 1133.

Brazil-Medico, Rio de Janeiro

September 2, XXX, No. 36, pp. 281-288

43 *The Prognosis of Tabes. O. Clark.—p. 281. Commenced in No. 35, p. 273.

44 *Sodium Iodid from the Pharmacal Standpoint. (Pharmacia chimica do iodeto de sodio.) A. A. da Matta.—p. 282.

43. **The Prognosis in Tabes.**—Clark remarks that the more clinical experience one has, the more at a loss one feels when called on to state the outlook in a case of tabes. In a comparatively brief period he had some cases in which the course was most surprising; some with exceedingly severe symptoms rapidly progressed to a clinical cure, while certain very mild cases developed almost a fulminating course under the usual treatment. In three recent cases, without a trace of ataxia, each of the patients presented the Argyll Robertson and Westphal signs but one had cerebral, another bladder disturbances, and the third complete amaurosis in six months. Another patient with the complete manifold syndrome of tabes in the stage of ataxia was carried to his bed in the hospital in 1914 but improved remarkably under two doses of neosalvarsan, 0.3 gm. at a month's interval and eleven doses of 50 c.c. of a 10 per cent. solution of sodium iodid, all in two months, with two additional doses a month later. The man recovered his full earning capacity and has maintained it to date, and the Argyll Robertson sign and lightning pains have long disappeared. At the same time another patient, with mild oligosymptomatic tabes, in the pre-ataxia stage, was given a month's course of intravenous injections of mercury cyanid on alternate days. The condition grew rapidly worse and the man had to be carried when he left the hospital when treatment was suspended. Clark calls attention to the occasional aggravation of the visceral pains after an injection of neosalvarsan preceded by a purge. In some cases vision was materially impaired for a few days after a dose of neosalvarsan, but this soon righted itself. Some patients found that vision was improved after it. He regards the drug treatment of tabes as particularly promising for those who watch over their symptoms very closely. The tonic effect raises their spirits and the general condition improves even though the tabes proper is not modified.

44. **Sodium Iodid.**—Da Matta discusses this drug at first from the pharmacist's point of view, means to detect adulteration, etc. He advocates its administration to generate nascent iodin in chronic ear and throat disease, and by intravenous injection to stimulate vital functioning and repair. For local treatment he uses equal amounts of a concentrated solution of sodium iodid and a solution of hydrogen dioxid of twelve volumes. For the ear, he instils 5 drops of the $^{3}/_{19}$ sodium iodid solution and follows at once with 5 drops of the other solution. For the nose and throat, the two fluids are applied alternately in the form of spray or the patient gargles first with one and then at once with the other, alternately. He has found this local treatment effectual both in prophylaxis and treatment. For intravenous injection he uses a 10 per cent. solution, gradually increasing the dosage from 1 gm. upward. The usual limit is 20 gm. His clinical experience with it has been very favorable, especially for tuberculous glands and tropical buboes, in heart disease, tendency to angina pectoris, and arteriosclerosis in general, as the drug dilates the blood vessels and thus reduces the arterial tension. He adds that it facilitates secretion in the bronchi, and is useful as an adjuvant in "scrofula," in rebellious internal syphilis, gout and asthma and in rheumatism of all kinds. Associated with the salicylates he has found it particularly valuable in acute rheumatism.

Siglo Medico, Madrid

August 26, LXIII, No. 3272, pp. 545-560

45 *Seven Families with Peptic Ulcer in Two or More Members. (Ulcera peptica familiar.) L. Urrutia.—p. 546.

46 Ethical and Vicious Medical Periodicals. (La buena y la mala prensa.) C. Juarros.—p. 551.

September 2, No. 3273, pp. 561-576

46 Common Scalp Diseases Causing Loss of Hair. (Seborrea de la cabeza.—Alopecia pitiriasica.) E. de Oyarzabal.—p. 562.

45. **Familial Peptic Ulcer.**—Urrutia cites some instances on record in which two or three members of a family had

developed gastric or duodenal ulcer. He has encountered seven families with a history of this kind, operative treatment being required for gastric or duodenal ulcer in two or three of the adult brothers or sisters. Habits of life and diet cannot be incriminated for the peptic ulcers, as some of the families were widely scattered. One man lived in Cuba and his sister in Spain. In one family, one brother lived in the Philippines, a sister in Spain and a cousin in another country. All began to suffer from the stomach as they reached the age of 18. In another family the influence of alcohol might have been a factor in the two brothers but not in the sister. The "status lymphaticus," "asthenia universalis" as predisposing to peptic ulcer and a general tendency to hypoplasia are all manifestations of physical inferiority, and all have the common feature of predominant mononucleosis. The different members in the families cited sometimes presented different types of this substandard constitution.

Grèce Médicale, Athens

May 1-15, XVIII, No. 9-10, pp. 17-20

47 *Prophylaxis of Tuberculosis. (Moyens de prophylaxie contre la tuberculose.) E. Zemboulis.—p. 17.

47. **Prophylaxis of Tuberculosis.**—Zemboulis' article forms the contents of a little pamphlet designed for free distribution by the public health authorities at Constantinople. The prefect of Constantinople has recently had walls placarded with instructions how to combat flies and various measures for individual prophylaxis of tuberculosis. They are in simple language and in the speech of the people. Zemboulis' pamphlet is officially addressed to the public of Constantinople by the National Medical Association of the Turkish Empire.

Russkiy Vrach, Petrograd

XV, No. 32, pp. 745-768

48 Surgical Treatment of War Wounds of Peripheral Nerves. (Khirurgicheskoe liechenie ognestrielnikh ranenii periphericheskikh nervui.) A. M. Grinstein and E. S. Gurvich.—p. 750.
49 Indications for Suturing Nerves. (O pokazanikh k sshivaniu nervui.) A. G. Naumann.—p. 758.
50 Alleged New Species of Prowazekia. (Prowazekia Ninui Kol-Yakimovoe.) V. L. Yakimoff.—p. 760.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 16, II, No. 12, pp. 989-1084

51 Degenerative Psychoses. (Bijdrage tot de kennis der degeneratiepsychose.) W. F. Theunissen.—p. 989.
52 *Operative Treatment of High Myopia. L. H. van Romunde.—p. 1011.
53 The Electrovibrator as Guide in Extraction of Metal Foreign Bodies. (De electro-vibrator als onmisbare gids bij de verwijdering van projectielstukken.) N. Voorhoeve.—p. 1018.
54 *Poisoning of the Hands from Wild Parsnip. (Een reeks gevallen van dermatitis veroorzaakt door de pastinaak—Pastinacea sativa.) K. Edel—p. 1024.

52. **Operative Treatment of High Myopia.**—Van Romunde reports his experience with eighteen operative cases of myopia. He operated a total of 137 times in all on these patients, thus averaging seven or eight operations on the eye. The full details of each case are tabulated for comparison. The list includes two cases in which detachment of the retina occurred but not in connection with the operative measures as there was an interval of two and five years between. The cases show that while an operation for myopia is always a serious intervention, yet vision was improved materially thereby. Even if progressive myopia is only arrested, this in itself is a great gain. The difference in refraction before and after the intervention in his cases amounted to about 20 or 21 D. The Fukala technic was applied in all. The eighteen patients were between 10 and 23. One young man had discission of the lens done fourteen times, with paracentesis of the cornea once, all with no complications. Choroiditis was found in one case on reexamination two years later. In another patient severe secondary glaucoma developed after the third discission, compelling linear extraction under general anesthesia, with sclerotomy. As to the operation increasing the chance for detachment of the retina, he thinks that the Fukala technic exposes less to this than the Hess-Sattler. About 4.1 per cent. of persons with myopia above 10 D. between the ages of 10 and 30 develop detachment of the retina without operative intervention. This percentage is much higher for persons with myopia of 20 D. which brings the proportion of nonoperative cases in which detachment of the retina occurs to about the same figure as in the operative cases, and, naturally, operative treatment is restricted to the severer forms of myopia.

54. **Dermatitis from Wild Parsnip.**—The men had been cutting weeds in a field and the next day their hands were red and inflamed, with blisters. The juice of the wild parsnip was found responsible for the dermatitis. It subsided in a few days but some of the blisters became infected in some of the men, prolonging the trouble. Edel induced the same dermatitis on a small scale on his own hand with some of the plant juice.

Hospitalstidende, Copenhagen

September 13, LIX, No. 37, pp. 893-912

55 Radium Treatment of Lupus Vulgaris. P. Haslund.—p. 893.

Ugeskrift for Læger, Copenhagen

September 7, LXXVIII, No. 36, pp. 1527-1570

56 *Treatment of Chorea with Magnesium Sulphate. K. Schroeder.—p. 1527.
57 *Neuritis from Incorrect Technic for Injection of Salvarsan. (Bemærkning til den intramuskulære Salvarsaninjektions Teknik.) A. Kissmeyer.—p. 1544.

56. **Magnesium Sulphate in Treatment of Chorea.**—Schroeder gives the details of nine cases of chorea minor in children and two cases in adults, rebellious to all other measures tried but yielding to subcutaneous injections of a 20 per cent. solution (by volume) of magnesium sulphate ($MgSO_4$) in small, slowly increased doses, from 0.2 gm. to 3 gm. a day or, in the very severe cases, up to 8 gm. a day. The results were so good that he thinks hospitals might be justified in giving this method of treatment a trial, keeping the patients under surveillance. The improvement under the dosage given and the return of symptoms when the drug was tentatively suspended confirmed its therapeutic possibilities. When Schroeder began this treatment he had no knowledge of others having applied it, but he later found records of its having been used by Calcaterra, Marinesco, Caronia and Grober, but all injected the drug by the intravenous or intraspinal technic. The subcutaneous route does not seem to have been used. In Schroeder's cases the chorea was of two or three months' standing in most of the patients. The range was from two weeks to three years.

57. **Technic for Intramuscular Injection of Drugs.**—Kissmeyer has encountered some cases of neuritis of the sciatic nerve developing consecutive to intramuscular injection of salvarsan, and he here discusses ways and means to avoid such a complication. He says that the accessible textbooks do not specify the technic in all its details. He advises to have the patient stand, bending forward a little, supporting himself against a table or the back of a chair, bending slightly toward the side where the injection is to be made, to relax the muscles. On the reclining patient it is difficult to find the right place, as the anatomic conditions are somewhat altered. The physician sits on a high stool, back of the patient, and marks the crest of the ilium and a line two fingerbreadths below the highest point of the crest. Another line is marked two fingerbreadths behind the trochanter. Where these lines intersect is the best point to insert the needle to avoid nerves and vessels. The cannula is pushed in very slowly, supporting the hands by the ulnar margin against the patient. The tip of the cannula should point toward the middle and downward. When the cannula is in place, the patient is asked whether he feels any pain, especially pain radiating into the legs. If he does, the tip of the cannula is drawn partly out and turned to point it a little more toward the side. If the tip hits against bone, it should be withdrawn a trifle. After waiting a little to be sure that no blood drips from the cannula, the injection of the drug proceeds. The injection itself does not cause much pain if amounts not too large are used. His usual dose is 0.4 or 0.5 gm. salvarsan in 3.5 c.c. oil. The pain that follows may be soothed with a little sedative and seldom is felt longer than for one day.

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THE DUTY OF THE MEDICAL PROFESSION TOWARD THE COUNCIL ON PHARMACY AND CHEMISTRY *

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The work of the Council on Pharmacy and Chemistry has been the subject of so many able discussions that I shall not attempt to do more than recall to your minds some of the main features of this work and offer suggestions for giving effect to it.

Sollmann has written of "The Broader Aims of the Council," setting forth the ultimate objects for which the Council is striving, and about a year ago a committee of the Board of Trustees submitted a special report to the House of Delegates in which the conditions that had made the organization of the Council necessary were reviewed. In that report attention was called to the failure of the medical profession to support this work properly; and a resolution was offered endorsing the work of the Council and pledging the best efforts of the members of the House of Delegates in furthering it.

The widest publicity has been given to Sollmann's articles and to the report of this committee, and few who have the interests of therapeutics at heart can be ignorant of them; but the majority of teachers in medical schools are not well informed concerning the problems that confront the Council and the part they should take in the movement which has for its ultimate purpose the placing of therapeutics on a rational basis. My present remarks, therefore, will be addressed largely to those who have failed to lend active support to this movement.

Therapeutics was in a condition termed chaotic at the time that the Council was formed about eleven years ago, and though there has been a great improvement, this is incomparably less than it would have been if teachers in medical schools had taken a more serious interest in its work.

The early efforts of the Council were devoted largely to disproving the misleading claims made by the exploiters of nostrums that were advertised to physicians; but despite the exposures that were made, the exploitation continues in the most brazen fashion without any pretense that the Council's reports were inaccurate.

It would seem almost self-evident that the exposure of the fraudulent nature of a preparation would result in its disappearance from the advertising pages of reputable medical journals, but a perusal of the advertising pages of many of the leading medical journals will show that there has been little change as the result of the exposures by the Council, and useless, dangerous and fraudulent preparations are still advertised as before.

"The burnt child dreads fire," and it would seem that physicians who had learned of the deceptions that had been perpetrated on them would be more cautious about accepting the statements of interested nostrum venders; but I do not believe that many of you are aware of the frequency with which even the leaders of medical thought allow themselves to be used in the exploitation of nostrums no better than those that have been shown to be fraudulent.

A careful review of the literature of many proprietary preparations will show that this consists largely of verbatim quotations from papers read by eminent clinicians. When one comes to examine the original papers from which these quotations are taken, he finds the statements exactly as quoted, but without evidence to support them, and if he seeks further he will find that the statements are practically repetitions of older claims made in the advertising literature of the nostrums. In other words, the clinician quotes the advertising circular, without crediting it, and the nostrum maker quotes the clinician and quotes him as the authority for the words that he had put into his mouth. And this then passes for medical literature, to our shame.

Horatio Wood[1] says of one who gives no evidence in support of his statement that he goes on the common principle of the nostrum vender that any assertion made with sufficient dogmatism will be accepted by the medical profession.

This is a severe indictment of those who claim to be members of a learned profession, but if any one is disposed to doubt the correctness of the indictment he may dispel his doubts by analyzing many of the statements made in the advertisements of the nostrums appearing in the medical journals.

A similar indictment is made in different words in the report of the committee of the Board of Trustees to which I have referred, and to which I shall refer again. In this report it is stated that the physician is often made an unconscious dupe and accessory to the exploiter.

These and similar charges have been made against physicians so frequently that they no longer produce a blush; they are hardly noticed, and are forgotten almost as soon as uttered; but it must be obvious that those who make such charges are slanderers or that there are many physicians who are totally unfit to prac-

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Wood, H. C.: Pharmacologic Superstitions, The Journal A. M. A., April 8, 1916, p. 1067.

tice medicine but who continue in good standing in medical societies.

Let us consider for a moment just what this means. Quoting again from this report: "The country doctor (and it might be said with equal truth in essentials of many of the leaders of medical thought of this very hour) no longer took with him in his saddle-bags a few reliable drugs with whose actions and limitations he was familiar, but ready-made mixtures about the composition of which he knew little and about the therapeutic actions of which he knew less, for all he knew was what was told him by the manufacturer, who was in most cases a layman, without knowledge of medicine, pharmacy or chemistry." That is exactly what is done (except for the saddle-bags) by thousands of physicians today.

Several years ago many teachers in medical schools received circulars describing in glowing terms the value of certain mining stocks written by one who pretended to give advice based on expert knowledge. It was shown subsequently that his only knowledge of the subject had been obtained from the owners and promoters of the mining stock, and the writer of these glowing circulars was sent to the penitentiary, where he spent about a year, probably thinking over the unwisdom of giving expert advice to investors without having first acquired expert knowledge. I trust the analogy is obvious.

I have endeavored to speak plainly in order that every one may realize the necessity of our correcting these conditions that are so little to the credit of the medical profession; and since it is obvious that the mere exposure of deception is alone insufficient to deter physicians from using the nostrums so exposed, we must seek further for the means of instituting a rational system of therapeutics, and ways whereby each of us may contribute his part toward correcting existing abuses.

It is plain that a rational system of therapeutics must rest on an adequate knowledge of the pharmacologic and therapeutic actions of the agents employed; and since it is wholly impossible to know the actions of any considerable number of drugs, it becomes equally plain that the first step consists in selecting a few drugs of real value and extending our knowledge of them.

The Council has published a list of drugs that are deemed essential in the treatment of the sick under the title of "A Handbook of Useful Drugs." This list is far from perfect, but it will serve as a starting point, and with the extension of our knowledge it will be improved by such additions and deletions as may be found necessary.

Every teacher of pharmacology and therapeutics can render a distinct service to medicine by cooperating with the Council in improving this list. An examination of any textbook of pharmacology or therapeutics will show how fragmentary our knowledge is concerning even those drugs which are in common use and which have been studied extensively. We know little of such fundamentally important questions as the absorption and elimination of quinin, morphin, strychnin and the digitalis bodies. We are in total want of agreement concerning even the doses of many of our most frequently used drugs, and we have almost no knowledge of the differences in activity of various drugs by different modes of administration, and one is astounded at times by our reckless use of potent drugs.

If our knowledge of such fundamental character is so imperfect concerning our more important drugs, imagine how profound is our ignorance of the less frequently used agents and of the secret nostrums.

There is a strong tendency in many quarters to manifest impatience with those who employ their time in investigations of such purely practical questions as these, and brilliant reputations are not built on the results of such prosaic work. But pharmacologists cannot render the service to medicine that therapeutics rightly demands of them unless they devote at least a portion of their time to the solution of these problems, and the want of a rational system of therapeutics will continue to serve as a source of reproach to pharmacologists and clinicians until more earnest efforts are made to supply the knowledge now needed so urgently.

I have framed a severe indictment against therapeutics, as many others have done before me; but while we have hitherto contended that the clinician had only to turn to well known drugs in place of the nostrums shown to be fraudulent, we have found that the appeal has fallen for the most part on deaf ears, and on looking further into the matter we see a reason—there are no well known drugs to which we can turn.

Many will protest that morphin, quinin, atropin and digitalis are well known. To this I can only answer that they have long been known, and that they have certain well recognized actions; but that they are well known, I deny, though I will say freely that our knowledge of them relative to that of the nostrums almost entitles them to be classed as well known.

Pharmacologists have not always clarified the subjects that they have investigated. They have often misled clinicians into believing that the results obtained through the experimental use of enormous doses of drugs in the laboratory were analogous to those that would be secured by the use of therapeutic doses. Thus pharmacologists found that the perfusion of concentrated solutions of digitoxin through vessels induced active constriction of those vessels, and clinicians became convinced that digitalis and digitoxin were contraindicated in those conditions in which a high rise of blood pressure might prove dangerous, and that strophanthus should be used in such cases because of its far slighter tendency to cause vasoconstriction.

Clinicians were thus led to employ strophanthus, which is absorbed so irregularly as to be a most dangerous drug for oral administration, in many cases in which digitalis would have proved a means of averting death.

It is not my purpose to create a spirit of antagonism between pharmacologists and clinicians. One might as well foment mutiny on board ship during a storm. I do desire earnestly to learn how we may best cooperate to stop abuses that threaten the welfare of medicine.

I believe that I have pointed out a way whereby pharmacologists and clinicians can cooperate with the Council most effectively, and just here I wish to utter a word of warning lest my remarks on this score be misunderstood. I would not have any one suppose that all who would cooperate with the council are expected to agree that its findings are always correct. Nothing could be further from my thoughts, for the Council can have no truer friend than he who in good faith points out its errors and assists it to come to correct decisions, for its influence for good must increase with the reliability of its decisions.

But it is not to the pharmacologists and the clinicians alone that I would appeal for cooperation, for there is no greater fallacy than that of supposing that the desired reforms can be brought about rapidly without the cooperation of teachers in the various branches of medicine. Those who wish to cooperate will find suggestions for their guidance in a series of letters that were prepared some time ago by the Council's Committee on Medical Education; but I would lay especial stress on the fact that effective cooperation requires an understanding of the problems involved.

While the details demand careful study, the broad principles to be followed are plain. The physician must learn to coordinate his knowledge of physiology and pathology better for the diagnosis of disease; he must base his therapeutic use of drugs on a more accurate knowledge of their pharmacologic actions; he must know more of the possibilities and limitations of their therapeutic applications; he must learn the art of prescribing, and especially should he observe simplicity in the prescribing of drugs; he must learn something of the recent history of therapeutics in order that he may avoid its pitfalls and the way that lies back into therapeutic chaos; he must learn that independent research offers the only means for therapeutic progress; that accuracy of clinical observation must take the place of vague impressions; that clear and concise descriptions of the therapeutic actions of drugs must replace meaningless statements, such as "the medicine seemed to do good"; that no statement regarding the actions of a drug should be accepted without analysis of the evidence on which it is based, and that statements without supporting evidence are wholly valueless, no matter how eminent their author may be; above all, every physician must bear in mind that when he undertakes to advise his patients concerning the use of a drug without having first acquired the knowledge on which alone such advice can be given honestly, he is perilously near to the commission of a fraud.

Then, and not until then, will therapeutics be established on a rational basis, even though our knowledge is still fragmentary, for no man can be justly blamed for failing to acquire greater knowledge if he has learned the little that is available—however little that may be.

Ours is considered a learned profession; we enjoy great privileges and have correspondingly important duties to the public; we hear it asserted frequently that our profession is engaged in a great struggle to alleviate suffering and to ameliorate the condition of mankind. It is indisputably true that a vast amount of our energy is thus directed, but unfortunately, it is just as indisputably true that we have permitted ourselves to become the "dupes and accessories" of nostrum venders; we have continued to prescribe nostrums that have been proved to be fraudulent even though not a word of evidence has been offered in their defense. We have accepted fees for prescribing drugs and nostrums about which we knew no more than did those for whom we prescribed; we continue to support medical journals that assist in the exploitation of nostrums that are known to be useless; we admit profound ignorance regarding the actions of all of our drugs, and yet we spend little time in investigating them. We use drugs recklessly when we are employed to save life and are trusted as men in no other profession; we take words out of the mouth of ignorance and proclaim them with authority; we take statements without evidence to support them, and on them base the treatment of the sick; but we would not risk our savings on the strength of such flimsy assertions.

I would that I had the power to carry home to every individual member of the medical profession a sense of his duties to the public, to his profession and to himself so that he might see himself in his true light, for I believe that our failure to correct these abuses is, as stated in the report which I have frequently quoted, due to inertia and not to a deliberate neglect of a duty that will become plain to any one who will be honest with himself and analyze the situation carefully.

I am well aware that I have used forcible language; but I would remind you that I speak for myself no less than for many others. I would bring it home to every man in the medical profession that not one member of it can say that he bears no share in its guilt, unless he has done the utmost that lies in his power to correct abuses that are so apparent to all who will see.

I would gladly close my address with an appeal directed solely to the high sense of duty, the integrity and to the honor of the men in the medical profession, but unfortunately we have seen that the most stirring appeals fall on deaf ears; that those who hear consider that they are not concerned in the abuses; and that the abuses continue unchecked despite the clearest analyses and the most earnest entreaties that can be urged. The time has come to consider whether other measures should not be adopted.

In the course of my efforts, as chairman of the Council's Committee on Medical Education, to secure cooperation in promoting the work of the council, I consulted a gentleman who had wide experience and much success in correcting some of the most flagrant abuses that afflicted medical education. He manifested a willingness to aid the committee, but at the same time he expressed the firm conviction that a direct appeal to the public must be made in order to bring practicing physicians to a realization of the nature of the offenses of which they were guilty, and he urged me to lay the facts before the writer for a popular magazine just as I had presented them to him.

I believe that it is far better for us to correct our own mistakes, but I also believe that unless we do correct them without unnecessary loss of time the appeal to the public should be made, and, to quote again the special report of the committee of the Board of Trustees, "The thinking members of the profession recognized the evil, and year after year resolutions were passed by the American Medical Association, calling on the profession for an enlightened stand on the subject, but no practical results were obtained." The report then states that the Council was formed and that it has exercised enormous influence not only here but also in Europe, especially in England and Germany; but further on in the report we find the following statement "Today we have this anomalous condition: The medical profession through its authorized agency (the Council) has shown certain medicinal preparations to be fraudulent; the same medical profession, however, is supporting medical journals that are promoting these very preparations and in some instances accepting advertisements which the lay press rejects as fraudulent. The condition is not only anomalous—it is ridiculous." The report suggests the remedy, but just as resolutions were passed year after year without practical results, this ringing appeal to the medical profession has not produced any improvement that I can perceive.

An eminent historian has said that it is as wicked as it is vain to attempt to deny the teachings of history, and I would have the members of the medical profession examine the teachings of history so far as they apply to the present anomalous conditions in therapeutics. I will cite one or two facts of recent history that have an important bearing on the questions now under discussion.

Nearly every one present remembers the autocratic and oppressive insolence of which corporations, and especially those controlling the great railways of the country, were guilty but a few years ago. They then seemed to enjoy privileges that enabled them to look with scorn and derision on the individual who protested against their injustices. But what is the result? In answer I will read a paragraph taken from the New York *Times* of the day on which this article was written:

> We have been deposed. The head of a railroad today is little more than a chief clerk under orders. He finds himself hedged about with countless restrictions. If he finds that some rate is too low and tries to raise it, he has a federal or state commission to deal with, who are hard to convince that any railroad rate should ever go up. If he needs more money, and succeeds in convincing the commission that he does, he is told to get it some other way than by raising rates. When he tries to get it that other way he is told by one or the other commission that it is against the law.

In the case of the railroads, as in the present instance, appeals and warnings alike fell on deaf ears, and retribution has overtaken those who would neither hear nor see.

I will cite another fact of recent history that may come nearer home to you. We were all aware of the long standing abuse of habit-forming drugs and the terrible effects of their use. Again and again appeals were made to the medical profession to take steps to control this evil, and although it was well known that physicians were responsible for a part of the evil, no practical results were obtained.

What is the result? The public, together with a few physicians in sympathy with it, took the matter into its own hands and we have the Harrison Narcotic Law, against certain provisions of which physicians complain, and in New York we have a far more irksome state law against which the members of the medical profession, almost to a man, rail in impotent wrath. This is another instance of retribution for long continued indifference.

Is there any one so blind that he will not see the application of these lessons to the conditions which now obtain in therapeutics? What will the public do if it is thoroughly aroused to the facts set forth again and again in the discussions of the subject by leaders in the profession like Councilman, Harris, Grant, Tyson and Wood, in which they are forced to use such ugly words as "fraud," "dupes," "therapeutic superstition," and "recklessness in the use of drugs"?

414 East Twenty-Sixth Street.

The Course of the Student.—From the very day on which a young man begins his medical studies he should frequent the hospital. He should be constantly viewing sick people. . . . I demand that the young student should visit the hospital every day. . . . Very soon in his courses, after a few months of study, the pupil should begin to collect and jot down his own observations at the bedside. . . . I believe that I should fail in my duty if I did not insist on this point. To know the natural course of diseases is more than half of medicine.—Trousseau.

A STUDY OF TWO HUNDRED AND TWENTY-SIX CASES OF CHOREA *

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Notwithstanding the voluminous literature on chorea at our disposal, many of its phases are yet open to discussion. The principal reason for this is the fact that we are still groping in the dark as to the etiology of the disease. This uncertainty is the cause of the many different interpretations as to the predisposing factors that give rise to the disease. We must therefore seek for more circumstantial evidence, so to speak. Any additional information that will assist in clearing up the facts connected with the disease will be of value. Having at our disposal the records of cases treated by us and our colleagues at the Sarah Morris Hospital for Children, we desire to present, in the form of a statistical study, a summary of our experience.

Frequency.— It is a well-known fact that chorea is one of the common diseases of childhood. See, in the course of twenty-two years of activity in a children's hospital, treated 531 cases of chorea, approximately 0.8 per cent of all cases. Rufz found 189 cases of chorea among 32,976 sick children, about 0.5 per cent. Wicke, on the other hand, observed the disease in only 0.18 per cent. of cases. Our records show a total of 226 cases of chorea treated since 1880, the year in which our general hospital opened. During these years about 80,000 patients have been treated. Of this number about 10,150 were children, making the chorea cases about 2.2 per cent of the total. We may mention here that of the 226 cases treated at the hospital, some of the clinical records are incomplete or indefinite, and for this reason not all of the information sought can be supplied in this report.

Age.—Friedländer claims to have seen congenital chorea in two sisters, and Mayo tells of a case in which the fetus was affected with chorea as a result of a fright of the pregnant mother. Sachs claims to have seen chorea in children under 1 year of age, while the earliest age at which Wicke saw chorea was 2 years. Soltmann saw one case in a girl aged 3½ years, which, however, proved to be a tumor cerebri. The youngest case Holt mentions is that of a child of 4. The majority of writers on the subject agree that the age of most frequent occurrence of the disease is between 5 and 15. Of 522 cases quoted by Osler, 380 occurred during this period. Of 146 patients treated by Holt, seventy-two were between 5 and 9 years, and sixty-eight between 10 and 14. Of 439 patients, McKenzie saw 43 per cent. between the ages of 10 and 15, and 34 per cent. between the ages of 5 and 10.

Our age incidence ranged from 3½ to 18 years. Two cases were seen in children 3½ years old, and one case in a girl of 18. The age of most frequent occurrence, however, coincided with that given by most authors. Our greatest number of patients were between the ages of 5 and 14, with the highest percentage between the ages of 7 and 12.

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Sex.— It is agreed by all authors who have written on chorea that the disease is more prevalent among females than among males. Of 327 cases treated by Wicke, there were 117 boys and 210 girls. Sterner, out of 275 cases, had sixty-one boys and 214 girls. Osler analyzed 554 cases, and found 71 per cent. females and 29 per cent. males. Of 184 cases treated by Sachs, 136 were females and 48 males. Gowers, from a collection of 1,365 cases, found the proportion of girls to boys to be 3:1.

Our records show 151 girls and 75 boys, a ratio of 2:1, somewhat less than the proportion of most of the authors.

Season.— Morris Lewis, in a collection of 717 cases, found the smallest number occurring in November (3.3 per cent.), with a rapid rise in December (7.8 per cent.). The number remained about the same during January and February, rising to its height in March (14 per cent.), and falling in April (8.7 per cent.). In May the percentage increased again to 11.1 per cent., after which there was a steady decrease to the lowest point of the curve in November.

Of his original 100 cases, Gowers found 33 per cent. occurring in the first three months of the year; 25 per cent. in the second three months; 20 per cent. in the third, and 22 per cent. in the fourth. Gowers reports cases in which relapses took place at the same season for several successive years.

Our records show the time of the year at which the children entered the hospital, which may be considered as the time of onset of the disease. January showed the highest number of admissions with chorea, December the next highest, and October the lowest. Our records do not corroborate Gowers' assertion as to the seasonal recurrence of the disease.

Rheumatism.— It is customary in medical literature to credit Roger (1866) with the conception of the relationship between rheumatism and chorea. The fact is that as early as 1831 Thomson[1] considered the main cause of chorea as "metastatic rheumatic inflammations of the cord and its nerves." Hughes (1846) saw 104 cases of chorea in which only fifteen had no associated rheumatism or heart affection. Bright[2] considered heart affections after rheumatism as the link between rheumatism and chorea. This much, however, is true, that Roger was the first one who conceived the idea that articular rheumatism, affections of the heart, and chorea are parts of the same pathologic entity. It was he who differentiated between chorea rheumatica, chorea cardiaca and chorea rheumatica-cardiaca, depending on which one of these affections or symptoms manifested itself first. This view of Roger, Thomson and Hughes met a good deal of opposition. Rilliet argued that the coincidence of chorea with rheumatism is far below the frequency of rheumatism as a disease, and were chorea dependent on rheumatism we should see more chorea in practice than we do. Furthermore, chorea affects females more frequently than males, while the opposite is true of rheumatism. Rilliet, therefore, thought the belief as to the relationship of the two diseases was an erroneous one.

Romberg also saw no connection between the two diseases, and Wunderlich considered the rheumatic pain, often manifested in chorea, as a manifestation of hypersensitiveness and not as a rheumatic affection. Steiner (1868) saw only four cases of associated articular rheumatism in 252 cases of chorea. In recent years, however, the theory of the association of chorea and rheumatism has gained a good deal of credence. Osler has secured histories of definite articular swellings in 15.8 per cent. of his cases and rheumatic pains in 5 per cent. of them. In Starr's tabulation there is a history of rheumatism in 26 per cent. of the cases quoted. Heubner goes so far as to include chorea in the chapter of infectious diseases, and G. F. Still goes to the extreme of regarding chorea as much an evidence of rheumatism as gumma is of syphilis.

Attempts have been made to establish the relationship of the two diseases bacteriologically. Poynton and Paine, who cultivated the *Micrococcus rheumaticus* in cases of articular rheumatism also found the organisms in the brains in cases of chorea associated with rheumatism. Richards[3] reported two cases of chorea in which a *Streptococcus viridans* was found in the blood. He found the organism to be culturally identical with the description of the green-producing streptococcus of Schottmueller and probably not different from the description of the *Micrococcus rheumaticus* of Poynton and Paine. Dick and Rothstein[4] isolated a streptococcus from the throat of a patient who had been suffering from chorea for five years and injected it into a dog which developed choreiform movements twelve hours after the injection. Sachs also found a streptococcus in one case of chorea. These, however, are isolated cases, and as yet we cannot claim to have proved bacteriologically the relation between chorea and rheumatism. We must depend, therefore, on a study of case histories, although we admit that this is not the most satisfactory method of proving or disproving the relationship between the two.

Our records in this connection are interesting from a negative point of view. While it is our belief that chorea has an infectious origin, from our records of 143 cases in which special mention was made as to history of rheumatism previous to attack, only thirteen cases gave a definite history of articular rheumatism. Eight cases gave a history of pains in the legs, one of pains in the hip, and two gave doubtful histories. In 119 cases it was definitely established that there was no manifest rheumatism preceding the chorea. If in addition to these we exclude the nine cases that gave a history of pains in the extremities, and the two cases which were of a doubtful nature, there remain but thirteen cases that show a positive history of rheumatism, compared to 130 cases in which the history of rheumatism is negative.

Tonsillitis.— Our records show similar findings regarding the relationship between chorea and tonsillitis. We have complete records of 135 cases, out of which ninety, or 66⅔ per cent., give no history of tonsillitis, and forty-five, or 33⅓ per cent., give a history of tonsillitis. These findings seem to contradict the supposition that chorea depends only on diseased tonsils. This opinion is at variance with the one expressed by many authors who claim that the majority of cases of chorea have their inception in the tonsils.

Infectious Diseases.—A number of authors have attempted to show the relationship between chorea and some infectious diseases. Trousseau mentions cases of chorea developing from one to three months after scarlet fever. He thinks that children who are affected with rheumatism after scarlet fever seldom escape chorea. In about 6 per cent. of his cases of chorea Priestly found scarlet fever as the only previous disease. Sinkler, on the other hand, found a history of scarlet fever in many of his 853 cases of chorea, but only eleven that shortly preceded the onset of the disease. He sees no special connection between the two diseases. Gowers is of the same opinion as Sinkler. Sturges believes that a history of whooping cough occurs more frequently in choreic than in nonchoreic children. The same has been ascribed to measles. Our records show that nearly all of the chorea patients had measles, but there were only two in which the measles was followed directly by chorea.

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[1] Thomson: London Med. Gaz., 1831.

[2] Bright: Cases of Spasmodic Disease Accompanying Affections of the Pericardium, London Med.-Chir. Tr., 1839.

[3] Richards, J. H.: Chorea, The Journal A. M. A., Jan. 10, 1914, p. 110.

[4] Dick, G. F., and Rothstein, T.: A Streptococcus Producing Symptoms of Chorea in a Dog, The Journal A. M. A., Oct. 11, 1913, p. 1376.

Twenty-six cases gave a history of whooping cough, none of which, however, came on directly after the disease. Twenty-five cases gave a history of scarlet fever, only two of which followed the disease directly.

It is interesting to note that in the two cases that followed scarlet fever there is no history of rheumatism. Our records do not seem to justify the claim of intimate relationship between chorea and infectious diseases, although it is reasonable to suppose that an infectious disease may precipitate chorea in a child by producing a focus of infection in the central nervous system.

Syphilis.— Of late there has been a tendency among French authors to claim a connection between syphilis and chorea. Milian reports fifteen cases of chorea with positive syphilis in eleven cases, or 73 per cent. Apert, Rizard and Babonulit emphasize the connection between the two diseases. Some have even gone to the extent of treating every case of chorea with salvarsan or neosalvarsan (Weill, Monsiquand and Goyet). On the other hand, neither Koplik nor Comby sees any relationship between the two diseases. Our records show two cases in which there were definite manifestations of congenital syphilis. This, however, would not warrant us in drawing any conclusion as to the relationship of the two diseases. We take it as a mere coincidence, just as we would the presence of mumps under the same circumstances.

Other Factors.—Two of our cases followed trauma of the head. One attributed chorea to a fright. Two patients were epileptic, and probably the choreic movements were of central nervous origin. While we consider chorea to be of an infectious nature, there is no question in our minds that shock and trauma may act as the immediate exciting causes.

Symptoms.— Generally speaking, all of our cases manifested symptoms similar to those described by other authors on the subject. We wish, however, to call attention to one special phase of these symptoms, namely, the localization of the choreiform movements, particularly at the beginning of the disease.

Wicke, in 1844, denied the fact that hemichorea occurs more frequently than general chorea, and that the left side is more susceptible to the movements than the right. Sydenham, Thompson and Cullen, on the other hand, speak in favor of unilateral chorea. Recently the tendency has been to overlook the localization of choreic attacks and to consider them as generalized. The cases that came under our care very often showed one side more affected than the other, the left showing the greater involvement. In the series of cases which we present, in 153 (the rest of our series have no record as to generalization or localization of symptoms) we found a record of forty-six that showed greater involvement of one side or one part of the body. Thirty-nine cases showed a localization on one side, twenty on the right and nineteen on the left. We are under the impression that the number of cases with greater involvement of one side exceeds the number noted in our records. Some cases were not observed early enough for report, and others were probably not observed for localization. At any rate, we feel justified in making the statement that there is localization of symptoms in chorea.

Complications.— Endocarditis: Fagge found cardiac changes in seventeen out of eighteen necropsies of chorea, in five of which death was not due to the severity of the disease. Gowers, in forty cases of chorea with organic heart disease, found strong ground for attributing the cardiac affection to previous rheumatism. Our records show seventy-three cases of cardiac affections in 226 cases of chorea, the majority of which were diagnosed as mitral insufficiency, one was diagnosed as myocarditis, two as single aortic insufficiency, and one as double aortic.

Other complications were few, and these, as far as we could see, were not direct complications of chorea. In one case measles developed while the child was in the hospital; there were also bronchitis, osteomyelitis, tuberculous glands and psoriasis. Headache and vomiting were frequent. Another complication we noticed was psychic disturbance. Besides the difficulty in speech which we observed quite frequently, we saw a few patients with melancholia and mania. We recall one case in particular in which the child was very maniacal even after the abatement of the choreic symptoms, the mania changing to a melancholia which lasted for several weeks.

Prognosis.—The British Medical Association Investigation Committee gave the death rate of chorea at 2 per cent. It does not state, however, whether the death was due to the chorea proper or to some complication, as heart disease or rheumatism. Langmead believes that death by exhaustion is very rare.

In our series we had two deaths, making a little less than 1 per cent. of the total. In both instances death was the direct result of chorea. One was a boy of 14, who had no complications, but was very restless and had a very high temperature. No treatment was of avail. The other was a girl of 13, with such violent symptoms that she tore the skin from her body. Morphin, scopolamin and lumbar puncture had no effect in quieting her. The patient did not yield to treatment and finally succumbed from exhaustion.

Duration of the Disease.—According to Rilliet and Barthez, the acute chorea from which the patient recovers usually lasts from six weeks to two and one-half months. Rufz gives thirty-one days as the average duration. Dufose gives fifty-seven days, See sixty-nine days (117 cases), Wicke eighty-seven and Moynier thirty-three to thirty-seven days for girls and from seventy-four to eighty-one days for boys. Romberg reports a case of a woman seventy-six years of age who has suffered from chorea since her sixth year. Sachs found the duration of the disease in his cases to vary from four to twelve weeks.

Our records show only the length of time the patient remained in the hospital, which in most cases is a good criterion as to the duration of the disease, the majority having been brought to us at the beginning of the disease, that is, as soon as the symptoms became pronounced. Our cases showed a variation of from one to 369 days, the former, a patient who refused to stay longer at the hospital, and the latter, a patient who developed complications. The average cases which were marked *improved* or *cured* (which, by the way, is a relative term) ranged as shown in the accompanying tabulation.

The greatest number of our patients remained at the hospital from one to five weeks, the next highest number from five to eight weeks, as indicated in the tabulation.

Recurrence.—According to See, chorea recurs if the disease lasts more than sixty-nine days during the first attack. See saw thirty-seven recurrences in 157 cases. Steiner had eight recurrences in fifty-two cases. Fredericks saw from ten to twelve recurrences in one boy. Among 104 patients, Sachs found that fifty had one attack, seventeen had three attacks, twenty-six had two, seven had four, three had five and one patient had eight attacks.

In our series, thirty-five patients had more than one attack of chorea. Of these one had very frequent recurrences, one had four recurrences, four had three, and twenty-nine patients had two recurrences. The recurrence seemed to have no relation to the nature of the treatment. Some patients who had received the arsenic treatment showed recurrences while others who did not have arsenic had no recurrence.

DURATION OF CASES IN WHICH THE PATIENTS WERE IMPROVED OR CURED

Duration	No. of Cases
From 1 day to 1 week	11
From 1 to 2 weeks	25
From 2 to 3 weeks	16
From 3 to 4 weeks	23
From 4 to 5 weeks	24
From 5 to 6 weeks	13
From 6 to 7 weeks	16
From 7 to 8 weeks	10
From 8 to 9 weeks	6
From 9 to 10 weeks	6
From 10 to 11 weeks	4
From 11 to 12 weeks	2

Treatment.—A disease that has been known in one form or another for several hundred years must necessarily have to its credit many forms of treatment and many drugs for which specificity has been claimed. Graduated massage was recommended by Laisne (1854) and Parrot (1858), baths by Rufz, Mead and Crampton, electricity by Briquet and Doucheme, venesection and purging by Sydenham and West, iron and bromid by Da Costa, and zinc oxid by Romberg. Trousseau recommended opium; Schultz, atropin, and Martin (1813), Bradsley, Gregori, Eberle and Romberg recommended arsenic. Of all these remedies arsenic seems to have had the best fate even to the most recent time. Seguin, Jacobi, Heubner, Rochford and Osler all recommend arsenic, some even in large doses, Osler having given as much as 25 minims three times a day.

Recent literature contains records of treatment by tonsillectomy and salvarsan. Our experience has taught us that there is no specific drug for chorea, and that treatment by drugs, not excepting arsenic, is not so effective as rest in bed. We have given salicylates for the probable rheumatic origin of the disease. Those patients who were treated without arsenic improved just as rapidly and as well, with as few recurrences, as those treated with arsenic preparations. In fact, we believe that the fewer drugs given, the better the results. As to treatment by arsenic, is it not a fact that many cases treated by it have been followed by arsenical neuritis? We have found this to be true in our experience as well as in that of others. Besides, is it not possible that the arsenic has a deleterious effect on the heart innervation or heart muscle? In our opinion, rest, baths and salicylates are the remedies to use in ordinary cases of chorea, except in those instances in which medication must be given for special symptoms, such as that mentioned when considering the question of prognosis. As for salvarsan, it seems unfair to treat chorea with it unless the syphilitic manifestations indicate salvarsan treatment, in which case it should be given for the primary disease and not for chorea.

CONCLUSIONS

1. The frequency of chorea in our cases was about 2.2 per cent. of all children treated at the hospital.
2. The age incidence ranged from 3½ to 18 years. The ages of most frequent occurrence were between 5 and 14.
3. We found the ratio of females to males to be 2:1.
4. Season did not play a constant rôle in our cases. The greatest number were observed in December and January, the smallest number in October.
5. In our patients the relationship between rheumatism and chorea was not marked. Thirteen had a definite history of rheumatism; 130 had no history of rheumatism. We believe in the relationship between chorea and rheumatism, although our cases do not bear it out.
6. Tonsillitis was not a prominent factor. Sixty-six per cent. of our cases had no history of tonsillitis.
7. In our series, infectious diseases were frequently found to precede the onset of chorea, but there seemed to be no close relationship between infectious diseases and chorea.
8. Syphilitic manifestations were present in two of our cases. They seemed, however, to have no connection with the chorea.
9. Localization was frequent.
10. Endocarditis was frequent, though not a constant complication.
11. The mortality in our cases was a little less than 1 per cent.
12. The duration of the disease varied from one day to more than a year. The average duration was from two to eight weeks.
13. Recurrences occurred thirty-five times. One patient had four recurrences; four had three and twenty had two recurrences. The method of treatment had no direct bearing on recurrences.
14. For treatment we are strongly in favor of rest in bed and complete isolation, baths and salicylates. We do not believe that arsenic has any special effect on the disease; if given in too large doses it may be pernicious.

106 South Michigan Avenue—34 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. H. F. Helmholz, Chicago: Dr. Abt referred to the relation of chorea to manifestations of a rheumatic cycle. We had about 138 cases. Of these 33 per cent. had a history of repeated tonsillitis, 21 per cent. of rheumatism and 26 per cent. of endocarditis; 8 per cent. of rheumatism and tonsillitis; 21 per cent. of rheumatism and endocarditis, and 54 per cent. of the entire group showed manifestations of one or the other of these symptoms. As regards the relationship of chorea to the rheumatic cycle, it seems to me that we have to look at it from a different point of view, if we take into account the recent work of Rosenow. We know the streptococcus has a specific tendency to localize in the heart valves or in the joints. The same organism under slightly different circumstances may localize in the cortex of the brain. A negative finding proves practically nothing. We all know what tremendous difficulty we have had in isolating organisms from joints in acute rheumatic fever, and it is only since Rosenow has pointed out a specific technic that we have been able to find this organism in the other group of cases. The same thing applies also to chorea; we have in this case an infection with an organism having a peculiar tendency to localize in the cortex.

Dr. Abraham Jacobi, New York: I have seen a good deal of chorea and rheumatism. I wrote on the subject in 1875 in connection with my essay on rheumatism in children, and at that time came to the conclusion—and I own up to that conclusion yet—that chorea and rheumatism and endocarditis are in very close relationship, that the order of infection was that frequently rheumatism came first, endocarditis second and chorea third. Changes in this series will take place. Now and then a case of chorea will come first. There is only one thing I would urge—that rheumatism, which in my experience always comes first, should not be overlooked, for rheumatism in the small child is very frequently overlooked and put down as "growing pains." Small children will often have rheumatism that will only be discovered on attempted movements on the part of the nurse or mother. It seems to me that we have made very little progress as far as arsenic is concerned as a remedy. I will admit I have used a great deal of arsenic. I do not believe in its frequent effect as a detrimental agent. On the contrary, in the young and in the adult arsenic is a tissue builder, and a very useful one, and I use arsenic a great deal among children, and still more among adults as a tissue builder. For instance, in so-called chronic myocarditis, where patients are run down, where they have a functional murmur, there arsenic will do good, because it is just like phosphorus in other conditions—it is building up the tissues. I recommend arsenic as a result, not of one year, but of many years' use in a fairly well developed general practice. So arsenic is looked on by me rather as a help in therapy than as a danger. In excess it may prove dangerous, like everything else. In anemia and allied conditions I consider arsenic valuable in the development of the tissues. Dr. A. L. Goodman, the attending physician of the Jacobi Children's division of the German Hospital in New York, says chorea is curable, not after months and years, or even weeks, but in a very few days. He withdraws blood from the patient, say 40 c.c. He takes the serum, amounting to about 18 or 20 c.c., and injects it into the spinal canal of his patients, no matter how serious, even in the worst cases. Patients are sometimes cured in one day. If not cured in one day, but merely relieved, he makes another injection of the same kind within one or two days. Then almost every patient is cured and remains so.

Dr. Harry Lowenburg, Philadelphia: I had the pleasure of seeing some of Dr. Goodman's work in New York. I made rounds in the hospital with him and observed his method of treatment and also the manner in which the blood is secured and the results of treatment. I believe with Dr. Abt that rest in bed is an important part of the treatment. It is sometimes necessary to treat the parents as well as the child. A recent case, one of violent chorea with irregular heart, came under my observation in Philadelphia. The chorea and the heart were both improved by rest in bed and Schott baths. The lad returned to his home. I found that the father had a violent temper and amused himself by whipping the child or by putting him into a dark closet or threatening to do so. The boy had a severe recurrence. The treatment in this case was to remove the vicious environment. I did so by sending for the father and threatening him with arrest. He was humbled and became repentent. The lad improved again and was sent to a summer camp. I feel that a children's ward in a general hospital is hardly the place to take care of chorea cases. I believe that they should be excluded from all sources of external irritation. This can only be accomplished by complete isolation and careful individual supervision.

Dr. I. A. Abt, Chicago: The matter may be summarized as follows: In many instances chorea undoubtedly is infectious in origin. I think there are cases, however, that simply indicate nerve exhaustion or nerve fatigue in which no focal infection can be discovered. Every practitioner has seen children come to him from neuropathic families, where there may have been worry, grief, or some other condition leading to nerve instability of the children. They are often bright at school, overwork and sometimes they have difficulty in their school arising from their studies. They give no evidence of focal infection. Such children when isolated and placed at rest very readily recover. I believe chorea is not due to a single cause and that it is not due to a specific rheumatic infection. I think it is a symptom of a certain nerve condition, depending on various causes. As far as Dr. Goodman's treatment is concerned, of course we are all extremely interested. I want to say a word about arsenical treatment and rest in bed. For years I have had children brought to me with chorea. One of my colleagues might have a case in an opposite bed. I would say, "You treat with arsenic and I will treat without." The baby without arsenic, but with rest in bed, would recover just as rapidly as the other child treated with arsenic. The child's term in the hospital would be no longer than with the arsenical treatment. I think at the hospital we are now treating them without arsenic. It seems to me the treatment of these cases of chorea, especially in neuropathic children without heart lesions and no evidence of infection, is to take them away from their family, feed them, keep them absolutely quiet in bed, give them hot baths, and they generally recover in a short time.

FEVER OF OBSCURE CAUSATION IN INFANCY AND EARLY CHILDHOOD *

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Fever of obscure causation in infants and young children is always of interest, because it is a condition with which we are more or less constantly confronted. The term "obscure causation" is of course used in a relative sense, for it must depend on the number of cases being observed and the diagnostic acumen of the individual observer. Apart from such considerations, however, there will be encountered, from time to time, febrile movements, the causation for which is solved with the greatest difficulty, or sought in vain by the most astute. It is my purpose, not to endeavor to discuss all of the causes of obscure fever in infancy and childhood, but to draw attention to some groups of cases that have given me some trouble during the past year.

It seems not amiss at this time to emphasize the rôle of the nervous system in the production of obscure fever, even though it is already well appreciated. As compared with the fully developed system of the adult, that of the new-born is both anatomically incomplete and physiologically deficient. Even the vital centers participate in the uncertainty of its action, as so well observed in the inordinate disturbances of pulse and respiration with which we are so familiar. With regard to function, the most striking deficiency would seem to be in the matter of inhibition. As a result of such shortcoming, reactions to stimulation, both from without and within, find their expression in uninhibited explosions of nerve force characterized by protean manifestations. So it is that the heat regulating mechanism, if we may so designate that vital part of the nervous system, responding to insult, traumatic, thermal or toxic, produces inordinate disturbances of body temperature.

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NERVOUS INSTABILITY

While common to all young alike, this tendency to faulty control or inhibition is most conspicuous in those who, by reason of harmful prenatal or postnatal influences, manifest instability of the nervous system in other ways, as seen for instance in so-called neurotic children. It is no uncommon experience to observe in such individuals, and indeed in those who may be considered normal, rises of temperature at times which absolutely defy recognition on any other hypothesis, unless one elects to look on them as illustrative of the limitations of our diagnostic methods.

Such rises of temperature are most often acute in character, but may continue over varying periods. They are in no sense uniform in behavior, and possess nothing in common, except it be the absence of adequate cause. They may represent either increased heat production or decreased heat elimination, one or both, but in any event nothing further than an abnormal response of the organism to the ordinary stimuli of daily existence. While such a diagnosis is acceptable only after a most careful exclusion of all other possible factors, I am convinced that, in the present state of our knowledge at least, such instances of unexplained fever will occasionally be observed in those whom from manifestations of nervous instability we designate neurotic. Such children are especially apt to be rachitic and frequently show evidences of tetany, laryngismus stridulus and general convulsive seizures.

Not only are such individuals the common subjects of such disturbance, but as a class they are especially prone to what may be termed abnormal rises of temperature from trivial cause. The family physician became familiar with such idiosyncrasies in the children under his care, and was said by the parent to "know their constitution." I have seen several such cases in the past year, and in each instance, not "knowing their constitution," reached a conclusion only after lengthy investigation and no little anxiety.

The following case is illustrative of this type:

A girl, aged 2½ years, had been under my observation since 1 year of age. She was an only child of neurotic parents, and had been artificially fed from the third month on various proprietary foods. Her progress had been marked by frequent convulsive attacks, and she had been subject to rise of temperature without apparent cause. I had been called in this particular instance because the fever had endured rather longer than usual. I discovered well marked symptoms of rickets, but a most careful examination over a period of some days failed to establish a diagnosis in this case, and the febrile movement passed without a definite determination of its nature. Two weeks later an attack of a similar nature presented itself, and after further study it was assigned to nervous instability. The subsequent course of this child's progress would seem to justify the diagnosis.

DENTAL CARIES

Turning now from the indefinite to causes more definite, but perhaps of more frequent occurrence and just as often overlooked, I wish to draw attention to dental caries as a cause of fever. Dental caries in early childhood is a condition which should interest every medical man who has to do with the diseases of children, for it is vitally connected with their general welfare. It is only in the past few years, with the development of the study of focal infection and a better appreciation of its serious possibilities, that the profession has awakened to the significance of disease of the mouth and its adnexa. It is not within the purview of this paper to go into an elaboration of this subject, but I have been so impressed with its importance that I cannot refrain from this opportunity to give it emphasis. I have made it a rule to insist on the correction of dental caries by good dentistry, conservative if possible. but always corrective. In my experience the average dentist is more interested in the mechanics of his profession than in real pathology, and the physician does not always secure the proper cooperation in such matters imperative for the patient's welfare.

The purpose of referring to dental caries here, however, is to connect it with certain disturbances of temperature encountered in children, and this quite apart from the associated inflammations in which the diseased tooth has served as a portal of entry for infection. That dental caries can be a cause of fever cannot be denied. It is rather a cause for reflection that it is not more often observed.

As nearly as I can estimate, approximately 65 per cent. of the children presenting themselves in the outpatient department of the Children's Hospital (Washington, D. C.) show more or less dental caries. Most of these children have mouths wofully neglected and badly in need of attention. In my personal experience during the past year I was able to single out five cases in which the fever was clearly due to diseased teeth. These five cases were uncomplicated as to adenitis and other significant inflammation. There were two boys and three girls, all between the ages of 1½ and 3 years. They had been brought to the hospital because of loss of appetite, malaise and fever with excessive sweating. The fever had been present for a varying length of time, and in one instance had been intermittent. All presented marked dental caries, but were otherwise without definite findings. In one instance I was able to secure a white cell count, the first showing 14,000, the second, one week later, 13,500, and the third, two weeks after the extraction of two carious molars, 9,500. In this particular instance the dentist operated with great reluctance, because the teeth were temporary, and were, as he assured the fond mother, necessary to the proper development of the bones of the jaw. Two days after the extraction the temperature was normal and so remained.

OBSCURE INFLAMMATION OF THE MIDDLE EAR

From the anatomic character of the infant's ear and its adnexa, and the special susceptibility of the young to infection from whatever cause, middle ear inflammation is exceedingly common, and has long been recognized to be a cause of obscure fever in early life.

Ordinarily otitis media is associated with pain, fever, restlessness and other evidences of distress, though it is not infrequently present without such subjective and objective symptoms. It is, further, most often possible to determine the presence of such inflammation from an examination of the ear itself, but I wish to draw attention to the fact that occasionally the most competent aurist is unable after repeated examination to make a diagnosis.

The following case well illustrates this point:

The child, aged 14 months, a son of one of our local physicians, was of neurotic parentage and had been artificially fed after the third month on pasteurized milk. Dentition had been delayed, and there had been excessive head sweating, though the infant had been well up to normal weight. It had suffered with follicular tonsillitis, which had been particularly prevalent in our city during the period, for two weeks.

and with it had had a marked febrile disturbance. The local manifestations had about abated, and the temperature had been normal for a period of one week, when the temperature again began to rise, and with it a return of restlessness and almost complete loss of desire for food. Though the tonsils were hypertrophic, the throat was pale and there was no evidence of local disturbance of an acute nature. The von Pirquet test was negative, as were repeated physical examinations, including a Roentgen survey of the thorax. A most competent aurist failed to render any assistance. The leukocyte count, however, was 20,500. Fever continued over a period of three weeks, irregular in character and frequently reaching normal. Examinations of the ears continued negative, while the leukocyte count, though somewhat lowered, remained well above normal. Finally at my earnest solicitation a paracentesis was done, which was followed by a scanty serous discharge, a rapid fall of temperature and a return of the white count to normal. In the month that has elapsed, this infant has been completely restored to health and has progressed normally.

This case serves to emphasize the fact that even the examination of the ear cannot always be relied on in the determination of middle ear disease, and I feel, therefore, that in obscure cases in which the leukocyte count is high and other factors have been properly excluded, paracentesis is justifiable. This is especially true when the condition has been, as in this instance, preceded by disorders that are recognized to be predisposing causes.

It might not be amiss to direct attention to the fact that, occasionally in otitis media, it is possible to observe drainage occurring into the pharynx through the eustachian tubes when the examination of the tympanic membranes is negative. This interesting point, quite new to me, has been demonstrated to me by one of our aurists on two occasions during the past few months, and is worthy of consideration. In neither of these cases could anything of a definite nature have been determined by the usual examination. As a matter of fact, I have not infrequently had the experience of having ears pronounced negative only to find later that within a few hours after there had been spontaneous rupture and drainage. This observation is in no sense a reflection on the diagnostic skill of the aurist, but rather a testimonial to the occasional obscurity of the disease.

It is well, therefore, to bear in mind that disease of the middle ear is not only a common cause of obscure fever in the infant, but what is more important, that it is occasionally of such an obscure nature in itself as to render its detection difficult, if not impossible.

OBSCURE DISEASE OF THE TONSILS

Judging from my own experience, both in my private and hospital practice, follicular tonsillitis was unusually prevalent among infants and young children in Washington, D. C., during the past winter and spring. Most of the cases have been clear and easy of recognition, others more or less obscure and difficult of determination, especially during the first few days after the onset. The disease has shown a special tendency to lapse into a subacute stage, in which it has not been readily amenable to ordinary treatment. In a number of instances, having despaired of terminating the attack, and having been fearful of the potential mischief in the diseased tonsils, I have referred cases for operation even when low grades of temperature were present. The results have been gratifying, and the tissues removed have shown themselves to be diseased to an extent that could only have been surmised.

As in the preceding consideration, it is to the obscure disease of the tonsils that I wish to draw attention. I have made it a point to examine carefully the tissues that have been removed from my cases referred for operation, and as my experience accumulates, I am more and more firmly convinced that not only are these glands often more diseased than our examination would lead us to suppose, but that they are often the seat of infection when not suspected.

Believing, then, that the infected tonsil is often a cause of obscure fever, and having in mind the remote dangers of tonsil disease, I have made it a practice to advocate its removal at whatever age it would seem to be indicated. I am prompted to this expression because I have in a number of instances been opposed in such matters by throat men who balked at the age of their prospective patients.

CONCLUSIONS

I am conscious of the fact that I have presented nothing new, but hope that I have at least emphasized and perhaps directed attention to some causes of obscure fever in infancy and early childhood that may have escaped the full appreciation that is their due.

In the first group, that of nervous instability, I am well aware that it is most difficult to exclude many of the obscure disorders to which the young are especially prone, but I have made it a practice to place cases in this class only after the most exhaustive search and mature consideration.

As to the second group, dental caries, I feel that much more might have been said had time permitted. We are all perfectly familiar with the secondary inflammations resulting from neglected disease of the teeth, and, thanks to the dissemination of education in this particular, cases of this sort will become proportionately less common.

The other two groups, obscure disease of the middle ear and obscure disease of the tonsil, are well known as old offenders. I wish to draw particular attention, however, to the fact that middle ear inflammation may in itself be even more obscure than is generally supposed, and that tonsils may likewise be sufficiently infected to be a cause of fever without presenting the appearances indicating the need for their removal.

The Rockingham.

ABSTRACT OF DISCUSSION

Dr. F. M. Pottenger, Los Angeles: Physiologic study shows that 80 per cent. of heat is eliminated through the skin, 15 per cent. through respiratory activity, and 5 per cent. through the feces, urine, warming of food, drink, and air. The elimination of heat is therefore largely under vasomotor control, through the sympathetics and is presided over by the vasomotor center in the medulla. Fever is often a part of the syndrome of toxemia. It indicates not only that there is more heat produced, but that there is an interference with elimination. Toxemia is accompanied by general sympathetic irritation, and this includes constriction of the vessels of the skin. Toxemia may be produced by the parenteral introduction of any protein into the body. When the protein finds its way into the tissues it is broken up and its toxic molecules are set free. Ordinarily, the gastro-intestinal tract takes care and destroys protein, consequently, it is assimilated without harm; but, if a fasting animal is given protein in sufficient amounts it may be absorbed and produce general toxemia, including fever. Stimulation of the vasomotor system with or without accompanying increased heat production, will produce fever. All the depressive emotional states, which we meet with particularly in adults, will raise the temperature by stimulating the vasomotors and interfering with heat elimiation. Thus, we have an explanation for the rise in temperature due to nervous states.

Dr. Abraham Jacobi, New York: I have thought a good leal about what has been written on the subject of tonsils and I wish to say that in few cases is the tonsil at fault. Even large tonsils in a small child are not so dangerous as we are liable to be told. It is not the tonsil that is at fault, but the rest of the pharynx. All those small lymphoid bodies, so-called Waldeyer's nodes, and certain of the small bodies hat surround the entrance between the nares and the throat are, as a rule, more frequently the cause of toxic symptoms and fever generally than the tonsils themselves. Meanwhile I have been teaching and practicing for fifty years and more hat the nose must be kept clean. The common atomizer will not do it. You cannot clean the nose with an atomizer; you must irrigate the nose. It may be done by pouring in some warm water and salt; only caution against snuffing; hat is dangerous. Bad results from nasal irrigation are the result, not of the irrigation but of snuffing, forcing the liquid nto the ears. Patients should be warned about this. I have seen considerable ear disease from this cause.

Dr. St. George T. Grinnan, Richmond, Va.: I want to ask Dr. Copeland if he has had any cases due to overexercise. I have seen cases where we could find no otitis, no tonsillitis, but the child had a temperature elevation for several months. It had gone through several hands, and very good hands, too. The only thing I could assign this to was overexercise. The child was extremely active. With instruction as to rest the child was entirely well in two weeks. In cases of what we call "obscure" rise of temperature, I really do not assume that either pyelitis or the ear can be called obscure any longer.

Dr. J. L. Morse, Boston: I want first to call attention to what seems a lack in our knowledge—that is as to the normal variation of temperature in the child. So far as I know, we have no series of experiments to show us how far the normal emperature may go in the child. Another thing in connecion with obscure fever, we want to be sure the teeth are all right. Unfortunately, we have in the United States a large number of dentists who are one or two generations behind he times, who say that the first teeth should be left to take care of themselves. I feel it is the duty of this society to show these men up and, if it is possible, drive them out of business. The child may have infection from the teeth, even when they are filled. We cannot be sure they are normal without roentgenograms. Now and again will be found an abscess at the root of a tooth which will be the cause of all he trouble. Dr. Jacobi has touched on something I wished to ay, that is, that children may have disease of the ethmoid cells and this may be the cause of the symptoms. Dr. Copeand did not say anything of infections of the urinary tract as a cause of fever. This is often the cause of persistent fever.

Dr. C. G. Kerley, New York: According to my observation a temperature under 100 F. may be considered normal. When he temperature ranges above 100 F. every day or for several days or weeks, I feel that the child needs close observation. In addition to examining the patient I put him to bed for hree days. During this time the child is examined for the presence of occult pus, malaria, typhoid fever, pyelitis, etc. n not a few cases our clinical examinations are entirely negative and the rise in temperature which has been a daily occurrence has ceased entirely. This puts our cases among hat class of children who readily develop a slight rise in emperature as a result of excessive play, overwork or excitement. The temperature during the time of the enforced quiet s taken three or four times a day.

Dr. E. P. Copeland, Washington, D. C.: I would first lay special emphasis on the fact that I did not mean to discuss all of the causes of obscure fever. It would be an interminable task. In certain types of children undue excitement, overexercise, may produce fever. Otitis media is one of the most difficult of causes to determine. I enjoyed Dr. Morse's remarks in respect to dentists. I have a great deal of trouble with them. Infections of the alimentary tract I will not allude o. I aimed to confine my remarks to cases that have given me trouble in the last year or so. The question of normal emperature is important. A reasonable variation has been allowed for in my cases.

THE RECENT EPIDEMIC OF GRIP

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AND
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CHICAGO

Last winter an epidemic of grip swept over the United States. Accurate information concerning its prevalence is difficult to obtain, because in most communities the disease is not reportable. But judging from the public health reports and from personal correspondence with experienced physicians in many cities, it would seem that few of the large cities escaped. Meager reports from small towns indicate that they were no more fortunate in this respect than the cities.

Statistics which give an idea of the percentage of morbidity are meager. We have secured the written records of patients ill with grip from four hospitals in Chicago. Of a total of 677 persons investigated, 144, or 21 per cent., were confined to bed for one or more days. This does not include many who had colds of less severity.

The epidemic began early in December, and by the latter part of January had nearly spent its force.

Was the disease essentially different from the ordinary winter colds?

Most cases began rather abruptly with coryza, pharyngitis, laryngitis or bronchitis. The chief complications were inflammation of the accessory sinuses of the head, and bronchopneumonia, the latter being responsible for most of the fatalities. None of these symptoms taken alone would justify the distinctive name of grip. But the widespread and almost simultaneous onset of this fairly uniform symptom group and the rapid cessation of the epidemic after a few weeks reminded physicians generally of the great grip pandemic of 1889-1890. This resemblance was further strengthened by the unusual prostration lasting days or weeks after even mild attacks. The older practitioners can recall no similar epidemic during the twenty-five years intervening between 1890 and this year. The numerous epidemics of septic sore throat have all been entirely different in their symptomatology, and all were restricted to certain localities. The term "grip," therefore, seems justified from a clinical standpoint.

Leukocytosis.—We studied the leukocyte reaction in fifty-three cases.

In thirty cases there was a count of 10,000 or less. A number showed leukopenia. In sixteen cases there was a leukocytosis of from 10,000 to 15,000. In seven cases there was a leukocytosis of 15,000 or more. It is seen from these figures that in the majority of patients leukocytosis was absent, although a temperature of from 1 to 3 degrees above normal was the rule at the time of examination.

Pneumonia.—The public health reports offer evidence of an unusual prevalence of pneumonia in the larger cities. Nicolas[1] calls attention to the fact that the incidence of grip was greatest in those cities in which the mortality from pneumonia was most strikingly increased. According to Mathers, a large proportion of the pneumonia cases in Chicago were of the bronchial type, such as was known to have occurred so often as a complication in the great pandemic.

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[1] Nicolas: Bull. Dept. Health, New York, February, 1916.

BACTERIOLOGY

If physicians are generally agreed on the existence of a grip epidemic, it is equally true that bacteriologists have failed to agree on the causative organism.

An analysis of throat cultures taken from fifty cases clinically diagnosed as grip and sent to the New York City Health Department was reported by Williams[2] as follows: streptococcus, twenty-six cases; pneumococcus, nineteen; *Micrococcus catarrhalis,* eighteen; influenza bacillus, nine, with other less important organisms.

Moody[3] examined a series of thirty-one cases of supposed grip at St. Luke's Hospital, Chicago. Cultures from the throat were grown on blood agar. All the cases showed *Streptococcus viridans* and pneumococcus, and all showed hemolytic streptococcus in variable numbers. The influenza bacillus was found only twice.

Mathers,[4] in a similar group of twenty-four cases obtained cultures of hemolytic streptococcus in seventeen and *Streptococcus viridans* and pneumococci in all. No instance of influenza bacillus was recorded.

Reports received by correspondence from Philadelphia, Baltimore, Boston, Cincinnati and San Francisco state that the influenza bacillus was rarely found in throat or sputum cultures.

We may then infer, first, that the infection showed many organisms, the streptococcus and pneumococcus predominating; and secondly, that the influenza bacillus was not often identified. It has been suggested that the examination may have been made too late in the course of the disease to discover the influenza bacillus, which could be crowded out by the other bacteria. In a number of typical cases, however, in which cultures were made early in the disease by Moody, the results were the same as in older cases. From a cultural standpoint the streptococcus deserves more serious consideration as the causative organism than the influenza bacillus. The possibility of some ultramicroscopic germ being the cause of the disease is suggested by the investigations of Kruse[5] and more recently by Foster,[6] who was able by inoculation of filtrated nasal secretions to reproduce the symptoms of common cold.

Was the influenza bacillus responsible for earlier grip epidemics?

It is interesting that the two organisms most constantly described in the pandemic of grip of 1889-1890 were the streptococcus and pneumococcus. Not until 1892 during a recurrent epidemic did Pfeiffer[7] publish his discovery of the influenza bacillus, and it is still unproved that this organism was a factor in the earlier and more extensive pandemic.

When we call to mind the marked tendency of the influenza bacillus to appear as a secondary infection in measles, whooping cough and other respiratory diseases (Davis), the rôle of this organism in grip may well be questioned.

Transmission of Grip.—The theory commonly accepted is that the disease is spread directly from one individual to another. Although Leichtenstern advocates this hypothesis, he calls attention to the fact that in many large institutions, prisons and hospitals, the inmates were almost immune, while the disease was prevalent among attendants, employees and visitors. A similar relative immunity of patients has been commented on in two large hospitals in Chicago.

At present no evidence has been offered to implicate milk, water or food as mediums of infection, and the appearance of the disease over the whole country at nearly the same time renders such means of transmission very improbable.

Nicolas notes an outbreak of grip among horses in New York, characterized by a high mortality from pneumonia. A similar epidemic among horses at the Chicago Stock Yards, was exhaustively studied last winter by Mathers. This investigation affords most interesting and valuable results. The nasal secretion at the very beginning of the disease yielded pure cultures of streptococcus. Death from bronchopneumonia was common. Cultures from the lung likewise showed almost pure growths of hemolytic streptococcus. Further investigation of the relationship of the strains of streptococcus obtained from equine and human influenza opens up the most promising opportunities of solving the problem.

MEANS OF PREVENTION

As we look back on this epidemic, we may well ask what we have done to prevent its inception and its dissemination. Have we profited from the knowledge of the last pandemic of grip, and have we developed any measures of defense against the ancient foe? Not in any adequate measure. Nor is it possible to make headway along preventive lines until we have a better understanding of the etiologic factors, the bacteriology not only of the throat, nasal and bronchial secretions, but also of the blood; the results of animal and human experimentation with cultures and filtrated secretions; the comprehensive study of clinical observations; the systematic collection of data on its prevalence in institutions, in towns and cities, and the further investigation of influenza of horses and other animals.

The Need of More Field Work.—We have plenty of research institutions, plenty of state and municipal laboratories, plenty of men capable of doing first class investigation. The trouble lies in bringing together the problem and the investigators. This year's experience illustrates the fact that epidemics cannot be properly studied in hospitals alone or from the material that is sent in to our health laboratories. Since the mountain will not come to Mahomet, Mahomet must go to the mountain. The laboratory workers must go out into the community and there obtain their material for study.

Furthermore, there should be a better organization of team work, so that a group of men can attack the problem simultaneously from several directions and correlate their efforts. To make such a campaign effective, it is of the utmost importance to attack the epidemic at the earliest possible moment, and for this purpose a plan of preparedness is necessary. We are aware of the splendid field work that has been done in recent years by the U. S. Public Health Service, a few research institutes and by certain progressive municipal health departments. Only by great extension of this type of field investigation can we hope finally to determine the cause and discover the means of prevention of the grip epidemics.

St. Luke's Hospital.

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[2] Williams: Bull. Dept. of Health, New York, February, 1916.

[3] Moody, A. M., and Capps, J. A.: Notes on Grip Epidemic in Chicago, The Journal A. M. A., May 27, 1916, p. 1696.

[4] Mathers, George: The Etiology of the Current Epidemic of Respiratory Infections in Chicago, The Journal A. M. A., Jan. 1, 1916, p. 30.

[5] Kruse: München. med. Wchnschr., 1914, lxi, 1547.

[6] Foster, G. B., Jr.: The Etiology of Common Colds, The Journal A. M. A., April 15, 1916, p. 1180.

[7] Pfeiffer: Ztschr. f. Hyg., 1892, xiii.

ACIDOSIS OF GASTRO-INTESTINAL ORIGIN

A PRELIMINARY STUDY BASED ON THIRTY-FOUR CASES *

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During the summer of 1913, our attention was particularly called to a class of cases which we have since rather loosely classified as intestinal intoxication or acidosis. Previous to this time we had occasionally noted acetone and diacetic acid in the urine of children sick with diarrhea, but had not realized their frequency or the gravity of the situation. When we began to look for these cases we found that they were fairly frequent, especially during the summer months, and that many cases which clinically belonged to this group did not reveal an abnormal amount of acetone or diacetic acid in the urine.

Perhaps the most prominent clinical feature presented by these cases was the severity of the illness, which often was seemingly out of all proportion to the amount of fever and diarrhea. The skin quickly lost its tone, there was pallor and an ashen gray color of the skin without cyanosis, the eyes became sunken, and the child was at first restless, then stuporous and finally lay in a coma. Often a specimen of urine was obtained with a great deal of difficulty even with a catheter, there apparently being a lack of urinary secretion. The progress of the illness was uneventful, ending as a rule in death within a few hours. The tongue was apt to be coated, but red at the tip and along the edges. With some exceptions the fever was not high, the range averaging from 100 to 101 F., with an occasional excursion to 102 or 103, and a rather frequent antemortem rise to 104 or more. If the patient came to the hospital early in the illness, vomiting was often marked; but later as the child became more and more stuporous, it usually became less and in the terminal stages almost ceased. The number of stools in the twenty-four hours was subject to great variation. Perhaps the most typical finding was a few foul smelling stools, or a history of many stools both during and preceding the onset of acidosis. It was not long before we noted that the most constant and perhaps the most nearly pathognomonic symptom of acidosis was alteration in the respiration. The costal and abdominal type of respiration took the place of the usual abdominal type. The amplitude of the respiration was greatly increased and was accomplished with a distinct effort. A modified Cheyne-Stokes type of respiration was occasionally present, but in general the excursion of the thorax and abdomen was nearly the same in each succeeding respiration. Eventually the respiration became feebler with only an occasional deep gasp, and finally ceased altogether, as if the respiratory center was exhausted by the exertion it had undergone. There was never any evidence of obstruction, and there was no cyanosis.

So far as we can discover, Czerny[1] was the first to call attention to the resemblance of the respiration of infants dying of this type of gastro-enteritis and that of rabbits poisoned with mineral acids.

In seeking an explanation for this phenomenon, Czerny and Keller found indications of an abnormal amount of acids in the body. Their chief proof of this condition was found in the abnormally high ammonia nitrogen, which, instead of being the normal 10 per cent., increased from 40 to 50 per cent. of the total nitrogen.[2] Langstein and Meyer[3] considered that this increase in ammonia coefficient was not due to abnormal unburned acids, but to several other factors, chief of which were (1) the loss of alkalies through the feces, whereby there was an insufficient amount of basic alkalies in the urine to neutralize the acids, so that ammonia as a neutralizing agent was increased; and (2) in the presence of intoxication in the course of inanition there was a rapid increase in the production of organic acids (acetic and oxybutyric), as a result of the disturbance of the nourishment of the infant. They were undecided as to whether in those cases of intoxication accompanied by glycosuria there was a disturbance of carbohydrate metabolism which was analogous to that occurring in diabetes which leads to an acidosis. On the whole, they refuse to commit themselves as to the seriousness of the condition of acidosis, and seem rather inclined to regard it as an expression of a condition and not of itself as a cause and effect.

Steinitz,[4] in an examination of the stools of infants on a high fat diet, especially if there was a diarrhea with loss of weight, found an excessive loss of sodium and to a less extent of phosphates, so that a negative alkali balance was established; for example, more alkali was lost in the feces than was received in the food. Holt, Courtney and Fales[5] confirmed this finding, but also found that there was an increased excretion of chlorids, which tended to establish a balance between alkali and acid loss. Clinically it seems doubtful if an acidosis can be explained on these grounds, for, after all, an acidosis is not a common accompaniment of diarrhea, and in fact seems most apt to occur when the diarrhea has been at most of moderate severity.

The formation of organic acids as a consequence of disturbance of nutrition is, of course, a matter for consideration. Where the disturbance of nutrition is at its worst, the presence of abnormal acids to a pathologic degree is not common. It is, however, in this type of case, as malnutrition, that acidosis most frequently occurs. It seems probable that a more or less lengthy period of malnutrition predisposes to such an attack. It has been suggested that the lower fatty acids, such as formic and butyric acid, which have long been recognized in the pathogenesis of dyspepsia, have a part in acidosis. The difference in the amount of these acids in acidosis is greater than in dyspepsia, perhaps on account of the introduction of special acid-forming bacteria, or as the result of the increased activity of the normal flora. The difficulty with this explanation is found in the fact that the amount of acid present is insufficient to account for the poisoning which takes place in these cases. In diabetes and cyclic vomiting there is often an enormous amount of acetone, diacetic acid and beta-oxybutyric acid without symptoms of acidosis.

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Czerny: Jahrb. f. Kinderh., 1897, xlv, 271.

[2] Czerny and Keller: Jahrb. f. Kinderh., 1897, xlv, 274.

[3] Langstein and Meyer: Sauglingsernährung und Stoffwechsel, p. 291.

[4] Steinitz: Jahrb. f. Kinderh., 1903, lvii. 689.

[5] Holt, L. E.; Courtney, A. M., and Fales, H. L.: The Chemical Composition of Diarrheal as Compared with Normal Stools in Infants, Am. Jour. Dis. Child., March, 1915, p. 213.

It seems more probable that the explanation of acidosis is found in a damage to the epithelium of the intestinal tract either by acids or bacterial products. It has long been recognized that the epithelium of the intestinal wall holds back many different substances, and that when this epithelium is damaged it becomes permeable for toxic materials. Lactose and the salts of milk, for instance, under these conditions may easily pass into the blood in so great a concentration as to act as poisons to the body cells. The increased concentration of salts causes a withdrawal of water from the cells, with the consequent water hunger which is so prominent a symptom of acidosis. The loss of alkali into the intestines may be due in part to a demand for neutralization of acids in the intestinal tract, but much more to the abnormal conditions of intestinal secretions. The nitrogen loss may be due to the breaking down of the body cells, or it may be considered as a symptom of a toxic splitting of albumin. As a result of the alkali withdrawal, the water hunger and loss of weight come to have a meaning, and furthermore it is easily understood that this extensive withdrawal of water from the body tissues may lead to a permanent damage of the ability to fix water by the organism. Here we find our explanation for the malnutrition and atrophy which so often follow an attack of acidosis.

Recently Howland and Marriott[6] have sought an explanation for acidosis in the retention of acids which are the product of metabolism. They point to the low urinary output in support of their contention, and suggest that there may be a loss of the acid excretory function of the kidney. It has long been recognized that in acidosis there is an enormous increase in the actual water content of the feces, so that the amount excreted respectively in the feces and through the kidney under normal conditions is nearly exactly the reverse of that in cases of acidosis. This is almost certainly the explanation of the rather small amount of urine passed, for water that leaves the body by way of the bowel will naturally be subtracted from that which is excreted through the kidney. Furthermore, a damage to the kidney sufficient to interfere with its acid excretory function should almost certainly manifest itself in other ways. Occasionally, but not regularly, there are albuminuria and casts. Examinations in a very limited number of cases have shown a blood urea, uric acid and creatinin which are within the normal limits for these substances. Finally, there is the very natural question to be answered as to how this damage to the kidney has taken place. If there is a retention of acid phosphates in the body in these cases, it is not enough to prove merely that it is present in excess, for that shows only a derangement of the normal mechanism by which the body normally takes care of the acids formed as the result of processes of metabolism. It does not in any manner suggest the cause of the derangement; and that, after all, is the important thing if we are to exercise any powers of prevention.

As Sellards[7] has pointed out, the food supply yields a limited amount of bases, but the acid-forming substances usually preponderate, the proteins yielding considerable acid on account of their content of sulphur and phosphorus. Furthermore, it must not be forgotten that the body is constantly elaborating acids as the result of the oxidation processes in intermediary metabolism. Certain organic acids are formed in the body in small amounts, to be changed as a rule into carbon dioxid and water, although small amounts of uric acid and lactic acid leave the body unchanged. Veeder and Johnston,[8] in a study of twenty-one normal children, always found ketones and betahydroxybutyric acid in children whose caloric requirements were fully covered by the diet. To guard against the harmful effects of these and other acids, the body has a most efficient mechanism. The maintenance of the normality of tissue reaction is largely dependent on the blood stream. It carries bases to the tissues to replace those used in neutralizing acid, and it is the medium by which acid products of cellular activity are removed from the cell. Hence it is seen that within certain narrow limits an acidity of the blood and tissues may be a normal condition; and it may be quite impossible to say at just what point it becomes pathologic. There comes a time when it is unmistakable, and it may increase until it of itself is a menace to life.

From the standpoint of both diagnosis and treatment it becomes important to have a method or methods of determining the presence or absence of an acidosis at the earliest possible moment. Sellards[9] removed the proteins of the serum with absolute alcohol and evaporated the filtrate with a few drops of phenolphthalein. Under normal conditions a deep purple results, but in acidosis the color is greatly modified or may be entirely absent. Carbon dioxid determinations will give a very accurate measure of the presence or absence of acids. An increased acidity of the blood stimulates the respiratory center to an increased activity in order that there may be a reduction in carbon dioxid, for the hydrogen ion concentration of the blood must be kept at a normal level. In other words, a rise in volatile acids is compensated for by a decreased carbon dioxid tension in the blood. The carbon dioxid tension of the air in the alveoli of the lungs will be the same as that in the blood. Howland and Marriott[6] have very fully described this method as a means of diagnosing acidosis in children. More recently Van Slyke has elaborated a method of determining the carbon dioxid tension of the blood. It is the method which we have recently been using. Of our thirty-four cases the carbon dioxid blood tension was determined twelve times by the Van Slyke method. Up to the present time our results seem fairly to parallel those obtained by Howland in his determination of alveolar air carbon dioxid tension. The Van Slyke method seems to us to be more accurate, and hence more scientific, but we doubt whether clinically it has any advantages over the method described by Howland. There is, besides, the ever present difficulty of obtaining a sufficiently large amount of blood from infants and small children, though by using the jugular vein or the median sinus we have not found this to be an insurmountable difficulty.

That acidosis is a condition seems to us to be now a well established fact. We have proved methods which enable us to make an earlier diagnosis than was formerly possible, and we are finding that it is of a much more frequent occurrence than we had previously supposed. The mechanism by which an acidosis is produced is not entirely clear, but we have seen that it is a very complicated process and probably is the result of many varying factors. It has seemed to us that a study of a group of cases might throw some light not only on the cause but also on the best method of treatment.

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[6] Howland, John, and Marriott, W. M.: Acidosis Occurring with Diarrhea, Am. Jour. Dis. Child., May, 1916, p. 309.

[7] Sellards: Bull. Johns Hopkins Hosp., 1912.

[8] Veeder, B. S., and Johnston, M. R.: On the Presence of Ketones and Betahydroxybutyric Acid in the Urine of Normal Children, Am. Jour. Dis. Child., April, 1916, p. 291.

[9] Sellards: Bull. Johns Hopkins Hosp., 1914, xxv, 147.

There have been in the babies' wards of the New York Post-Graduate Hospital during the past two years no less than thirty-four cases of acidosis. It is probable that we would have a larger number if there had been a carbon dioxid determination of the blood or of the alveolar air in all suspicious cases. As it was, the diagnosis depended on the clinical symptoms or on the presence of acetone and diacetic acid in the urine, and to a less extent on the breath. In these thirty-four cases, six patients died within a few hours of admission to the wards, almost before a diagnosis could be made, and long before effective treatment could be instituted. In all, sixteen patients with acidosis died, or 45 per cent. of these thirty-four cases. If the six noted above are subtracted, the mortality rate for the remainder is 35.6 per cent. Acetone and diacetic acid were found by test twenty-six times. Two patients who did not show acetone or diacetic acid in the urine in abnormal amounts had a carbon dioxid blood tension below 40 by the Van Slyke method. Of the twelve cases in which the carbon dioxid blood tension was determined, the lowest result obtained was 22 volumes and the average was 28. A rapid increase in the blood carbon dioxid tension followed the use of sodium bicarbonate, the rise often being to the normal figure of 60, or even slightly higher, to 65. With the reappearance of symptoms there was a rapid fall of carbon dioxid tension to 40 or less.

An outstanding fact in the study of our cases is the high mortality rate. These infants not only die during the attack, but also receive injuries which are often permanent in their effects. A very superficial examination of the series serves to emphasize the frequency with which recurrence of symptoms takes place, and will in an unmistakable manner connect the attack of acidosis with the milk.

We have seen only one case of acidosis in a child at the breast, and a careful questioning of the mother brought out the fact that there had been a single milk feeding just previous to the attack. In this series all of the children at the time of onset of symptoms were on some form of whole milk modification or on a general diet that included milk. The feedings, without exception were low in fats, generally did not contain an abnormal amount of sugar, and were high, sometimes excessively high, in proteins. A hot day and night were almost certainly followed by one or more cases of acidosis; and not infrequently the onset followed an early morning bottle, such as a feeding of, comparatively speaking, old milk. It is also to be noted that we have not encountered a case of acidosis in a child who for any reason was on a carbohydrate diet, even though the wards contained a number of such special diets during a period in which acidosis was fairly prevalent.

The frequency with which milk that exhibits the biologic activities of an exceptionally large number of bacteria is the cause of acidosis cannot possibly be determined by human experiment and probably not by animal experiments, for the reason that acidosis rarely occurs in children who are well nourished or who have previously had no gastro-intestinal disturbance. It is certainly not the bacteria themselves that cause the damage, but is rather the products of their life activity. Such products are the result of the breaking down of sugars and fats into acids or the poison split products of the decomposition of proteins. Such a decomposition of the milk may take place before it reaches the child, or quite conceivably after it has entered the gastro-intestinal tract. Acidosis results when these products are present in large amounts, or when the organism is especially susceptible.

In support of our idea that acidosis may result from the split products of proteins, Vaughan in a recent communication has shown that casein yields a large percentage of the protein poison, and that this poison is in and of itself strongly acid. In animals, at least, it is entirely capable of causing acute or chronic poisoning when administered by the mouth, in the latter instance resulting in extensive fatty degeneration of the tissues. There is a tendency for the protein poison of the casein to combine with certain unbroken proteins, so that its physiologic action is diminished and its acidity wholly or in part neutralized. It is interesting to note that these poisons which are consequent on the splitting of casein are capable of giving a skin reaction in all persons to whom they are administered. We find in the research of Vaughan an interesting support of our theory arrived at from clinical observations that acidosis of gastro-intestinal origin is probably always closely connected with the proteins and especially with the casein of milk. We have long believed and, as our observations have become more extensive, this belief has changed to a practical certainty that high protein feeding was not without its dangers and that under certain conditions might become an actual menace to life itself.

If the proteins or the products of the breaking down of proteins form the etiologic factor in acidosis, recurrences of this condition might naturally be looked for.

Recurrences are not only observed so near the first attack as to suggest the probability of a relapse, but are also seen over a period of weeks and months in a form which often suggests recurrent vomiting. In private practice we have had three patients who have suffered from cyclic vomiting for more than three years whose initial attack was diagnosed as intestinal intoxication and who we now know suffered from acidosis. These children had previously been well and able to care for any kind of food. At times the intolerance for milk after such an attack is so great as to suggest an idiosyncrasy or an actual anaphylaxis for milk. It would seem that this intolerance for milk is due to the protein rather than to the sugar or fats of the milk. There was certainly no apparent advantage in giving sugar or fat free milk. Whey was tried on only one occasion, for the result was such as not to be a temptation for further investigation. We should hesitate to assert that sugar was a cause of acidosis in view of the fact that of late a regular part of our treatment has been the use of glucose and thick gruels of barley, farina and oatmeal.

The suggestion that the etiologic factor of acidosis is to be found in the decomposition of proteins is supported in an interesting manner by the frequent finding of large amounts of indican in the urine. Indican was not invariably present, but when found was often in very large amounts. We also discovered that commonly it was a rather transient finding, being found on one day and absent or nearly so on the next.

Having noted that these children improved rapidly if they lived for a sufficient length of time for a cathartic to act, we were tempted to see what starvation would do. It was, however, with a considerable degree of hesitation that we instituted this measure, for we were familiar with the fact that mere starvation could be the cause of a very rapid increase of abnormal acids. Perhaps, somewhat contrary to our expectations, we have often noted a remarkably prompt improvement to follow on a period when nothing but water and a solution of sodium bicarbonate was given. We have seen the stupor disappear and respirations fall almost to normal over night with this simple treatment. We do not consider that this improvement was entirely due to the sodium bicarbonate, for under other conditions of feeding recovery, if it took place at all, was much slower.

A very important part of our treatment has been a thorough cleaning out of the bowels and especially of the small intestines. High colon irrigations and stomach washing did not accomplish much improvement if our efforts ceased at this point. Nearly always such a catharsis resulted in a very nasty, foul smelling stool.

The use of sodium bicarbonate is to be recommended as a valuable temporary measure. It has much the same relation to acidosis that the cold pack has to temperature. It serves to keep the patient alive until other measures which require time become effective. It should be pushed until the reaction of the urine is alkaline or the blood shows a normal reaction. We have made it a practice to give the sodium bicarbonate in every possible way — by stomach, by the colon, subcutaneously and intravenously — as the urgency of the symptoms seemed to dictate.

As we have tentatively connected attacks of acidosis with the milk — and perhaps most frequently with milk which contains an unduly high bacterial count — a very essential part of our treatment has been the elimination of milk from the diet for a considerable period of time. Our most successful cases have been those in which we have made a very slow return to the proteins. To an extent we have made vegetable proteins take the place of animal proteins; accordingly these children have been given thick gruels which were cooked for many hours. With the addition of sugar as the symptoms seem to warrant, the caloric requirements for a time, at least, can be met.

The mortality rate among children suffering from an attack of acidosis is so great as to make it a condition which should demand not only our interest but also our earnest investigation into its cause and treatment. We have suggested the close relation of acidosis to the milk supply and especially to the decomposition products of the proteins of milk. We have outlined a method of treatment which is more satisfactory than any that we have previously employed, and which is based on the assumption of the close relationship of milk and this type of acidosis.

Ocular Reflex of Auditory Origin.—The French authorities have designated as the standard of hearing for recruits that they can hear a whisper at 0.5 meter and the speaking voice at 4 meters. Simulation of deafness to escape military service is occasionally encountered, and it can be unmasked by the behavior of the eyes when a sudden, unexpected sound strikes the ear from nearby. With a sudden start from the loud sound close to the ear the subject winks, and the pupil may contract. This brief defensive closure of the eyelids of course does not occur if the subject fails to hear the sound. Molinié says in his description of the simple technic for the tests (*Revue de laryngologie,* 1916, p. 385) that it automatically sifts out the really deaf who might be accused of malingering otherwise.

MYASTHENIA GRAVIS, WITH THYMOMA *

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The patient whose case history is here given presented himself at the City Hospital in Minneapolis in November, 1915. The first and cursory examination suggested the usual type of bulbar paralysis, but after the patient had been admitted to the permanent ward and studied more carefully, the diagnosis was changed to that of myasthenia gravis.

The family history was as follows: The mother was living and well at 89; the father died at 60, the cause of death not known; two brothers were living and well; one brother died of pneumonia; there were no sisters; the wife died at 38, cause of death not known; there were two children, both of whom were living and well.

The history of the antecedents, so far as the patient was able to remember, revealed no nervous or mental trouble in the family, on either the paternal or the maternal side. There was no history similar to the condition from which the patient suffered in any member of the family.

The personal history showed that the patient had always been a strong, healthy man, and had never been seriously ill prior to the onset of his present trouble. He had the usual exanthemata of childhood, from which he made good recoveries without sequelae. Twenty-seven years before he had an attack of malaria, but was able to be about, and was at no time seriously ill. He had no other history of illness. He had suffered no serious injuries of any kind, and never had been operated on. His habits had always been moderate. He used very little coffee, no tea, and no alcohol, but had been for some time a heavy user of tobacco, and gave a history of more or less persistent constipation. Prior to the attack his appetite had been good, and he had slept well. He denied any venereal trouble, nor could any be elicited from laboratory findings. He had an inguinal hernia, but it was not troublesome or annoying. He had occasional attacks of tonsillitis, and he had hemorrhoids.

To the best of the patient's knowledge, he was in perfectly good health three years before. About May, 1912, following an exposure to cold while working in water as a ship's carpenter, he noticed within a few days a marked weakness of his neck muscles, and within two weeks he had developed a condition similar to the one from which he suffered when examined. The symptoms came on rather slowly, and were associated with slight pain and soreness in the muscles of the shoulder and the back of the neck, followed by a general muscular weakness, and particularly by an inability to close his mouth, to swallow solid foods, or to drink liquids. This condition progressed until the patient became very emaciated, and was almost unable to take nourishment at all. This illness lasted a few weeks, when he began to improve and recovered his strength; and within six months after the onset of his primary symptoms, he claimed that he was perfectly well, and during the interim he did not recall that he had felt any weakness of muscles or any inability to swallow or to speak.

Up to February, 1915, he was in his usual good health, and was able to attend to his work. During the month of February, 1915, without apparent cause, unless it was a slight cold, as he expressed it, following exposure, the above-named symptoms began to return. There was pain in the jaw, but not of a severe type. Gradually the muscles of the neck and throat became weak, and he was unable to move his jaw or to swallow or drink with his usual ease. At the time of his admission into the hospital in November, 1915, he had a slight ptosis of the right eyelid. The weakness that he complained of was most marked in his neck muscles, but the entire musculature was more or less involved, and during the time that he was under observation he was unable to walk, to make any marked exertion, or to eat a full meal. After a good night's rest the patient was very much better, but as the day went on his weakness became more marked. At the beginning of a meal swallowing and other movements of the jaw were comparatively free; but after a few moments the muscles tired, and he was unable to take further nourishment. It was difficult for him to blow his nose, and he was obliged to have his mouth closed and his chin held in position until he could force air through the nostrils. After talking for a few moments he was obliged to hold his lower jaw with the aid of his hand. Aside from this general weakness, and particularly of the muscles of the neck and jaw, and his inability to finish his meal, the patient felt fairly comfortable.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Neurologic examination seemed to show the mental condition to be normal for a man of his age. His speech was rather indistinct and slow, rather characteristic of his muscular weakness.

The first cranial nerve was normal. The second showed that vision was fair in both eyes and he had normal eyegrounds.

The ocular muscles, controlled by the third, fourth, and sixth nerves, were normal, with the exception that the right rectus was somewhat lax. He had no double vision and no nystagmus. The pupils, however, were irregular and slightly unequal, the right being larger than the left; both reacted sluggishly to light, but were normal for accommodation.

With the exception of a slight ptosis of the right eyelid, and the impairment of the external rectus muscle on the right side, there was nothing further to implicate the third and sixth nerves.

There was an apparent atrophy in both masseter muscles, and a marked inability to move the lower jaw. As a result of this involvement of the fifth nerve the mouth was open most of the time.

The seventh nerve presents no irregularities.

The eighth nerve showed that there was a moderate amount of deafness in the left side.

The tongue and palate were apparently normal. There was no facial or tongue tremor, except as was shown by his inability to swallow, and the fact that his speaking voice was below par, and any continued effort on his part to talk was accompanied by rapid muscular tire.

There was apparently no sensory disturbance to cotton, pinpoint, deep and superficial muscle sense, or vibration sense.

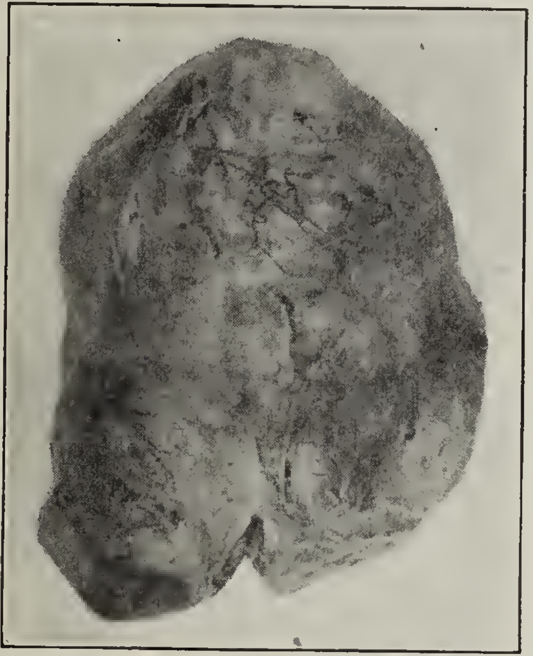

Fig. 1. — Photograph, natural size, of tumor removed at necropsy, situated in thymic region surrounded by firm capsule, with no perforations.

The biceps reflex was present and also the triceps. The supinator was active, and the patellar, active plus. The Achilles and abdominal and cremasteric were not obtained.

Coordination as far as was determinable was unimpaired.

The blood count was practically normal. A laboratory investigation of blood and spinal fluid showed the Wassermann negative. The urinary findings were also negative, eliminating any probable disease of the kidneys.

During the patient's entire stay at the hospital there was but little change from week to week in his condition. At times he felt better and stronger, and was able to move about in bed better at times; but there was no evidence of any marked change, with the exception of his dyspnea. On Dec. 10, 1915, he complained in the afternoon of a general fulness of his chest, an evident dyspnea. A hypodermic of $\frac{1}{200}$ grain of atropin was given, with the hope that it might relieve his distress. Ten minutes after the hypodermic was given he died suddenly.

A necropsy was made on Dec. 11, 1915, twenty-four hours after death, the report of which is as follows:

The body is well developed and fairly well nourished; pupils, 5 mm. in diameter and equal, no edema, no special marks.

The peritoneal cavity contains no excess fluid and no adhesions. Intestinal surfaces are smooth and glistening. Appendix is 8 cm. in length and free. Diaphragm extends to the fifth rib on either side. Mesenteric lymph nodes are firm and slightly enlarged.

There are no adhesions and no excess fluid in the pleural cavities.

The pericardial cavity contains about 3 c.c. of thin, clear fluid.

The heart weighs 275 gm. The epicardium is smooth and clear. The mitral valve shows a slight diffuse thickening. There are no lesions in the other valves. The endocardium is smooth and clear. The muscle is pale and firm. The root of the aorta shows no lesions.

The left lung shows a firm, whitish thickening of the pleura at the apex; thickness, about 6 mm.; dimensions of area, 2 by 1 cm. The lungs crepitate throughout. They are very deeply colored with black pigment. Throughout the lungs is a considerable number of small miliary nodules of firm consistence. In the apexes the miliary nodules show firm fibrous tissue of a black color. The cut surfaces of the lungs are fairly dry. The right lung weighs 375 gm., left 362 gm. There is an old healed apical tuberculosis of the lungs; old healed miliary tuberculosis of lungs.

The spleen weighs 130 gm. The capsule is wrinkled and slightly thickened. The pulp is fairly firm. The cut surface shows prominent lymph nodes.

The liver weighs 1,300 gm. The capsule is smooth and glistening. One small miliary nodule is noted on the anterior surface, resembling in structure those described in the lung. The cut surface shows no special markings. Lymphorrhages are numerous in the liver, and a few were found in the suprarenals.

The pancreas, gastro-intestinal tract and suprarenals show no gross lesions.

The left kidney weighs 108 gm.; the right, 112 gm. They are of a dark red color. The capsules strip readily, exposing smooth surfaces. The cortices are about 7 mm. in thickness and of a dark red color.

The bladder and genitalia show no pathologic condition.

The aorta is fairly elastic. A few very small, elevated, yellowish areas are noted.

A tumor is found in the thymic region, just above the heart and immediately behind the sternum. It is embedded in loose connective tissue, and is not adherent to the sternum or to any of the thoracic viscera. Microscopic examination of the adipose tissue surrounding the tumor shows the usual senile thymic tissue. The tumor is easily shelled out of the connective tissue envelope. It weighs 60 gm., is 6 cm. long, 3.5 cm. deep anteroposteriorly, and about 4 cm. in transverse direction. It is completely enclosed in a strong fibrous capsule about 0.5 mm. thick, which is not perforated at any point. The cut surface is of soft consistence, somewhat softer than the thymus of a child, and is studded with hemorrhagic areas. The cut surface is of a light gray color except in the portions containing blood. No lobules can be seen. (Compare Figures 1 and 2.)

Microscopically the tumor is seen to consist of fetal thymic tissue, that is, it shows epithelial cells in solid masses or arranged in a network among which there are varying numbers of small lymphocytes. The tissue corresponds to the fetal thymus at the stage when the epithelial organ is transformed into a lymphoid organ. No Hassall's corpuscles are present.

No lesions are found in the tissues of the scalp. The dura mater readily separates from the calvarium. The sinuses of the dura show no lesions. The subarachnoid contains a considerable amount of clear fluid in its dependent portions. The arteries of the brain are soft. The ven-
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tricles of the brain are not dilated and appear normal. A central coronal section through the brain shows no lesion.

The lumbar and thoracic part of the cervical spinal cord are removed. The meninges show no lesions. Sections of the cord show no gross lesions, except a possible softening in the anterior horns of the cervical cord.

The muscles examined were a few pieces from the sternothyroid and sternohyoid. These did not show lymphorrhages.

Of fifty-six necropsies on cases of myasthenia gravis that have been recorded since 1901, seventeen showed hyperplasia or persistence of thymus, and ten of the fifty-six cases showed a thymic tumor. This gives a thymic involvement in nearly half of the cases. All the thymic tumors except one have been of the benign type, somewhat similar to the case reported. The authorities seem to be very general in their statements that these tumors are special forms of hyperplasia, and not true neoplasms, and therefore can best be designated as benign thymomas.

The literature on the thymus gland is neither convincing nor satisfying. The fact seems to be generally accepted that the thymus and the thyroid are interrelated, particularly from a circulatory point of view. The assumption is quite clear, too, that the thyroid is responsible for disturbances of bodily metabolism; and it seems reasonably safe to assume that the thymus is in some way responsible for like conditions. Some investigators believe that the thymus and the lymphatic system are coordinated in function, and that the thymus itself is probably concerned in the production of lymphocytes. It is further probable that the thymus has some correlated effect with other ductless glands; and, like other glands, the thymus may be the primary seat of the attack. This does not necessarily mean that the thymus itself is an independent organ, but that it has its influence in the ductless gland chemistry, and certain persons have disorders and hyperplasias or diseases of the thymus, while in others the same conditions cause disturbance of other glands, as the thyroid or the suprarenals. One can only theorize on the whole situation concerning the dependence of the thyroid, thymus, and suprarenals, one on the other. The condition which we look on as status lymphaticus is something that we know very little about. We are led to believe from various sources that this condition may cause death under certain surroundings or circumstances. The same applies to the thymus, that there may be a status thymaticus or, as has been more aptly expressed, a status thymicolymphaticus. Some investigators do make a definite distinction between status thymicus, status lymphaticus, and status thymicolymphaticus; but this distinction can be demonstrated only after death. The group of symptoms which occur before death is not very readily differentiated.

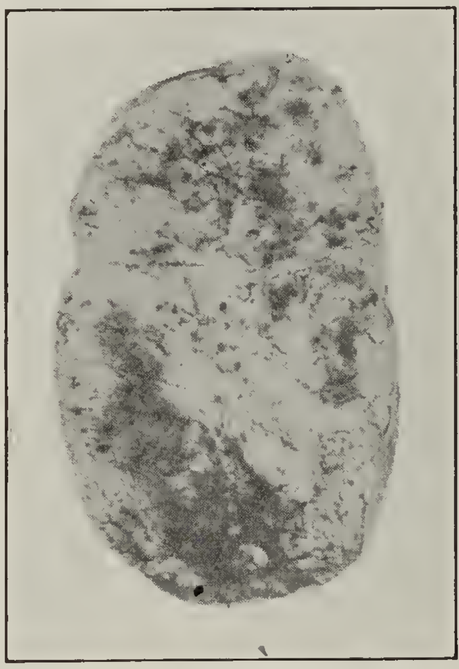

Fig. 2.—Cut surface of tumor shown in Figure 1. No lobulation; numerous hemorrhagic areas plainly visible.

The presence of a thymus in a person of middle life, particularly when associated with an exophthalmic goiter, is a very strong index that the thymus is the main disturbing element; and not infrequently the operator who removes the thyroid gland without recognizing the presence of a thymus hyperplasia produces a change in the circulation of the thymus which, not infrequently, is accompanied by sudden death. There is every reason to suppose, therefore, that sudden deaths in these cases of myasthenia gravis in which the enlarged thymus is present may occur, as in the case earlier recorded in this paper, and the death be a thymic death.

The relationship between thymic disease and the central nervous system has never been established, unless it be that certain types of people who have inherent tendencies or inherent defects may be subjects of hyperplasias of the thymus, as well as other organs; and this, in turn, may have produced a change in the blood stream of the brain stem, either from indirect pressure or from substances thrown into the circulation which affect the respiratory or circulatory centers. The majority of thymic deaths in young people and children are probably due to pressure effects, yet this does not eliminate the probability of toxins in the blood stream, as well as pressure from overgrowth. This theory is based on the experiments of a few of the observers who have found nerve lesions, particularly in the gray cells, in people who have thymoma.

ABSTRACT OF DISCUSSION

Dr. Walter B. Swift, Boston: It has been held by Brown of Brooklyn that thymus enlargement is an etiologic factor in stammering. I should like to ask Dr. Jones if any of the cases he knows about have stammering connected with this lesion.

Dr. R. Foster Kennedy, New York: In my first two years at the National Hospital I did not see any case of myasthenia gravis. Later we had nine cases inside of eighteen months. Seven of these patients died; we succeeded in getting six postmortem examinations. Of the six cases, five had thymic persistence. In practically all of these the thymus was as large as my hand and was as thin as tissue paper, comprising a thin sheet of glandular tissue which spread down over the whole of the upper part of the pericardium. While it was not clear to us a half dozen years or so ago what the connection between the clinical disease and these extraordinary pathologic findings might be, it did occur to our dull intelligence that it was more than a coincidence, that there must be here some relation between cause and effect. I have seen only one case of myasthenia gravis in a woman over 25. They were nearly all young women; the men patients were always in middle life. Sir William Gowers published a group of cases of three men as I remember, which he calls pseudomyasthenia gravis, as a result of gasoline poisoning, or as he called it, petrol poisoning.

Dr. C. Eugene Riggs, St. Paul: I have under my care at the present time a case of myasthenia gravis in a woman who is over 25 and under 30.

Dr. George A. Moleen, Denver: A case came under my observation as a dysentery and in Colorado when we find dysenteries, emaciation and marked prostration one of the first assumptions is "tuberculosis." On inquiry it was learned that it was not lung trouble for which this patient came West, but a muscular weakness. He had been examined in Chicago by a very good man some twenty-four years before and the condition was then pronounced a progressive muscular atrophy; six years later it was called myasthenia gravis. The myasthenia was evident, and it occurred in epochs. The acute attacks occurred in periods of two or two and one half years, with all the bulbar and ocular symptoms, then he would gradually recover, gaining in strength. But since the last two or three attacks prior to observation he had not recovered completely. Examination revealed tenderness under the right lower costal margin at that time, and very fortunately segregation of the urine revealed pus coming from the right kidney. Exploratory operation revealed a large perinephritic abscess which compressed the right suprarenal against the lower surface of the liver on that side. Evacuation and drainage of that caused prompt return of his power. I followed the case for about six months after that, when he returned to Kansas, and took up his occupation. The case was distinctly myasthenic in type, and at that time was reported as a case of Addison's disease from a perinephritic abscess.

Dr. William A. Jones, Minneapolis: In the literature on myasthenia gravis I found nothing relating to speech defects, particularly stammering. I have seen but few cases of what I believed were true myasthenia gravis, and the two or three I have in mind at the present time have manifested no marked change, and are still living fairly comfortable lives. The tumor in the case I reported was about the size of a large Damask plum, and naturally occupied a considerable space in the mediastinal region.

EXPERIMENTAL STUDIES OF INJECTION OF THE GASSERIAN GANGLION

CONTROLLED BY FLUOROSCOPY *

LEWIS J. POLLOCK, M.D.
AND
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A perusal of the contemporaneous literature leads to the conclusion that gasserian ganglion operations and intraneural or intraganglionic injections of alcohol are the procedures of selection for the treatment of trifacial neuralgia.

The technical difficulties of operations on the gasserian ganglion or its sensory root and the relatively high mortality attending such operations, except in the hands of a very few surgeons, made welcome a procedure which offered at least alleviation without danger, disagreeable sequelae or great difficulty.

The injection of pain deadening and nerve destroying substances into the trifacial nerve dates back to 1874, when Bartholow reported successes with the injection of chloroform. Successful results with the injection of osmic acid were recorded through a period of years following Billroth and Neuber in 1884, by Eulenberg, Shapiro, Bennet, Murphy, Wright and others.

It was not until Schlösser reported the results of his experiments in 1903 that persistent efforts were inspired for the development of a technic for successful alcoholization of the fifth nerve. About the same time further impetus was given by the work of Ostwald, Levy and Baudoin. The technic of the latter two was adopted by Patrick, Hecht, Sicard, Harris and others. The development of the technic and the reports of its successful employment by these workers has placed this procedure permanently among the methods employed for the effective relief of trifacial neuralgia.

It is not within the scope of this paper, which deals with a technical problem, to describe the details of the development of methods of injection and their results.

Suffice it to say that in the hands of operators who have had wide experience and who have developed consummate skill, all these methods are uncertain. As Patrick[1] says, "It requires little experience or reflection to realize that no one can uniformly touch with a needle a given point 4 to 5 cm. (2 inches) below the surface."

The uncertainty of prevailing methods led us to pursue some experimental work on which this paper is based. We are concerned with reaching the gasserian ganglion through the foramen ovale. Part of the experiments deal with a route which Harris uses in his technic. He, with Patrick and others, employs with little modification the course adopted by Levy and Baudoin. The needle is inserted in the sigmoid notch from 1.5 to 2.5 cm. anterior to the anterior root of the zygoma or from a point immediately in front of the preglenoid tubercle, to one a centimeter farther forward. The needle is directed somewhat backward and slightly forward, and at 4 cm. should reach the nerve. The needle arrives at the foramen ovale after having passed through the skin, subcutaneous tissue, the zygomatic insertion of the masseter, posterior portion of the temporal tendon, superior border of the external pyterygoid muscle and lastly in the front of the temporo-maxillary articulation. Patrick[2] has called attention to the fact that:

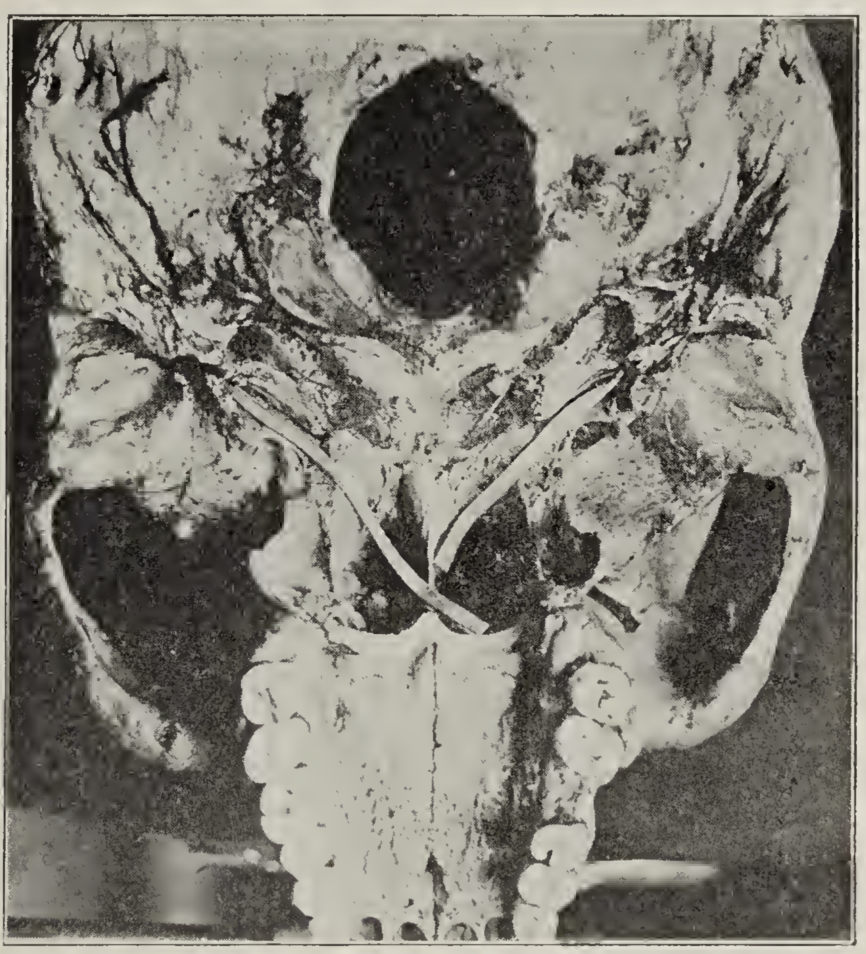

Fig. 1.—Lead strips in the groove of the eustachian tube, showing the foramen ovale immediately external and anterior to it.

> A really valuable landmark is the external pterygoid plate. The foramen ovale, at least in the vast majority of cases, is directly back of this and at about the same depth. Hence I aim to strike this plate close to its posterior edge and then work backward until the needle slips by it. Then I have every reason to believe that the point of the needle is just in front of the nerve and at about the proper depth.

Patrick gives a very valuable guide to be used in determining the approximate depth of the foramen from the surface. Analysis of his measurements in

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Patrick, Hugh T.: The Treatment of Trifacial Neuralgia by Means of Deep Injections of Alcohol, The Journal A. M. A., Nov. 9, 1907, p. 1567.

[2] Patrick, Hugh T.: The Technic and Results of Deep Injections of Alcohol for Trifacial Neuralgia, The Journal A. M. A., Jan. 20, 1912, p. 155.

eighty cases indicates the following: When the interzygomatic diameter is 5 inches, the nerve will be found at 4 to 4.25 cm. When the interzygomatic is 5½ inches, the nerve is apt to be at over 4.5 cm.

If one follows these various details of procedure, the needle may be inserted to a place in very close proximity to the foramen, and we are concerned with making this proximity as great as possible.

A study of the anatomy of the parts about the foramen ovale shows that along the line of the sphenopetrosal fissure the edges of the adjacent sphenoid and petrous-temporal bones are beveled "so as to form a groove which extends from the root of the inner pterygoid internally, to the inner side of the base of the alar spine externally . . . in the groove is lodged the cartilaginous part of the eustachian tube. . . . Between the root of the external pterygoid plate and the alar spine there are two foramina which lie directly in front of the sulcus of the eustachian tube. Of these the larger and anterior is the foramen ovale." (Cunningham.)

A view of a sagittal section of the skull at the plane of the foramen ovale shows that it is directly in front of, above and internal to the eustachian tube. A study of both sides of fourteen skulls showed that however the groove for the eustachian tube varied in its course, the bone separating the sulcus from the foramen varied in thickness but from 1 to 3 mm.

It follows that to successfully introduce a needle into the foramen ovale it is necessary only to visualize the eustachian tube and to establish certain angles and lines which would by means of the fluoroscope enable one to determine when the point of the needle is in front, above and external to the eustachian tube at a proper depth.

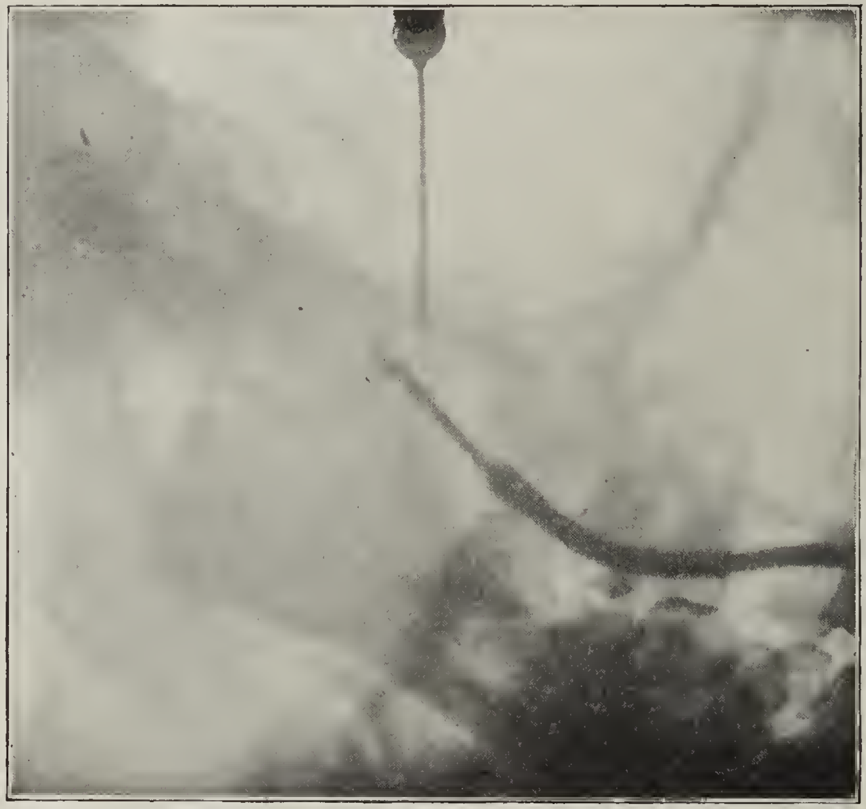

Fig. 2.—Needle in foramen ovale and eustachian bougie in position. The needle can be seen entering the foramen on the linear shadow cast by the structure through the inferior border of the great wing of the sphenoid.

The visualization of the direction and approximate location of the eustachian tube is easily accomplished by the introduction of a eustachian catheter with the assistance of a nasopharyngoscope (so that one is certain of having entered the ostium), and by inserting through the catheter a bougie made of fuse lead or one made of flexible spirally wound gold wire. This, when it is inserted to a depth of about 1 inch beyond the end of the catheter, is about at the beginning of the isthmus of the tube at its entrance into the osseous canal. The course and position of the tube can now readily seen by means of the fluoroscope (Fig. 2).

The rays should enter the head at the opposite occipitoparietal protuberance at an angle of 120 degrees to a coronal section, and at an angle of 45 degrees to a sagittal section of the head. Under these conditions, a needle introduced at the sigmoid notch and taking a direction approximately at an angle of 20 degrees to the sagittal suture and 130 degrees to the coronal section would be directed toward the foramen ovale and be projected on the screen as traveling downward toward the eustachian tube, at an angle of 90 degrees from the point of entrance.

If the needle is introduced in this direction to a depth determined by computation from the intertubercular diameter, and does not cross the shadow thrown by the eustachian bougie, it is at its proper depth.

If the rays now be shifted so that they enter in the direction of the needle, the butt of the needle should appear above the eustachian tube, determining its proper height. This leaves undetermined the anteroposterior location of the foramen. The bony structure seen through the inferior border of the zygomatic surface of the great wing of the sphenoid throws a shadow running anteroposteriorly and upward and when visible, the foramen ovale may be found somewhere along its course.

An approximate formula may be formed. If under the above conditions a needle be introduced to a point above the eustachian tube, and to a depth not crossing it, it can be caused to enter the foramen ovale by directing it at points along the described line from before backward. When this line is not visible, the needle may be directed from 0.5 to 1 cm. above the shadow of the eustachian bougie.

A large number of factors entering into the optical physics of the formation of the shadow of the eustachian bougie make the distance between the shadows of the eustachian bougie and foramen ovale vary to such a degree that the actual distance cannot be computed.

On cadaver heads this method offers such assistance that a needle can be successfully introduced into the ganglion on each attempt. When, however, we are dealing with live subjects, a new factor is introduced which for the time precludes the possibility of the employment of this method. We attempted this method in three cases and found that the secondary rays developed in the tissues, principally the brain, diffusing the shadow of the slender needle to such an extent that proper methods of diaphragming must first be developed that will eliminate these rays before the fluoroscopic projection of the eustachian tube may be employed as a means of accurately locating the foramen ovale.

Failing in this direction, we began to study another route.

Härtel[3] has given us a route which has made the approach through the foramen ovale more practical and useful. To Grinker,[4] who first made Härtel's method known to American readers, we are indebted for some of the following description. The needle is introduced through the cheek opposite the alveolar process of the second upper molar tooth. It is guided by means of a finger in the mouth so as to pass between the anterior ramus of the lower jaw and tuberosity of the superior maxilla. "Causing the needle to sweep around the buccinator muscle, the operator pushes it onward between this muscle and the masseter, coronoid process of the lower maxilla and the temporal muscle externally, into the zygomatic fossa. Continuing in the direction upward, backward and slightly inward, the needle now reaches the broad under surface of the great wing of the sphenoid, having pierced the external pterygoid muscle, which fills the zygomatic fossa."

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[3] Härtel, F.: Arch. f. klin. Chir., c, No. 1.

[4] Grinker, Julius: A New Method of Treating Neuralgia of the Trigeminus by the Injection of Alcohol into the Gasserian Ganglion, The Journal A. M. A., May 3, 1913, p. 1354.

According to Härtel, the needle points to the pupil of the eye of the same side and on lateral view the needle points to the articular eminence on the zygoma. The needle engages the foramen ovale at a depth of about 6 cm. from the point of entrance.

Maes[5] has found that the foramen was more accessible from a point behind the last molar tooth of the lower jaw than from the point given by Härtel. From a study of forty skulls we found that projecting a pin through the foramen ovale hugging the anterior border of the petrous portion of the temporal bone, the point of entrance would fall in most instances at a point between the second and third molars of the upper jaw.

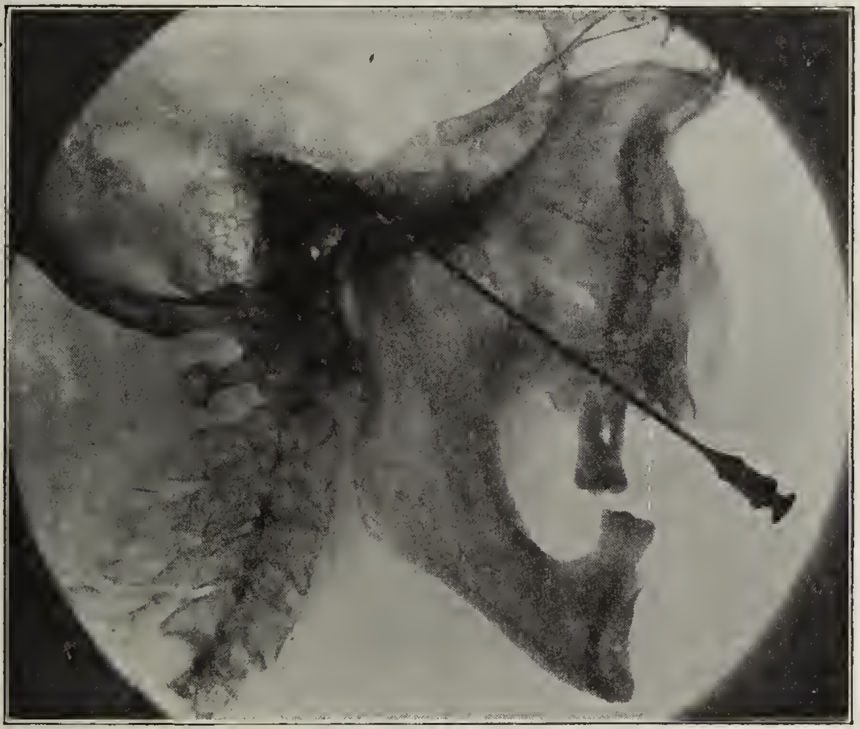

Fig. 3.—Needle inserted through the foramen, resting on the anterior border of the petrous portion of the temporal bone.

The depth to which the needle should be introduced may be more accurately estimated by using the data we have derived from an examination of both sides of forty skulls. The distance from the point of entrance of the needle to the preglenoid tubercle, or the alveolar tubercular measurement, was greater than the distance from the point of entrance to the foramen ovale or alveolar foraminal measurement in all but two instances. Of these, one was an anomalous skull, and the other, one in which the intertubercular measurement exceeded 5½ inches. In all other skulls it was found that the alveolar foraminal was less than the alveolar tubercular measurement by from 0.1 to 0.9 cm. Eighty per cent. of the cases showed a difference of less than 0.6 cm., 50 per cent. less than 0.4 cm. Of the cases showing a difference of over 0.6, many occurred where the intertubercular diameter was less than 5 cm., and some where the alveolar tubercular measurement exceeded 5.5 cm. The depth of the foramen from the zygoma did not bear a constant relation to the alveolar foraminal measurement, except in that where the foramen was deeply situated the alveolar foraminal measurement was often inclined to be greater than usual.

The anterior border of the petrous portion of the temporal bone, when the head is viewed exactly laterally through the fluoroscope, throws a shadow easily seen in living subjects. This shadow forms a line which is a direct projection of the shadow cast by a needle entering a point between the second and third molars of the upper jaw. If, therefore, a needle be introduced here and pushed, according to Härtel's directions, to a depth computed by our measurements, it will be approximately at the foramen ovale. If now the needle be directed so that a projection of the shadow would follow the shadow of the anterior border of the petrous portion of the temporal bone, or 1 or 2 mm. below it, the anteroposterior and superior planes of the foramen ovale will be accurately located. The internal and external planes of the foramen ovale cannot be located by the fluoroscope, and one is guided by Härtel's direction to point at the pupil of the same eye and by the pterygoid bone. The superior inferior plane may be further determined, if necessary, by employing a shadow of an opaque eustachian bougie, when the needle should be above it, and here the secondary rays do not interfere with the visibility of the shadow of the needle.

In our experiments, employing both sides of the fourteen heads, no difficulty was experienced in introducing the needle into the foramen ovale on each attempt. It might be said that the introduction of a needle into a given point of a cadaver which cannot bleed, suffer pain or experience injuries of various important structures, is quite a different matter from accomplishing the same result in the living subject.

We have had only one opportunity of using this method on a living subject. Here the lower and middle branches of the ganglion were easily reached and injected, with immediate relief of pain and good analgesia.

In conclusion we may say that employing the shadow cast by the anterior border of the petrous portion of the temporal bone, on a fluoroscope, as a line of orientation injection of the gasserian ganglion by Härtel's method is made more certain.

25 East Washington Street—122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Hugh T. Patrick, Chicago: It remains to be seen whether Dr. Pollock's method will prove to be a practical one to be used in the majority of these cases. The method of Härtel, under proper guidance, perhaps according to the method which Dr. Pollock has devised, may prove to be an entirely practical and practicable procedure; but I must say that under the rules which Härtel himself originated, I never had the courage to attempt to inject the gasserian ganglion. I may exaggerate the dangers a great deal but I do not really want to demonstrate to myself that it is a dangerous procedure. The operation has, of course, been done successfully a number of times, and I hope under the scientific guidance of Dr. Pollock we may be able to do this accurately and without danger. And this is a consummation devoutly to be wished. Injection of the ganglion by the Harris method is disappointing to me. I have tried it a number of times; occasionally the needle goes through the foramen ovale and reaches the gasserian ganglion or its vicinity with a facility comparable to putting one's hand in one's pocket. And the next time the needle does not find the foramen at all.

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[5] Maes, Urban: Surg., Gynec. and Obst., 1915, xxi, 449.

Dr. Julius Grinker, Chicago: While in Berlin in 1902-1903 I saw Härtel demonstrate his method, which was new then. I also saw the cases as he demonstrated them before the Berlin Surgical Society. There were five patients, each one having been afflicted with a very formidable sort of tic douloureux and each one having received a number of peripheral nerve injections without benefit. Relief came promptly after Härtel's injections. The first injections were made, not to relieve neuralgia, but to anesthetize the face for operation. For this purpose Härtel uses small doses of novocain introduced into the gasserian ganglion, which permit operation on any part of the face without a general anesthetic. It was the ease with which he succeeded in anesthetizing the face that led him to adopt the injection of alcohol directly into the ganglion as a means of giving relief for trigeminal neuralgia. My own impression of the method is that it is not more difficult than injection by the Boudouin-Levy method with which Dr. Patrick made us acquainted. When first shown to me, I thought it a rather formidable procedure — to take a needle of such large caliber and bore a hole in the patient's face. Nevertheless we tried it and succeeded in giving relief to many unfortunate sufferers. Härtel uses a very fine needle, so fine, indeed, that it matters little whether you introduce it twenty times or only once. It does no damage if you follow his directions. Nevertheless, I believe a simplified method would be a great advantage. Personally I do not so much fear the difficulty of getting into the ganglion, as the consequences of having entered the ganglion, namely, the corneal ulceration. As a successful gasserectomy done by the surgeon is in many instances followed by ulceration of the cornea, so do we get a similar result after successful injection of the ganglion. And it is this apprehension which has really prevented me from repeating the injection more than twice. In short, I fear the aftereffects of a successful injection much more than the difficulty of getting into the foramen.

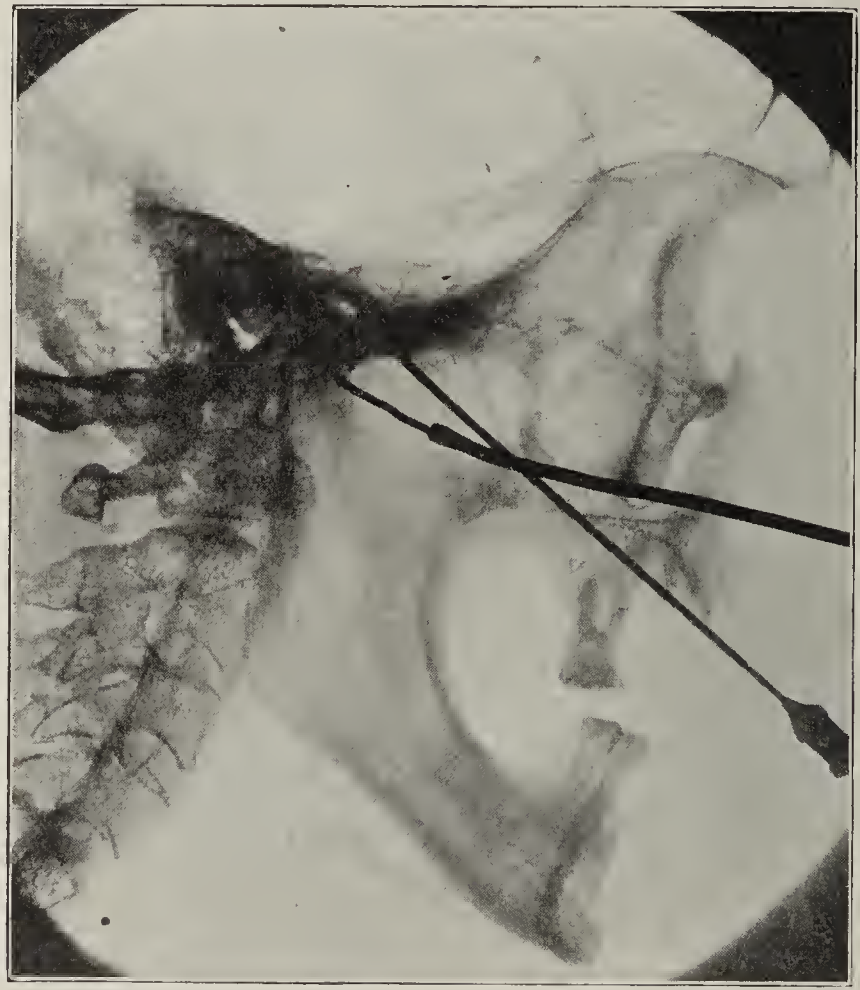

Fig. 4.—Needle in the foramen ovale, the eustachian bougie in place to indicate the proper height.

Dr. M. A. Bliss, St. Louis: I have felt that the injection of alcohol was a more or less temporary measure. The cells of the ganglion are much more resistant to alcohol than are the fibers of the trunk, according to the observations I have seen quoted. I would like to ask whether in any successful injection of the gasserian ganglion the anesthesia and the relief from pain is reasonably permanent.

Dr. Charles R. Ball, St. Paul: For about eight years I have been making these injections by the Boudouin-Levy method which Dr. Patrick first brought to this country. Injection of the ganglion is no trivial procedure. The procedure is to be entered on with a proper sense of appreciation of the danger connected with it. In the first place we must have the right sort of a needle. I sent to Berlin and procured Härtel's injection outfit; since then I have been using the Härtel needle in all my injections. It has the disadvantage that after you start your direction, the needle is so fine that you cannot change it; therefore if you do not enter the foramen you have to withdraw the needle and start over again. Another objection to the fine needle is that a little bit of blood is liable to cause it to become occluded, particularly if you have squeezed a few drops of alcohol through the end of the needle. Alcohol coagulates blood very readily, and it is most distressing sometimes to find that you are in the correct position, but that the needle is occluded.

In getting into the gland I have had the experience related by Dr. Patrick. When I heard Dr. Harris describe his method it seemed good, so I practiced on a cadaver and found no difficulty in entering the foramen ovale from the side according to the Harris method, also no difficulty in entering the foramen ovale from the front according to the Härtel method. But I noticed that many times when I went into the foramen of a living subject this did not mean that I had got into the ganglion by any means, but that the end of the needle was under some dense tissue, and this tissue prevented me from injecting the ganglion with alcohol.

The best ganglion injection I ever made was an accidental one. I was trying to inject the third branch of the nerve according to the Levy-Boudouin method. I introduced the needle to the point where I thought the exit of the third branch ought to be and injected about 1 c.c. of a 90 per cent. solution of alcohol. The patient immediately went into collapse, became unconscious, had paralysis on that side of the face, and I thought she was going to die on the table. She was over 80 years old. The facial paralysis was the most complete I ever saw, but this did not bother her a bit; we had a beautiful anesthesia of the three branches of the fifth nerve and she was highly pleased and delighted with the results. Last winter I had one of the most intractable cases that I have ever encountered. I am sure that I entered his foramen ovale according to the Härtel method on two different occasions and injected alcohol. On one occasion I got facial paralysis and nystagmus, anesthesia of all the branches of the fifth, and temporary anesthesia of the cornea, and yet, with the exception of the partial anesthesia of the cornea, the pain still continued.

Dr. Ernest Sachs, St. Louis: Dr. Ball is frank enough to tell us of the untoward accidents. I should certainly hesitate to undertake any procedure when I had such complications. I judge that what happened in Dr. Ball's case was that when the alcohol was put into the cavum meckeli it went where the cerebrospinal fluid goes; when you open the cavum meckeli you always get discharge of cerebrospinal fluid. I have had no experience with injection of the ganglion; I would not think of doing it or trying it. Gasserectomy, when carefully done, is not the dangerous operation that it is generally supposed to be. About a month ago Dr. Harvey Cushing reported about 150 gasserectomies without a single death, no complications, except one or two corneal ulcers which healed, and no blindness. It would seem to me that results of that sort are far better than doing an operation which is absolutely in the dark and very dangerous.

Dr. George Morris Dorrance, Philadelphia: In cases of operation on the face, we inject the ganglion with novocain to obtain the required anesthesia. We injected 300 cadavers, making 600 injections. In some cases we went under the ganglion and that made us fail; in others, over the ganglion, sometimes hitting only a part of the ganglion. I usually get it the first or second time and it comes easy after doing a few. You should, of course, inject novocain before the alcohol. If you get complications, you do not inject the alcohol but withdraw the needle and make a second puncture. If the neuralgia is confined to the third division, you do not necessarily inject the ganglion, but the third division only. However, it is not difficult to inject the ganglion. We do have recurrences, but when the operation is done right along, the procedure is not so difficult as has been intimated by Dr. Sachs. Sometimes we do find a difficult case; sometimes the material will not diffuse through the ganglion easily. Be sure to use the novocain first. It saves getting into these terrible complications.

Dr. Lewis John Pollock, Chicago: It was not my intention either to provoke or to enter into a general discussion as to the merits of alcoholization of the component portions of the nerve or the ganglion itself. I had felt, contrary to the impression of Dr. Dorrance, that injection of the ganglion was difficult, irrespective of any procedure known at the present time; and that if a method could be devised which would make it more certain and less liable to be followed by any untoward results, we would be doing some service. The dangerous zone in doing the Härtel injection lies not anteriorly, but posteriorly, inferiorly and internally. If the needle is kept so that it enters not more than one or two millimeters below the shadow of the anterior border of the petrous portion of the temporal bone, it cannot go either too far back or too low down. Therefore, it will strike either the external plate of the pterygoid or the large wing of the sphenoid and you can do no damage to the structures here. As to Dr. Grinker's apprehension concerning the production of corneal ulcers, one should, of course, mention this complication under the discussion of advantages and indications and contraindications of injection of alcohol, and other methods of surgical treatment of trifacial neuralgia as well. In reply to Dr. Bliss, I would state that the ganglionic as well as the intraneural injections are only temporary. But in experimental work done by Byrnes it has been found that the sensory cells of the ganglion itself do degenerate and that this practically puts the nerve out of commission, more so than injections into the nerve itself. Of course, it is not necessary to inject the ganglion by this method; you do not have to push the needle in all the way; you can inject the lower branch alone, and that is the branch which is difficult to inject. The middle branch is easily injected. And it is not necessary to include all the ganglion in the injection if one proceeds carefully; if one is guided by proper measurements he will be able to separate the injection of the third branch from that of the first. I was very glad to hear Dr. Dorrance bring out the point that one can inject the third branch alone.

Referring to Dr. Sach's remarks, from a review of the literature as well as from personal observations, I feel certain that these untoward accidents do not result in permanent damage and, further, that they occur but very seldom, and exceedingly seldom as compared with the general results obtained by all general surgeons collectively in operations on the gasserian ganglion or its sensory root.

A FURTHER NOTE ON THE DIAGNOSTIC VALUE OF RETROBULBAR NEURITIS IN EXPANDING LESIONS OF THE FRONTAL LOBES

WITH A REPORT OF THIS SYNDROME IN A CASE OF ANEURYSM OF THE RIGHT INTERNAL CAROTID ARTERY *

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Difficulty in the diagnosis of cerebral lesions varies directly with the degree of physiologic latency possessed by the affected brain area.

Again, even when tissue subserving active function becomes irritated or destroyed by disease, our difficulty in decision as to the part involved depends largely on the degree of objectivity in the phenomena produced.

The vertigo accompanying cysticercus of the fourth ventricle eludes the descriptive powers of the majority of patients, nor are the uncinate fits associated with irritative processes in the hippocampal gyri more easily portrayed: in consequence of the difficulty in describing concretely such subjective states, occurrences of the most precise character are apt to be misinterpreted by even alert observers. In the recognition of disease affecting the frontal lobes there is ample illustration of the truth of these general propositions. These gyri are not only highly latent, but such exiguous symptomatology as has been ascribed to them consists mainly of certain ill-defined abnormalities of mentality and conduct.

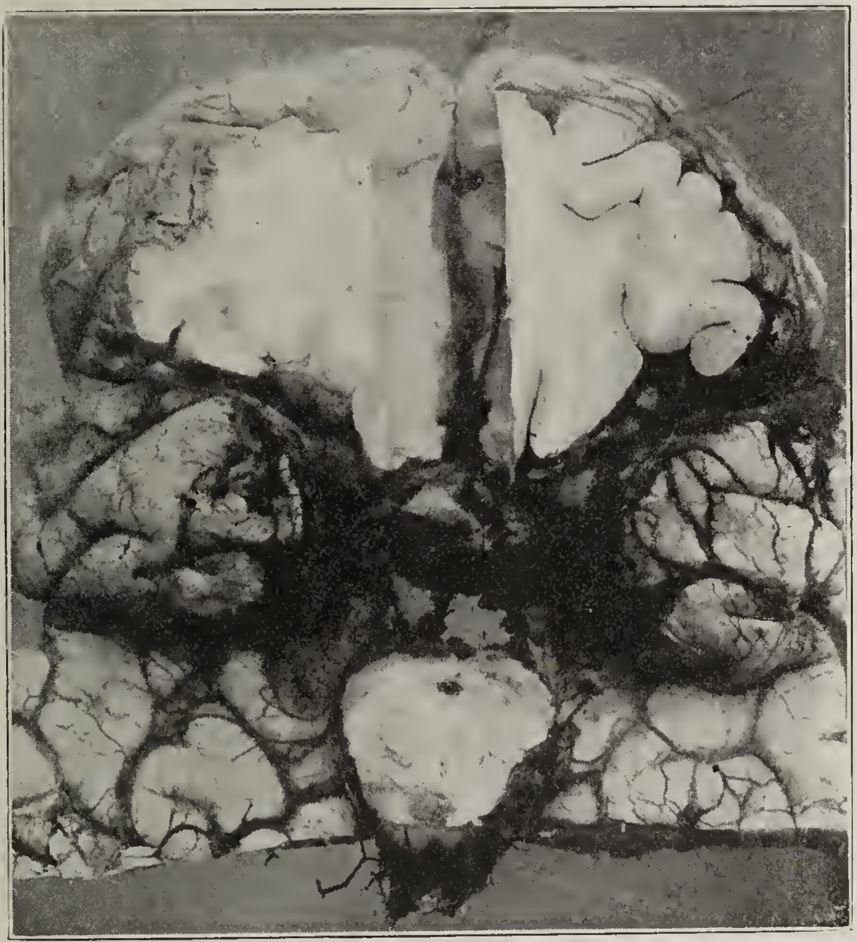
Fig. 1.—Inferior aspect of brain, showing aneurysm of right internal carotid artery. The optic nerves have been removed and would lie on the aneurysm, between it and the observer.

It is, therefore, proposed in this short communication again[1] to draw attention to a syndrome referable to the inferior frontal areas, a clinical picture also which is capable of such objective investigation as to facilitate decisively the diagnosis of pressure-producing lesions of these parts.

The sign of which I wish to speak is the occurrence of a true retrobulbar neuritis, with the formation of a central scotoma and primary optic atrophy on the side of the lesion together (if pressure be sufficiently great) with ipsolateral anosmia and papilledema in the opposite eye. The mode of production of this situation may be illustrated by the case of a woman, aged 53, kindly referred to me by Dr. John Shannon in

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Kennedy, Foster: Retrobulbar Neuritis as an Exact Diagnostic Sign of Certain Tumors and Abscesses of the Frontal Lobes, Am. Jour. Med. Sc., September, 1911.

February of this year. This patient complained only of blindness in the right and decrease of vision in the left eye. The history was as follows:

All her life she had been apparently strong and of good physique and health; she had borne three children, all of whom were healthy. There had been no miscarriages. In September, 1915, without any previous premonitory symptoms, she found that she was not seeing clearly with the right eye. This symptom was definite from the first and progressed from week to week. An examination at that time showed, first, that there was an enlargement of the right blind spot and, later, the definite formation of a small central scotoma, complete for form, and a larger scotoma encircling the other, complete only for color. This central visual defect became, as the weeks passed, more pronounced until, at the end of two months, the patient was able only to see moving objects in the periphery of the right visual field. Most properly her frontal and sphenoidal sinuses fell under suspicion. Roentgenograms were taken which failed to demonstrate any abnormality of these parts. However, lest a mistake should have been made in the radiographic deductions, an exploration of the sinuses was performed, with negative results. There were no other subjective symptoms at that time, but the reaction of the right pupil was diminished in extent; the pupil reacted to light quickly, though with small amplitude, but speedily rebounded, the degree of illumination having been maintained the while. This phenomenon has been called the retrobulbar pupillary reaction, in that it occurs apparently exclusively in conjunction with retrobulbar neuritis. The existence of this latter condition was further demonstrated by the fact that the right optic nerve, as seen by the ophthalmoscope, showed a distinct pallor in its outer part. The patient remained well with the exception of occasional very slight headache.

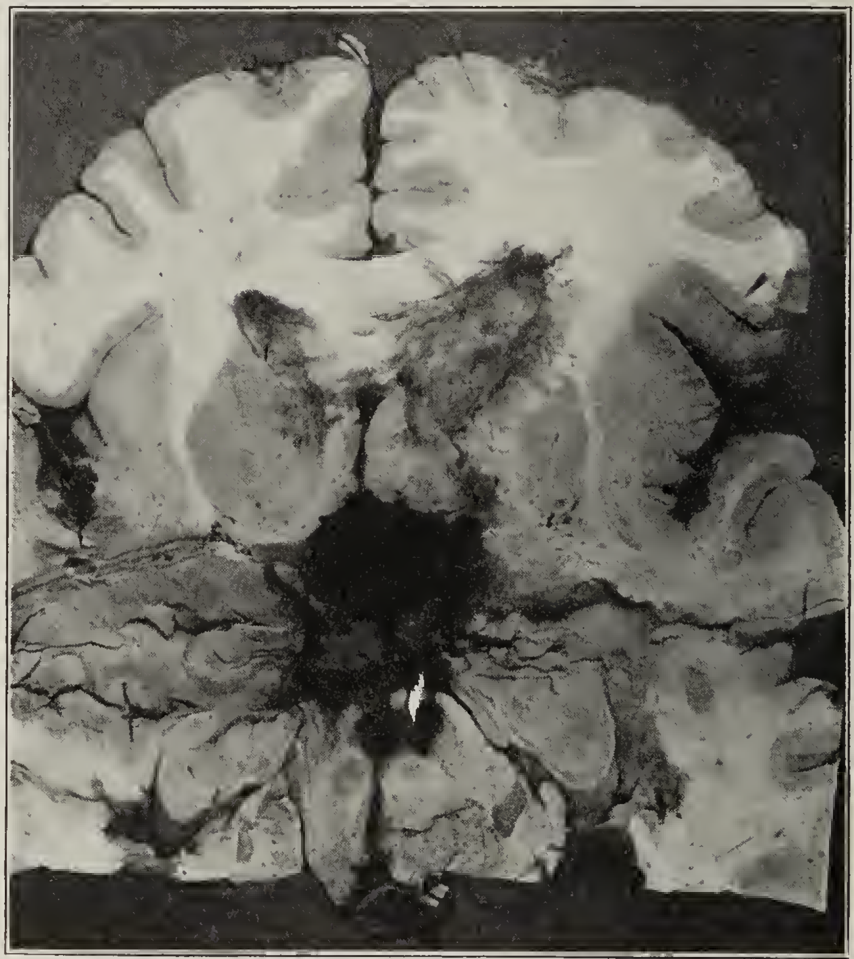

Fig. 2.—Section through brain showing upper aspect of aneurysm. Notice compression of right caudate nucleus and capsule, with enlargement of anterior horn of right lateral ventricle.

This headache was adjudged to be the result of the various sinus operations and so excited but little comment. The patient never had experienced headache throughout the whole of her life. In February, 1916, when shopping, she noticed slight dimness of vision affecting the left eye. A perimetric examination, carried out that day by Dr. Shannon, revealed an enlargement of the left blind spot, which in the next three weeks increased in size to form a central scotoma in the left visual field, in a manner precisely the same as had occurred on the right side six months previously.

The diagnosis made by various observers at that time was that the patient apparently was the subject of a so-called von Leber's optic atrophy. It may be pointed out here that this group of atrophies is indeterminate and vague, and that the etiologic factor is only presumed to be obscurely toxic. When she came under observation in February, however, it appeared certain that a toxic factor would not operate by attacking and destroying a single optic nerve and then resume its activity on the other six months later. A disseminated toxin has symmetrical and synchronous results.

A careful examination then revealed the fact that previous to her attack of September, 1915, she had had three transient attacks of double vision, and that after that date she had been troubled with frequent transient numbnesses in both hands and feet, these being rather more evident on the left side. Neurologic examination then showed the condition of the right pupil to be as already described. A similar state affecting the left pupil was incipient. A very slight haziness was made out on the upper nasal margins of both disks. The physiologic pit in each was clear, the lamina cribrosa evident, and the blood vessels undisturbed.

Her sense of smell was acute in both nostrils. No nystagmus, strabismus or diplopia. The hearing was good. The area of distribution of the fifth nerve was unaffected. Repeated examination gave rise to the suspicion that the lower part of the left side of the face was less strong than its fellow.

There was a well-marked fine tremor in the right hand when held outstretched. This was quite constant, was diminished by purposeful movement, and never affected the left hand. It was thought there was a little weakness in the left grasp.

The deep reflexes on the left side were rather doubtfully greater than those on the right. The abdominal reflexes at the beginning of the examination were on each side explosively brisk, but repeated stimulation, first of the right side then of the left, maintained over a period of seven minutes, produced an important and interesting situation; at the end of that time the abdominal reflexes on the right side were almost as active as at the beginning of the experiment, whereas those on the left side had completely disappeared.

The plantar reflex on the left side was very sluggish and of equivocal type, that on the right was invariably flexor. These facts led to the postulate that the motor fibers subserving the left side of the body were slightly deteriorated in function. A cause capable of producing the blindness and the very minute degree of left-sided hemiparesis would necessarily be one pressing downward on the optic nerves and upward on the motor fibers coming from the right side of the brain.

Furthermore, the lesion would have to be of an expanding character and so capable of exerting pressure in different directions. In one of the Roentgen-ray plates a slight shadow was seen in the frontal region, a shadow which seemed to support the theory that the patient was the subject of a tumor lying at the base of the right frontal lobe. The fact that the tumor was sufficiently large to reach from the right to the left optic nerve and that six months were required for symptoms to be developed on the left side after the affection of the right, together with the entire absence of the generalized symptomatology associated with the development of brain neoplasm—all these considerations pointed to the benignity of the growth. It appeared that, in all probability, the tumor would turn out to be an endothelioma, a type of neoplasm of slow growth, frequently sufficiently dense in structure to give evidence of its presence by radiograph, and, by reason of its very gradual enlargement, capable of becoming of great size without at the same time producing marked cerebral symptoms. The brain tissue in such cases is given sufficient time gradually to accommodate itself to the encroachments of the foreign body and so there is produced no more than a very slight deterioration of function.

One may point out here the fact that the patient was able to smell distinctly in each nostril, a circumstance which occasioned the observer no little surprise. A growth sufficiently large to compress both optic nerves might have been considered capable of compressing both olfactory tracts. The other circumstances of the case, however, so strongly pointed to the existence of tumor formation in the situation mentioned, that operation was decided on and carried out. Dr. Elsberg exposed and elevated as far as possible the right frontal lobe and succeeded in demonstrating a large periphery of the sublying bone. On the inner surface, near the falx, some pinkish-gray, gelatinous-looking tissue was seen, which was thought by us to be the outlying part of a glioma, the central origin of which could not be brought into view.

A decompression operation was consequently carried out without, fortunately enough, any attempt being made to remove the growth. The patient recovered excellently from the immediate effects of the operation and remained feeling perfectly well for some two and a half months, with the exception of some doubtful further reduction of vision in the left eye. At the end of this time, however, it was discovered that complete anosmia had occurred, which gave rise to the belief that the tumor had increased very considerably in size. A week after this examination the patient fainted one morning, there was a slight convulsion, chiefly on the left side of the body, the coma deepened and death occurred six hours later.

An examination of the brain revealed a ruptured aneurysm of the right internal carotid artery about the size of a small walnut and of a solid consistency, owing to contained fibrinous matter. This aneurysm caused marked pressure on the right optic nerve, just in front of the chiasma, and, to a lesser degree, on the left optic nerve also. Upward and to the right it had succeeded in compressing descending fibers from the right motor area with some deformation of the anterior part of the right caudate nucleus. The anterior horn of the right lateral ventricle was considerably larger than its fellow.

This case is shown for two reasons: first, because of the remarkable rarity of aneurysms of a right internal carotid artery; and second, and chiefly, because, as has been said, its symptomatology offers a very important clue to the diagnosis of expanding lesions in the subfrontal area. Papilledema is now generally believed to be the result of the forcing of fluid out of the cerebrospinal pond down the vaginal sheath of the optic nerve to the nerve head. There it accumulates and is seen by the ophthalmoscope as a localized papillary swelling combined with venous tortuosity. Such is the mode of production of papilledema brought about by the presence of an expanding lesion anywhere in the cranial cavity, so long as this lesion does not take origin from the beginning directly in contiguity with the optic nerves themselves. When this latter phenomenon occurs, a completely different series of events takes place. Instead of fluid being forced down the vaginal sheath there is an obstruction on the vaginal sheath preventing the possibility of such an occurrence. Also the growth, by its pressure on the nerves, causes degeneration to occur directly in the nerve itself. The order in which the fibers of the optic nerve become affected is constant.

We are aware of the existence of varying degrees of physiologic delicacy in the optic nerve bundles, according to the retinal region in which they originate; parallel degrees of susceptibility to trauma would likewise appear to occur in the same fibers. That is to say, the macular bundle which subserves central vision, while not placed peripherally in the nerve, and so not exposed to direct pressure from without, owing to its aforesaid greater vulnerability will always degenerate earlier than the fibers more directly compressed. The result will be rapid loss in acuity of vision and the formation of a definite central scotoma. In the majority of cases this will be accompanied by deterioration of function in the ipsolateral olfactory bulb. This was spared until late in the disease, in the present instance owing to the posterior situation of the lesion.

The diagnosis of aneurysm in this case was, of course, quite unsuspected during the patient's lifetime. The presence of syphilis was entirely excluded by the negative history and annectant circumstances, by repeated examinations of the blood by the Wassermann reaction, all of which were entirely negative, and by the existence of a cerebrospinal fluid normal in all respects with the exception of an increased globulin content, a finding which only served the more to strengthen one's belief in the presence of new growth.

However, the signs which have been here discussed were sufficient to make plain the exact situation of an expanding lesion within the skull cavity. It is submitted that the recognition of this syndrome may do something to elucidate diagnosis in certain obscure cases of frontal neoplasm and, perhaps, at the same time serve in a measure to separate a group of cases from the great generic class of toxic amblyopias.

ABSTRACT OF DISCUSSION

Dr. Francis R. Fry, St. Louis: I think it was Marcus Gunn, an English ophthalmologist, who first affirmed that the "rebounding pupil," the pupil described by Dr. Kennedy, was pathognomonic of retrobulbar neuritis. I think, however, that in so considering it there might be some confusion, because we certainly see a pupil behaving in this way, sometimes unilaterally, where there is no retrobulbar neuritis. And it might only be accepted, I think, as of affirmative value, when the fact of neuritis is otherwise suspected.

Dr. Foster Kennedy, New York: I assure Dr. Fry that I would not think of diagnosing lesions of the frontal lobes on the pupillary reaction alone. This would only be of value, of course. in corroboration of other phenomena.

An Early French View of Fevers.—In the Napoleonic era, French physicians made their diagnoses on the nosographic scheme of Pinel, which divided fevers into six classes—the primitive or essential, the inflammatory, the bilious or gastric, the pituitous or mucous, the putrid or adynamic, and the malignant or ataxic. These distinctions, mere fanciful verbiage for active practitioners to pick and choose from in diagnosis, Bretonneau synthesized into the doctrine of the unity of the essential fevers, showing clinically that most of the fevers described by the older observers and listed by Pinel are what we now know to be typhus and typhoid. Bretonneau was the first to elucidate the pathology of typhoid fever (*dothiénentérite*) and to make it known for what it is. Broussais sometimes diagnosed typhoid as "phlogosis of the brain," on account of the terminal delirium, and the Peyer lesions as "intestinal cancer consequent on gastro-enteritis." Bretonneau's correspondence with his pupils, Velpeau and Trousseau, shows that he located and understood the lesions in Peyer's patches as early as 1820. These letters clearly ascertain his priority to Louis, whose great work on typhoid was published, simultaneously with Bretonneau's paper, in 1829. In a letter of 1828, nearly ten years before Gerhard's time, Bretonneau writes the significant sentence: "You will see some day that petechial typhus will be recognized as something different from dothienenteritis." One summer day in 1820, Velpeau, overcome with disgust at the conduct of a necropsy on a typhoid patient, actually leaped into the arena at the Charité and, snatching a scalpel, demonstrated the Peyerian lesions to the amazed Parisians, who, following the teachings of Broussais, believed that these lesions were only the consequence of a simple gastro-enteritis.—"Armand Trousseau: A Master Clinician," Fielding H. Garrison, M.D.

APPENDICITIS IN CHILDREN *

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So much has been written on the subject of appendicitis that there is little left to be said. If one, however, may be allowed to record his impressions from his personal experience with a very important phase of the condition which I have selected as my subject, I hope it may, at least, furnish a basis for an interesting discussion.

In reviewing our case histories, covering a period of five years, we find the records of 404 cases of appendicitis. This embraces all classes of appendicitis, and includes all ages. Our youngest patient was 4 years of age, and the oldest 63. Of the 404 cases, thirty-seven, or approximately 9 per cent. occurred in children of from 4 to 14 years of age. Two of the thirty-seven children died following operation, giving an operative mortality of 5.4 per cent. In addition to this, one child entered the hospital in a moribund condition, and died without operative interference; and one is known to have died of general miliary tuberculosis since leaving the hospital. The remaining thirty-three patients, so far as we can learn, are living and well. Of the 367 adult cases of appendicitis, there was also an operative mortality of two, or 0.54 per cent.

G. C. E. Simpson[1] reports his conclusions on thirty-four cases of appendicitis in children, and records a mortality of five, or 14.7 per cent. Alexander Mitchell[2] contributes an interesting study of forty cases of acute appendicitis in children, ranging in age from 14 months to 14 years. In all of these forty cases the inflammation had extended beyond the peritoneal covering of the appendix. The mortality of this series was 25 per cent. It is significant to note in this connection that the same author says that during the period covered by this report all of his patients in whom the infection was limited to the appendix recovered. Gray and Mitchell[3] report another series of 200 cases of appendicitis in children; 126 of these were classified as acute. In this group there was a mortality of 15 per cent.

TABLE 1.—CLASSIFICATION OF CASES

Condition	No. of Cases
Chronic simple appendicitis	6
Chronic appendicitis, following former drainage of abscess	2
Subacute appendicitis	2
Tuberculous appendicitis	4
Acute, nonperforating appendicitis	4
Acute, gangrenous, perforating appendicitis, with abscess	13
Acute perforating appendicitis, with general, diffuse peritonitis	6
Total	37

While I have been unable to obtain any recent statistics from the American clinics, limited to this particular group of appendix cases, I think there is a general feeling that our mortality is too high; and we want to do better. It is somewhat discouraging to have to say to a parent: "Your child has appendicitis. The best we can do for him is to give him one tenth of the chance of recovery that an adult, suffering from the same disease, has." My chief object in writing this paper is to appeal to the general practitioner, and through him to the parent, for a closer cooperation with us in our efforts to give the child with a "belly ache" a better chance to live.

While it is rather difficult to give each case of appendicitis a clear cut pathologic classification, our series, which forms the basis for this paper, may be roughly grouped as in Table 1.

Of the six chronic cases, three had had acute attacks previously. Five of the thirteen patients in the appendical abscess group were admitted to the hospital with more or less diffuse peritonitis; but the general peritonitis subsided under the Fowler-Murphy-Ochsner plan of treatment, so that they came to operation with a circumscribed abscess.

The average duration of illness in the twenty-three cases, when the patients were admitted to the hospital, was six days. Several of the worst cases of general diffuse peritonitis gave a history of only two days' illness; but it is hard to believe that so widespread an inflammation could have developed in such brief time. It seemed more likely that these children had been the victims of appendicitis for several days before their condition was discovered by the parent, or before a physician was called.

TABLE 2.—POSTOPERATIVE COMPLICATIONS

Condition	No. of Cases
Pyelitis	6
Secondary abdominal abscesses requiring secondary operations for drainage	4
Postoperative pneumonia, toothache and alveolar abscess	1
Postoperative obstruction	1
Cerebral embolism (?)	1
General miliary tuberculosis	1

Three of our patients had tonsillitis just preceding their appendical attack, and we believe the tonsils were the portal of infection in these three cases. Among the postoperative complications were the conditions given in Table 2.

One of the secondary abscesses sloughed into the bladder, requiring an operation for the drainage of the abscess and closing of the bladder. I have placed cerebral embolism in this list of complications, with the addition of an interrogation point, because we were unable to secure a necropsy, and the diagnosis was made on the clinical evidence only.

In our experience the most constant symptom of acute appendicitis in children is leukocytosis. The total leukocyte count in our series ran from 9,000 to 34,000 per cubic millimeter, with the polymorphonuclears between 72 and 92 per cent. The average leukocyte count is 17,400 per cubic millimeter, with an average polymorphonuclear count of 82 per cent. There was no case that did not show a marked increase of the polymorphonuclears, and only one case in which the total count was as low as 9,000. In a general way the polymorphonuclear count has represented to us the virulence or intensity of the infection, and the total leukocyte count has indicated the resistance or fight that the individual was maintaining against the systemic invasion of the infecting microorganisms. Thus, if the patient should show a very low total leukocyte count, with a high percentage of polymorphonuclear leukocytes, we would be very much discouraged with regard to the prognosis, whatever the clinical symptoms at the time. On the other hand, a marked leukocytosis with a moderately high polymorphonuclear count has always indicated a favorable outcome.

The point that has impressed me most in reviewing our cases is the very significant frequency of perforative appendicitis following purgation. Of nineteen cases in which the appendix had perforated when the patients were admitted to the hospital, sixteen gave a positive history of having been freely purged. In the

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* Read before the Smyth County Medical Society, at Marion, Va., May 25, 1916.

[1] Simpson, G. C. E.: Brit. Jour. Child. Dis., 1913, x, 400.

[2] Mitchell, Alexander: Brit. Jour. Child. Dis., 1912, ix, 355.

[3] Gray and Mitchell: Brit. Med. Jour., Feb. 21, 1914.

remaining three cases the record does not mention whether the patient had or had not received a cathartic. On the other hand, operation was performed in four acute cases, in one on the fourth day, two on the fifth day, and one on the seventh day, of illness. In all of these four cases a purgative had been withheld, and in none of them had the appendix perforated at the time of operation.

There are several reasons for the high mortality in children. The early symptoms are not so clear-cut and definite as in adults. The attack in children often follows a dietary indiscretion, and the parents naturally attribute the abdominal pain and nausea to an intestinal colic due to an overload of indigestible food. The violence of the symptoms is frequently not at all in proportion to the degree of appendical inflammation. We have had two patients walk into the hospital with their parents to be examined because they had a "pone" in the right lower abdomen. The "pone" in each case proved to be an appendical abscess. The progress of the inflammation is particularly rapid in children. The appendix usually lies high up in the abdomen, and there seems little effort on the part of nature to wall off the inflammatory process by the formation of adhesions, and perforation usually results in diffuse general peritonitis. Children as a rule are poor subjects for abdominal surgery; they withstand shock badly and hemorrhage worse. The child has much less blood than the adult, and the loss of a comparatively small volume in the young subject will often prove fatal.

Clopton[4] has recently reviewed the literature on appendicitis in children, and comes to the conclusion that this disease in infancy is rare. He reports three of his own cases in which the condition was caused by pinworms in the appendix. He calls attention to a point of tenderness in the loin a little lower down than that due to pyelitis. I think this is due to the fact that the appendix in children is often postcecal. Clopton also emphasizes the aid afforded by rectal palpation. We have found these two points to be of considerable value in diagnosis.

G. E. Baxter[5] has investigated the subject of appendicitis in infants under 2 years of age, and thinks that the incidence of this disease in infants is much more frequent than is usually believed. He reports one case in a child 18 months of age.

The symptoms of appendicitis in children are often rather atypical. Zesas[6] has reported an interesting series of cases in which the principal symptom was limping. The pain was referred to the right hip and groin. One case was even referred to the orthopedic clinic for treatment as a case of hip-joint disease. All of these patients were cured by removal of the appendix.

The principal conditions which may be confused with appendicitis are pneumonia, pyelitis, Pott's disease, typhoid fever and intestinal obstruction. Pneumonia gives a leukocytosis even higher than acute appendicitis, so the blood count is not a differential point. But a diagnosis of appendicitis in children should not be made without a careful examination of the chest. Rapid respiration, cough and flushed cheeks should suggest the chest as the more probable seat of trouble. Inflammation of the renal pelvis is a particularly confusing possibility when pus is found in the urine in a suspected case of appendicitis. On the one hand, we realize that pyelitis may exactly imitate the clinical syndrome of acute appendicitis. On the other hand, we know from abundant experience that pus, blood, albumin and casts may be found in the urine of a child suffering with appendicitis as the primary condition. If the child's illness is due to pyelitis alone the amount of pus is usually greater than when it complicates appendicitis. The point of greatest tenderness, rigidity, or a mass may be of aid. The rectal examination is often of particular value. There should be no confusion with Pott's disease if the doctors would make a habit of examining the spine. In typhoid fever, pain is preceded by at least two or three days of fever, headache and general malaise, whereas in appendicitis pain is the first symptom. Uncomplicated typhoid fever, too, will not have a leukocyte count of over 10,000. The question may remain doubtful between acute obstruction and acute appendicitis: a matter of little clinical importance, as both are unquestionably emergency surgical conditions, and their preoperative management is the same. An enema ought to clear up the possibility of any simple explanation of the stomach ache.

Early diagnosis and early operation seem to offer the best hope of reducing the mortality. If prompt operation is advised for adults it is much more important for children. Many surgeons advocate immediate operation on a child whenever a diagnosis of appendicitis is made, or whenever the case comes within the hands of the surgeon. There are many reasons for the endorsement of this as a sound surgical principle. Children are naturally restless, rebel against confinement to bed, and restraint, and generally take treatment badly. In addition to this, when food is withheld from a child, an acidosis soon develops, and this is often a troublesome complication. As a prophylaxis against this condition, we give all children glucose and soda, by bowel, after operation.

In our experience the administration of purgatives in the early treatment of appendicitis has done more harm than any other factor connected with this disease. I expect some of my friends among the older general practitioners will disagree with me on this point. They will argue that every case of stomach ache in children is not appendicitis, and that it is necessary to move the child's bowels as a therapeutic test to see whether or not the trouble is caused by some indigestible article of food. This point of view is practically correct, but I maintain that every advantage can be gained by the use of a soapsuds enema that can be expected from the use of castor oil, salts or calomel, without the danger of rupturing a gangrenous appendix, if the child should happen to have appendicitis. In justice to the general practitioner, I must say that in many cases, the parents have applied the above mentioned therapeutic test before the physician is called. For this reason it is necessary that we should have the cooperation of the layman before this danger can be eradicated. I would advocate that the state boards of health publish in the public health pamphlets which are distributed to the general public the advice to parents that, whenever a child is taken with abdominal pain, accompanied by nausea, vomiting or local tenderness, it should be put to bed, and nothing given it by mouth, until the family physician is consulted.

If the physician is doubtful about the condition, it would be well for him to secure surgical consultation, and if possible get a blood count as leukocytosis is the most constant symptom of acute appendicitis.

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[4] Clopton, M. B.: Jour. Missouri State Med. Assn., March, 1915.
[5] Baxter, G. E.: Illinois Med. Jour., June, 1914.
[6] Zesas, D. G.: Arch. gén. de chir., Paris, vii, 1409.

SOME PRACTICAL ASPECTS OF SCHISTOSOMIASIS AS FOUND IN THE ORIENT

PRELIMINARY REPORT

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Recent investigations indicate the great prevalence of schistosomiasis in certain localities of the Orient. The free commercial intercourse with this part of the world suggests that not a few practitioners in the United States may eventually have patients who have at some time resided in the Orient, presenting some of the interesting and perplexing symptoms of schistosomiasis.

On joining the U. S. S. *Helena* at Ichang, China—about a thousand miles up the Yangtsze River—it was my experience to have fourteen peculiar cases at sick call that morning in which symptoms developed varying from acute bronchitis and urticarial dermatitis to dementia praecox associated with jacksonian epilepsy and hemiplegia. It was two weeks later, on arrival at Hankow, China, that continued laboratory examinations and further study of the literature convinced me that my cases with tentative diagnoses of cerebral syphilis, sunstroke, hepatic abscess, acute phthisis, etc., might have the same etiologic agent, namely, *Schistosoma japonica*. All cases occurred among forty-two men who had been on a three days' landing party to the gorges above Ichang, and had been in bathing in subsidiary streams.

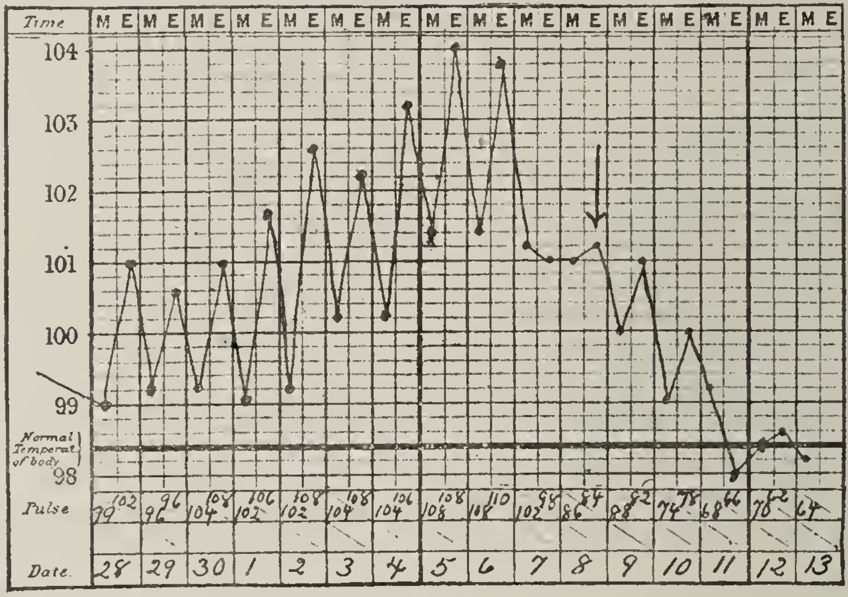

Chart 1.—Temperature chart, Case 4. Arrow points to administration of 0.6 gm. salvarsan.

MODE OF INFECTION

Schistosomiasis in the Orient is caused by a blood fluke, a digenic trematode, inhabiting principally the blood vessels of the portal systems. The eggs are oval, yellowish-brown, similar in some respects to hookworm ova, and hatch out in a short time into ciliated larvae (miracidia).

It was first shown that a 1 : 1,000 solution of hydrochloric acid will kill the miracidia, which rendered injection by ingestion improbable. Many observers have failed to cause an infection by the application of miracidia to cutaneous surfaces, but Matsuura and Yamamota found ciliated larvae in the skin of animals infected by this parasite.

In view of the known life history of closely related parasites, an intermediate host was sought. Miyairi found the infective stage in an aquatic snail. Recently Leiper and Atkinson were able to follow the development of the ova from an infected dog through the liver of a snail (*Katayama nosophora*) to the recovery of an adult parasite in the blood vessels of laboratory bred mice exposed to infected water.

The entrance of the nonciliated young parasites (cercaria) is through the mucous membrane and possibly through the skin. Eight cases of external auditory infection were treated among the forty men returning from the landing party, but no relationship could be traced between the ear cases and those presenting the initial symptoms of schistosomiasis. It was noticed that there was a greater percentage of infection among the venereal cases. A large percentage of those infected usually give a history of exposure of body above the hips suggesting entrance through rectal or genito-urinary mucosa.

SYMPTOMS

Symptoms are divisible in three stages, and this classification, combined with the protean manifestations, reminds one of syphilis.

First Stage, or Stage of Invasion.—This is the so-called urticarial or Yangtsze fever. In fourteen cases observed aboard this ship the patients gave a history of bathing in clear, still pools of the smaller streams above Ichang. The symptoms of urticaria, subcutaneous edema and elevated temperature appeared from twenty-four to seventy-two hours after exposure to the infected water. In eight out of ten cases there was diarrhea, and in seven this was accompanied by cramps; four of the eight were troubled with nausea and vomiting. There was pain and tenderness over the liver in one third of the patients, and half of them were troubled with cough, expectoration, and other symptoms of pulmonary affections. In one case the pulmonary symptoms were so well marked as to suggest incipient pneumonia. This was the only case presenting the evanescent areas of pulmonary dulness described by other writers. Eight out of the ten cases had elevated temperature varying from 100 to 104 F.; in 75 per cent. there were urticarial wheals and subcutaneous edema, varying from two or three per patient, to cases in which the face was so swollen that the features were scarcely recognizable.

From a perusal of the foregoing it would appear that only one, or all of the symptoms enumerated may be present in a patient suffering from the initial stage. It therefore seems possible that the symptoms of this stage may be absent or escape notice. It is quite possible that several patients suffering from minor symptoms were not seen by the medical officer.

Second Stage.—"In the second stage of the disease—that is, after the temperature comes down to nearly normal, and eggs begin to appear in the stool—symptoms may be divided into those of convalescence and those that go on to the third stage."[1]

This is the stage that is most important to bear in mind when treating former residents of the Orient. Whereas continual reinfections are apparently necessary for the production of the tertiary stage, it seems reasonable to suppose that a minor number of parasites may persist in the body, causing various subjective and objective symptoms, such as transient cough and expectoration, diarrhea and temporary abdominal pain and tenderness, hepatic disturbances, anemia, attacks of pyrexial conditions, etc. The pathology of the disease suggests that the second stage may persist for some time, and my experience with those who have apparently recovered from the first stage confirms this view. Unfortunately the diagnosis, in the second stage, is often obscure and difficult. The worms are not always in sufficient numbers for ova to be easily located, and eosinophilia may vary. One patient who had apparently recovered from the initial symptoms and was troubled only with lassitude and slight debility —called laziness by his companions—was taken as an example of the possibility of latent infection. Most of my leisure time was spent in searching for ova in his stools. Fully a hundred examinations were made before ova were found, and this stool contained as many as three ova to the slide.

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[1] Laning, R. H.: U. S. Navy Med. Bull., January, 1914.

The mental attitude of the schistosomiasis patient is striking. It varies from calmness and indifference to dulness and confusion. The patient never seems to worry about his physical condition. A case in one of the hospital corps, with hepatic symptoms, illustrates this indifferent attitude. This person appeared totally indifferent to all untoward signs and symptoms of his case, and even the suggestion of having to resort to operative measures failed to cause him to show any detectable signs of apprehension concerning his condition. When all symptoms had subsided within seventy-two hours after an injection of salvarsan, he was equally apathetic to the beneficial results. The patient with a daily temperature of 102 and 103 often wants to be up and about. A civilian friend of mine with an elevated evening temperature of six weeks' duration, with slight eosinophilia, presumably due to schistosomiasis, was able to carry on his work and play tennis each day. In fact, one of the hottest days of the year I played a five-set tennis match with him, although he had a temperature of 102 F.

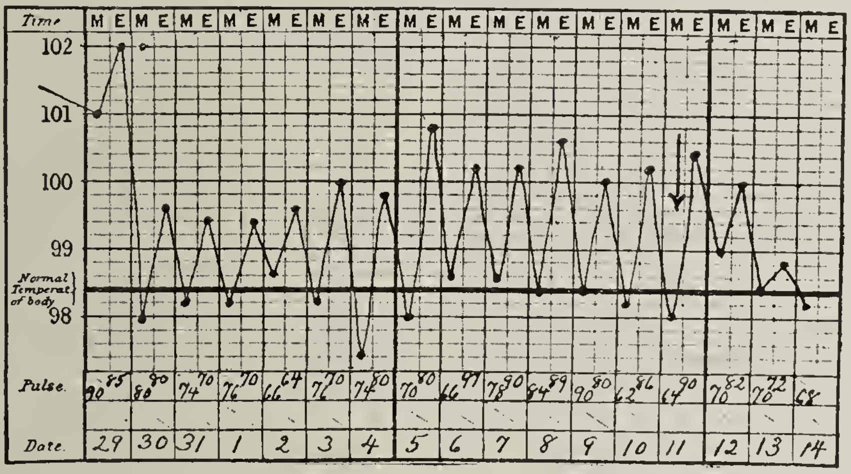

Chart 2.—Temperature chart, Case 5. Arrow points to administration of 0.6 gm. salvarsan.

Third Stage.—This stage is comparatively rare in foreigners. I have heard of but two cases, but there are probably many others. Briefly, this stage consists of hepatic and splenic hypertrophy followed later by a shrinking of the liver, cachexia, emaciation, ascites, and, finally, general anasarca. Dyspeptic symptoms are pronounced, associated with dysentery and diarrhea. It is often possible to make a snap diagnosis in certain cases of this stage by inspection alone, when passing through an infected locality. The large distended abdomen, emaciation, swollen ankles, etc., give a characteristic picture. Usually the patient in this case is a native farmer repeatedly reinfected by the dissemination of human excreta, which is extensively utilized for fertilization purposes in this part of the world.

DIAGNOSIS

In the first stage, this is not difficult if accompanied by the characteristic urticarial rash and subcutaneous edema. In two cases with the only symptoms of simple continued fever, the diagnosis would probably have been overlooked had they occurred at any other time. The eosinophilia appears within from three to four weeks and is often well marked. The highest percentage in the fourteen cases was 27 per cent. of large granular eosinophils, but the number of finely granular cells with acidophilic affinities raised the percentage to 65 per cent. The ova begin to appear in the stools about a month after the beginning of the initial symptoms. They are found in bits of blood-streaked mucus on a hardened stool. It is well to give opium for a few days before in order to get constipated feces. In one stool an adult female schistosoma was found.

REPORT OF CASES

Case 1.—The officer in charge of the landing party had a mild case. Forty-eight hours after bathing, he noticed one urticarial wheal about 6 cm. in diameter just below the umbilicus, with two smaller ones on the lower extremities. No other symptoms were noted. This patient has been under observation for the past year, and frequent blood counts have shown no eosinophilia over 5 per cent. Repeated examinations of feces have been negative. For the past year this officer has been below normal in health, suffering from anemia, loss of weight, and minor gastro-intestinal disturbances. He is at present under treatment for these, which I believe—yet have not been able to demonstrate—to be due to a mild and obscure infection of *Schistosoma japonica.*

Case 2.—The patient had the usual fever with the urticarial dermatitis of body and extremities and subcutaneous edema of face and forehead, so-called "bumps." Six weeks later he developed a large lumbar abscess, which was opened under a general anesthetic. Several eggs were found in the feces, and one adult schistosoma. He was transferred to the Naval Hospital, Canacao, Cavite, P. I.

BENEFICIAL RESULTS OF SALVARSAN

There is little probability that a concomitant syphilitic infection was the cause of the beneficial effects of salvarsan in the following cases. The salvarsan was first administered in Case 7, before the diagnosis of schistosomiasis was determined, on the ground that perchance the symptoms were due to cerebral syphilis, although the past history was negative. Two of the cases subsequently gave repeatedly negative Wassermann reactions, and in no case were there any indications of a previous syphilitic disease.

Case 4.—The patient was first admitted with temperature of 104 about forty-eight hours after swimming. No urticarial or subcutaneous edema was present. Fever lasted two weeks. The patient was readmitted one month later with a daily rise of temperature. Salvarsan was given, and the temperature returned to normal in three days. Eosinophilia was from 17 to 25 per cent. The eggs in this case were darker and more oval than usual, suggesting a different species (Chart 1).

Case 5.—There was no history of any initial symptoms. The patient was transferred from another ship to the *Helena,* with a temporary diagnosis of hepatic abscess. Pain, tenderness, and muscular rigidity were present over the right hypochondrium, and the liver was enlarged. Eosinophilia was 12 per cent., with ova present in the stool. Salvarsan, 0.06 gm., was given intravenously. The temperature dropped to normal and all other symptoms subsided within forty-eight hours (Chart 2).

Case 6.—An American civil engineer living in Ichang whose duty, in surveying the railroad of Ichang to Chungking, caused him to be exposed in infected regions, had had an evening temperature of from 100 to 102 for the past six weeks with anemia, lassitude and depression. The blood count showed slight increase of eosinophilia. One examination of the feces was negative. Salvarsan, 0.06 gm., was given intravenously, fever disappeared within twenty-four hours, and all other symptoms subsided. The patient when seen three weeks later had gained 10 pounds in weight.

Case 7.—The patient first reported, July 31, 1914, with numerous wheals over the body and extremities; the face and forehead were swollen with subcutaneous edema, temperature from 100 to 103 F. Aug. 4, 1914, the dermatitis had almost disappeared, and the patient was up and about. Aug. 6, 1914, the patient returned to bed; beginning hemiplegia was noted; the pupils were contracted and unequal, and the mental condition was confused. Aug. 8, 1914, paralysis of the right side was almost complete. Aug. 9, 1914, the temperature was subnormal, the condition was becoming progressively worse, the patient was in coma, pulse 140, respiration 45, and the case was reported to the commanding officer as apparently hopeless. Intravenous injection of salvarsan was recommended to be tried as a last resort, and 0.06 gm. was given intravenously. Twenty-four hours later the pulse, temperature and respiration were normal. The patient was able to understand questions, and could move the fingers of the paralyzed hand. From August 10 to 15, 1914, the condition was stationary; the patient was not oriented. He stated that he was on the U. S. S. *Buffalo*, but did not know whether he was in Mexico or the United States. He was unable to give the names of any of his shipmates. Aug. 15, 1914, second dose of 0.06 gm. of salvarsan was given intravenously. Aug. 16, 1914, improvement was marked; he was able to raise the affected hand to the head. He recognized the medical officer and was fairly well oriented. He was transferred this day from the U. S. S. *Helena* to the U. S. S. *Quiros* for further transfer to the Naval Hospital, Canacao, Cavite, P. I. Examination of feces was negative at the time of transfer.

The following are some notes from the health record after transfer. "U. S. S. *Quiros*, Aug. 20, 1914: Improving daily, fairly well oriented, able to raise right arm with effort." U. S. Naval Hospital, Canacao, P. I., Sept. 12 to Oct. 15, 1914: "Movement of right arm fairly well controlled, but with slight tremor of fingers and spastic rigidity of arm. . . . Blood pressure 120 plus. Wassermann negative." U. S. Naval Hospital, Mare Island, Calif., November 13 to December 20: "Only weakness of right arm and hand. . . . Although the blood tests are negative, he has shown remarkable improvement under antisyphilitic treatment." Restored to duty Dec. 20, 1914, having been on the sick list nearly five months.

A similar case of hemiplegia has been described by Tsunada and Shimamuda—cited by Laning—in which the patient suffered during life "from disorder of speech and tremors in both upper and lower extremities with headache and mental disturbances, later from vertigo and jacksonian fits (two or three a day), and finally from right hemiplegia." At the necropsy numerous ova were present in the brain substance.

THE POSSIBLE RELATION OF SCHISTOSOMIASIS TO TROPICAL AND SUBTROPICAL NEURASTHENIA

If the view that a certain percentage of cases may have an unnoticeable primary stage followed by an obscure secondary stage is accepted, it would then appear that the difficult recognition and the prevalence of schistosomiasis may partially explain the deterioration of the white race in certain tropical and subtropical regions. This will perhaps serve to narrow that ill defined state known as tropical neurasthenia. At present, modern medicine reluctantly expends time and labor on the study of conditions, such as tropical neurasthenia, that are not susceptible to scientific interpretations of their causative factors. The medical scientists are willing to devote much study on some rare disease, with scientifically explained etiology, affecting an infinitesimal portion of the human race, whereas the obscure causes of the deterioration of the white race in the tropics has not, in my opinion, received full recognition of its importance. The laity seems to be more fully aware of its presence than the medical profession. In fact, some medical men almost deny the existence of tropical neurasthenia as a definite entity. If the most skeptical would spend a short time in conversing with from 10 to 20 per cent of the foreigners living in the Philippines and suffering from neurasthenia, I feel certain that it would convince him of the relative importance of this debilitating condition, which modern sanitation has only partially improved.

Therefore, it seems not improbable that a small percentage of the cases returned to the United States suffering from what is colloquially or jocularly expressed as "too long in China" and "Philippinitis," may be latent and obscure cases of schistosomiasis.

SUMMARY AND CONCLUSION

1. Recent investigations are indicating the prevalence of schistosomiasis in the Orient and its economic importance to natives and foreigners.

2. The adult parasites may exist in the human body in insufficient numbers to permit satisfactory diagnosis by laboratory methods, yet are capable of causing untoward symptoms.

3. The result of salvarsan therapy, as symptomatic treatment in a limited number of cases, in the second stage, has been gratifying.

4. In view of the close relations existing between the United States and the Philippines and other countries where schistosomiasis is endemic, and the probable frequent latency of the disease, the matter is of importance to physicians in this country and especially to those practicing near the Pacific coast.

Overfed and Underfed.—What are the characteristics of the overfed and the underfed? While there are probably exceptions to the rule, the two types may be expected to appear somewhat as follows: The first is heavy and of a high color. The man of this class is a deep sleeper, and dislikes to get up; he is an optimist, but not remarkably persevering. The sparingly fed individual is consistently opposed to the liberally nourished at every point. He is under weight, and often deficient in color; a light sleeper, if not actually troubled by insomnia; and sensitive to cold. As a worker he may be diligent and efficient, though the temperament exhibited is likely to be conscientious rather than enthusiastic. The high degree of endurance often noted in men and women who eat lightly affords the strongest argument in favor of such self-denial. It is probably to be explained by two circumstances. First, the intestine is to an exceptional degree free from injurious residues. Second, the blood and other body fluids are correspondingly free from avoidable by-products of metabolism. The resistance to fatigue secured is greatly to be coveted, but it is not unlikely that the cutting down of the food is often too rigorous. Depression of spirits is a common sign that the diet should be made more generous.—Stiles: "An Adequate Diet."

THE INTESTINAL PARASITES OF TWENTY FOREIGN STUDENTS IN THE UNIVERSITY OF WISCONSIN *

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As this paper deals with aliens in the United States, the question naturally arises whether foreigners, especially those from the Orient, where parasites are so abundant, are a menace when entering this country. There is little doubt that the Chinese and Japanese who work the market gardens and do housework in California are dangerous to public health. An inspection in San Francisco in 1912[1] showed infections as follows: Of 1,484 Japanese admitted, 581 had *Ascaris lumbricoides;* 452 *Trichocephalus dispar,* and 451 hookworm. Of 1,002 Chinamen examined, 789 had Ascaris and 588 had Trichocephalus. These figures show that the percentage of infection was rather high. The foreigners examined were not of the most desirable class, the lower castes being largely represented. On the other hand, the subjects at the University of Wisconsin undoubtedly come from some of the best foreign families, as only those with considerable means would be able to come to the United States for a college course. It may be safely assumed, therefore, that the results obtained are conservative as compared with those from more ignorant or poorer classes.

The stools used for the present investigation were obtained from the Clinical Department of the University of Wisconsin, through the kindness of Dr. J. S. Evans and Dr. R. Drane. They were first examined macroscopically by spreading on a large piece of filter paper and picking apart with a dissecting needle for such things as proglottids, scolices, or living worms. Then each stool was well stirred, and a liberal sample taken by means of a spatula, and put in a smaller jar. The sample was then preserved by putting in a 10 per cent. dilution of liquor formaldehydi. A few drops of phenol (carbolic acid) were added also, as a further preservative. This method did away with a large part of the odor and preserved the eggs perfectly.

Of every stool at least six smears were made, the cover glasses used measuring 2.2 by 4 cm. These were examined under a microscope with a mechanical stage, a No. 8 ocular and a 16 mm. objective being used in searching for ova. A higher power, 4 mm. objective, was also used in identifying. The time taken to examine one of these smears was approximately twenty-five minutes, although in the case of a positive stool, a much greater time was often needed.

The feces of twenty male foreign students attending the University of Wisconsin were examined and ten (50 per cent.) gave positive results. The infections were as follows, the figures referring to the number of the patient: (1) Hookworm and *Trichocephalus dispar,* (2) *Hymenolepis nana;* (3) *Schistosoma japonica;* (4) *Ascaris lumbricoides;* (5, 6, 7, 8, 9, 10) *Trichocephalus dispar.* The infected individuals in several instances showed disorders connected with the presence of the parasites.

Case 1.—Australian; Morong, Rizal, P. I. Age, 26 years; weight,[2] 108 pounds; height, 66 inches. Infected with hookworm and *Trichocephalus dispar;* showed marked eosinophilia, also chloro-anemia. Had experienced much intestinal trouble, and complained of abdominal pains; was in very poor health.

Case 2.—Chinese; Shanghai, China. Age, 21 years. Infected with *Hymenolepis nana;* gave no clinical evidence except for the presence of eggs in the feces.

Case 3.—Chinese; Tai-an, China. Age, 28. Feces contained a few ova of *Schistosoma japonica;* had moderate chloro-anemia and suffered frequently from severe abdominal pains.

Case 4.—Egyptian; Cairo, Egypt. Age, 30. Had a heavy infection of *Ascaris lumbricoides;* showed nothing abnormal, apparently in good health, weighing 175.2 pounds and measuring 61.8 inches in height.

Cases 5, 6, 7 and 8.—Appeared to be perfectly normal in spite of their infection with *Trichocephalus dispar.*

Case 9.—Chinese; Wuchang, China. Age, 26; weight 106 pounds; height 60.9 inches. Had an infection of *Trichocephalus dispar;* troubled with eczema badly both on upper and lower limbs; also had marked chloro-anemia.

Case 10.—Chinese; Chekiang, China. Age, 24; weight 83 pounds; height 51.1 inches. Severe infection with *Trichocephalus dispar;* troubled with much rectal bleeding; severe chloro-anemia, and showed general parasitic symptoms.

Thus the foregoing statistics indicate that 70 per cent. of the patients examined showed symptoms which parasitic worms might cause. Forty per cent. had severe cases of chloro-anemia, urticaria or eosinophilia. There is every reason to believe that in the absence of medical attention, it would have been only a short time until the parasites would have undermined the health of some of these persons, and some were certainly a danger to society.

It may be said in conclusion that the examinations described in this paper show that there is danger of infection from the average foreign student. Other people, doubtless, carry parasites at times, but the percentage of infection among foreigners, and particularly Orientals, is much higher. At any institution, therefore, which has a considerable number of such students, there is some danger unless care is exercised.

STUDIES OF THE SPINAL FLUID DURING IODID MEDICATION BY MOUTH *

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Examinations of the spinal fluid of persons under iodid medication were made to determine the presence of organic or inorganic compounds of iodin.

Study 1 includes observations on five patients in the University of California wards of the San Francisco Hospital, on routine iodid medication, and Study 2 observations on one person to whom very large doses of iodids were given. In each case examinations were made of two specimens of spinal fluid. At the first tapping as much fluid as possible was withdrawn, the second tapping being made some time later to ascertain whether or not the newly secreted fluid contained a greater amount of iodin, if any. Barbat[1] had reported that the withdrawal of spinal fluid while the blood stream was saturated with arsenic allowed a new fluid richer in arsenic to enter the cerebrospinal canal.

Study 1.—Iodin was tested for, by myself, in the following manner: A portion of spinal fluid was added to some dry sodium carbonate and the mass powdered; the latter was added slowly to a quietly fusing mixture of potassium nitrate and sodium carbonate; the entire mass was allowed to cool, was removed from the crucible and dissolved in distilled water; to a portion of the latter was added some starch paste, and then nitric acid containing a little nitrous acid, drop by drop. Controls containing minute traces of iodin gave a blue color, but no reaction occurred with any of the fluids examined.

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* From the Zoological Laboratories, University of Wisconsin.

[1] Glover, M. W.: Hookworm Among Oriental Immigrants, The Journal A. M. A., June 15, 1912, p. 1837.

[2] The weights quoted do not include clothing.

* The first of a series of studies on iodid medication in syphilis undertaken with Dr. Charles Tranter of San Francisco.

[1] Barbat: California State Jour. Med., October, 1915.

FINDINGS IN STUDY 1

Identification	Diagnosis	Iodid Medication	Spinal Fluid	
			First Tapping	Second Tapping
Ty., 12394	Tabes	KI grs. XV t. i. d. for 3 mos.	Iodin negative	48 hrs. later, iodin negative
Ab., 15107	Transient hemiplegia; chronic nephritis	KI grs. XX t. i. d. for 17 days	Iodin negative	76 hrs. later, iodin negative
De., 12893	Tabes	KI grs. XV t. i. d. for 3 mos.	Iodin negative	51 hrs. later, iodin negative
Pe., 14591	?	KI grs. XV t. i. d. for 1 mo.	Iodin negative	10 da. later, iodin negative
Kn., 14248	Cerebrospinal syphilis	KI grs. XXX t. i. d. for 11 weeks	Iodin negative	21 hrs. later, iodin negative

Study 2.—Here observations were made by Dr. Barbat and myself on a private patient, Bl., whose trouble was diagnosed as tabes. He was given potassium iodid by mouth in gradually increasing doses from 15 to 40 grains at the end of six days, and then 250 grains, by mouth, in a single dose. Tap 1 was made eighteen minutes later and Tap 2 after twenty-four hours. A week without medication followed, and then 240 grains of sodium iodid given, by mouth, in a single dose, and Tap 3 made thirty minutes later, 30 c.c. of fluid being withdrawn. No iodin was found in any of the specimens.

On Tap 1, I used the same test as in Study 1.

Tests of a portion of Tap 2 were made by T. Brailsford Robertson, professor of biochemistry in the University of California, and in the following manner: A portion of the fluid was evaporated to dryness and then fused with sodium hydroxid; the fused mass was taken up in a few cubic centimeters of water and acidified with hydrochloric acid; chlorin gas was passed through the fluid until the latter was a deep yellow in order to set free iodin from any iodids present; this fluid was then divided into two portions, A and B.

A was shaken with a drop or two of carbon bisulphid. No color appeared.

B was shaken up with chloroform, and the chloroform layer on separating was evaporated to dryness, the residue taken up in potassium iodid solution and tested with starch solution. No color was given. Iodin controls gave positive tests.

Another portion of Tap 2 was examined by Dr. Bennett of the Department of Physiology of the University of California. This portion was evaporated to dryness, fused with potassium carbonate and potassium nitrate, the residue taken up in water, starch paste added, and the solution electrolyzed with fine pointed platinum electrodes. A control containing 0.01 per cent. of iodin gave a blue point on one of the electrodes in a few seconds, but the specimen gave a negative result.

The test on Tap 3 was made by Dr. Barbat and myself by the electrolytic method, and no iodin was found.

CONCLUSIONS

1. In the series of cases examined, regardless of the amount of iodin administered by mouth, no iodin or compounds of iodin were found in the spinal fluid.

2. Either iodin compounds do not pass the ependymal cells of the choroid plexus in any measurable quantity, or such iodin as does reach the spinal fluid is very rapidly fixed in the tissues.

209 Post Street.

Therapeutics

MOUTH INFECTIONS

Only recently has the part played by the mouth and its adjacent structures in the production of a great many pathologic processes been demonstrated. The mouth, including the teeth, gums and tonsils, affords a broad surface and readily accessible means of entry for various pathogenic micro-organisms. It is not always essential that visible evidence should be present in the mouth of the focus producing a systemic infection, to prove that the portal of entry was in the mouth. The focus may be discovered only by careful examination with the Roentgen ray. A portal of entry may be present and not directly demonstrable in any way, for example, when the bacteria enter the lymph or blood stream by way of the tonsils. That a focus does exist in the mouth and that it is directly responsible for the pathologic condition has been repeatedly proved by removing the source of infection or by treatment with a proper autogenous vaccine made from bacteria isolated from the pus at the site of the focus. Such treatment often causes the disappearance of the systemic pathologic condition.

Within the mouth there are various channels through which bacteria may enter the system: the tonsils, gums, roots of the teeth, and by way of the esophagus to the stomach and intestine. That the tonsils play an important part in various infections has been demonstrated by many. In a careful bacteriologic and pathologic study of the bacteria removed from the tonsils in various diseases, and injection of these bacteria into animals, Davis[1] was able to reproduce many of these conditions. He studied 113 hypertrophied tonsils from patients with endocarditis, nephritis, arthritis and simple tonsillar cases, isolating the organisms, most of which were streptococci, and injecting them into animals and producing a corresponding condition. The beneficial effects of tonsillectomy, he thinks, furnish the best evidence that the infected tonsils are concerned in the production of arthritic, cardiac, renal and other clinical conditions. Davis[2] again in 1913, in a study of forty-two cases of arthritides, could trace the condition to the diseased tonsils. Capps[3] summarized 1,400 cases of epidemic streptococcic sore throat, and mentions several complications, such as otitis media, erysipelas, arthritis, endocarditis and myocarditis. There were also pleurisy and pneumonia, while peritonitis that occurred resulted in many deaths.

In this connection, the work of Rosenow[4] proved that many ulcers of the stomach are associated with tonsillar infections. He obtained streptococci from some of these ulcers, and after injecting cultures of these organisms into animals, he was able to observe gastric ulcers in them. Stone[5] pointed out the relation between enlarged cervical glands and foci of infection in the tonsils, even though the tonsils may not be hypertrophied or inflamed. The short and direct communication between the tonsils and the lymphatics is responsible for this. In this way there may also result tuberculous adenitis.

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1. Davis: Jour. Infect. Dis., 1912, x, 148.
2. Davis, D. J.: Chronic Streptococcus Arthritis, The Journal A. M. A., Sept. 6, 1913, p. 724.
3. Capps, J. A.: Epidemic Streptococcus Sore Throat—Its Symptoms, Origin and Transmission, The Journal A. M. A., Sept. 6, 1913, p. 723.
4. Rosenow, E. C.: The Production of Ulcer of the Stomach by Injection of Streptococci, The Journal A. M. A., Nov. 29, 1913, p. 1947.
5. Stone: Boston Med. and Surg. Jour., 1912, clxvii, 539.

That the mouth by way of the esophagus directly offers an entry for bacteria to reach the stomach is evident. The various bacteria are carried in from the dust that gets into the mouth, from the foods, and from infected places in the mouth, particularly the gums. Mayo[6] says that Smithies, in a "microscopic examination of gastric contents from 2,406 different individuals with 'stomach complaint' (dyspepsia, indigestion and the like), showed that irrespective of the degree of acidity of such gastric extracts, bacteria were present in 87 per cent.," and that while the proliferation of the pus-producing organisms, such as the streptococci and staphylococci, were retarded in the gastric juice, bacilli seemed to thrive.

Perhaps equally common as a source of infection are the teeth. The open, exposed, ulcerated or decayed tooth is not always the worst in this respect. More harm may be done by the heavily crowned, capped and bridged teeth, under the poorly fitted margins of which the bacteria flourish and manage either to enter the lymphatics or to send their toxins into the system. There may also be a tiny abscess situated deep down at the root of the tooth. In these cases local manifestations of a focus in the teeth may be entirely lacking, and may be demonstrable only by the Roentgen ray. These so-called "blind abscesses" may remain dormant a long time. Ultimately they open into the mouth by way of the sinus. Often they lead into larger abscesses in the bone, in which toxins are produced, giving rise to septic conditions. Haskin[7] believes that such abscesses, with their subsequent complications, are even more dangerous than the infections resulting from pyorrhea alveolaris. He describes a series of cases among which were complications such as gastric ulcer, anemia and neuritis. It is probable that, depending on the nature of the organism in the abscess, there may result any of the complications so often resulting from tonsillar affections. Rosenow[8] states that these foci are common in patients who for years have suffered from arthritis, neuritis, appendicitis, ulcer of the stomach, goiter, etc., and that persons with perfect health are, as a rule, free from sources of infection in relation to the teeth.

The treatment of the complications secondary to the focus within the mouth consists first of all in removing the mouth infection. Careful examination should be made of the tonsils and teeth, and if the tonsils are found to be hypertrophied or inflamed, even without visible signs of any abscess, they may be removed. Often the abscess may be located deep in one of the crypts. If any visible pus is present, it would be advisable to obtain a culture of the bacteria contained in it. Normal tonsils should not be removed. When the tonsils appear normal, even though there may be no history of tooth involvement, the teeth, nevertheless, should be carefully examined. Poorly fitting crowns should be taken off, and often underneath them may be found the cause of the trouble. Many cases of arthritis have been cured by a correction of the dental work of the mouth, removal or filling of ulcerated areas, and insertion of proper bridge work. Roentgenograms may locate a blind or apical abscess when least suspected. When such has been found, the tooth should be extracted. Often it is possible to drill into the abscess and in this way offer drainage for the pus. In this way also the tooth may be saved. This, however, can best be left to the judgment of the dentist.

Besides the removal of any foci, a mouth wash may be indicated. There are many mouth washes on the market under various trade names. Many of these contain the same ingredients and vary but slightly in their composition from those described in either the Pharmacopeia or the National Formulary. The best mouth washes are those that are alkaline, antiseptic and astringent. Some of the simpler antiseptic and astringent mouth washes are strong solutions of glycerin or of alcohol. Hydrogen peroxid, one part, to three parts of water is a good wash. For ordinary cleansing purposes sodium bicarbonate, in water, will serve the purpose.

Cleanliness of the teeth plays an important part in the asepsis of the mouth. By regular and frequent brushing of the teeth with a good, fairly stiff toothbrush and a simple tooth powder or tooth paste, the accumulation of tartar on and between the teeth may be to some extent prevented. In conjunction with this brushing of the teeth, gargling with a mouth wash will aid in cleaning the mouth. Equally if not more important in the care of the teeth is the periodic visit two or three times a year to a dentist, that tartar may be removed, that caries of the teeth may be early treated, and that the condition of the gums may be noted and pus pockets early discovered.

PREVENTION

Prevention of suppuration or other infection in the mouth is of the greatest importance all through life. The following suggestions for preventive measures may be of value:

1. There should be inspection of children's teeth in schools.
2. Every infected area in the mouth must be treated and eradicated if possible as soon as discovered.
3. The public should be taught that a bad tooth or a diseased gum or tonsil is serious, and neglect of such a condition may cause an incurable disease.
4. The mouth of every patient should be examined as part of the physical examination.
5. Roentgenograms of suspected gums or jaws should be taken, and if advisable, a culture from the pus or secretions of the infected region should be made.
6. There should be cooperation of the physician with the dentist to decide on what is best for the correction of mouth defects, whether certain teeth should be filled or pulled, or otherwise treated, and just what is the best treatment for a diseased gum or tonsil. Neither physician nor dentist is infallible, and both should recognize that cooperation is best for the patient.

(To be continued)

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[6] Mayo, C. H.: Mouth Infection as a Source of Systemic Disease, The Journal A. M. A., Dec. 5, 1914, p. 2025.

[7] Haskin: New York Med. Jour., May 16, 1914, p. 979.

[8] Rosenow, E. C.: Mouth Infection as a Source of Systemic Disease, The Journal A. M. A., Dec. 5, 1914, p. 2026.

The Obvious Treatment.—An old story concerns a patient who, seeking free advice, met his physician one frosty morning and said: "Doctor, what do you do when you have a cold?" The physician craftily answered, "I cough." His answer is as obvious as the treatment for pruritus recommended by Dr. Andrew Borde, a physician who lived from 1500 to 1549. Dr. Borde admitted that itching of the skin was altogether beyond the power of his treatment. He says:

"This I do advertise every man for this matter (ailment) to ordeyne or prepare a good paire of nayles, to cracke (scratch) and clawe, and to rent and teare the skynne and the fleshe . . . and beware," he advises his patients, "reverberate not the cause inwards with no oynment," and "clawe not the skyn with fyshye fyngers, but washe the handes to bedwards" (at bed time).

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SATURDAY, NOVEMBER 4, 1916

THE TREATMENT OF DIPHTHERIA CARRIERS

The recognition of human "carriers" of disease, who do not themselves manifest symptoms of the infection which they harbor, has brought new problems to be solved. To rid society directly of the carrier infringes perhaps on the personal liberty and happiness of an innocent individual. For the present, therefore, he must be subjected to such treatment as seems likely to subdue the organisms which he unwittingly distributes. Various proposals have been made for ridding diphtheria carriers of the offensive germs. The administration of diphtheria antitoxin has not proved successful. Local measures consisting of direct treatment of the areas of suspected invasion, notably in the nasopharyngeal passages, with sprays, gargles, inhalants and comparable devices, are at best doubtful in their effects. Antagonistic introduction of bacteria in the form of cultures of staphylococci, lactic acid bacilli and others has had its vogue. Insufflation with kaolin has also been championed[1] for the removal of bacteria from the mucous membranes.

A preliminary requisite for adequate treatment of persistent diphtheria carriers would seem to be the discovery of the precise location of the bacilli of the disease. The growing evidence of the involvement of the tonsils, the crypts of which furnish effective spots for the multiplication of the micro-organisms,[2] has found corroboration in recent researches.[3] The microscopic examinations of the tonsils or tonsillar crypts of carriers have pointed quite clearly to the presence of what are most probably diphtheria bacilli, in six out of seven cases examined. When there were lesions, as when the epithelium of the surface of the tonsil was necrotic, bacilli were found to multiply on the surface as well as in the crypts. These facts contribute further to the explanation of the disappearance of the bacilli and the failure to obtain positive cultures from the throat in many, though not all carriers, after tonsillectomy. By this operation an important focus of infection in which the micro-organisms have lodged and multiplied has doubtless often been removed. It must not be overlooked, however, that in further instances the bacteria have probably continued to grow in some place other than the tonsils or adenoids.

Attempts have also been made to increase the activity of the leukocytes in the pharyngeal and nasal secretions of diphtheria carriers. According to Tunnicliff,[4] the phagocytic power of their blood is increased, but at the same time the nose and throat may contain large numbers of leukocytes not engaged in phagocytosis, diphtheria bacilli being found outside of the leukocytes. Efforts to increase the activity of these leukocytes by the use of normal serum, leukocytic suspensions, and a variety of drugs (calcium chlorid, salicylate, lactic acid, magnesium chlorid) were unsuccessful, although these substances are found to promote phagocytosis in the laboratory.

THE RIGHT AND WRONG OF MAKING EXPERIMENTS ON HUMAN BEINGS

To heal the sick and to prevent disease and death are the services to society to which the physician devotes himself. Just so far as he is capable of performing these functions, he is under obligation to perform them. But the ability of medical men to cure or check disease is often limited because the nature of the disease and suitable methods of treating it are still unknown. On every side the effect of increased knowledge in giving increased power is manifest. Greater knowledge is certain to yield greater ability to restore the sick to health. Again, just so far as the physician is capable of doing so, he is as much under obligation to secure further knowledge and to diffuse it as he is under obligation to apply his skill to the individual in distress. This duty of learning is the warrant everywhere for the painstaking labors of the medical investigator, whether he is in the laboratory experimenting on animals, or in the hospital thoroughly and critically studying his patients.

The duty of learning, the duty of making advances in diagnosis and treatment, is certain to involve the application of new methods or new medicaments. Fortunately, observations which can be made on animals offer reasonable assurance as to the safety of new procedures before they need to be tried on man. If a promising mode of diagnosis or treatment has been carefully worked out on lower animals, there appears to be no ethical objection to applying it to a human being who is in distress when it is reasonable to believe that its application would be beneficial. Devotion to the duty of learning, however, may tempt investigators to make tests on their patients without due consideration, tests perhaps more likely to be valuable to others than to the person on whom they are made. Or procedures may have mixed values, in part beneficial to the patient, in part beneficial to his fellows. These situations raise an important ethical question: To what limit is the testing on human beings of a previously untried medical agency justifiable?

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[1] Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, The Journal A. M. A., June 12, 1915, p. 1985.

[2] Friedberg, S. A.: Removal of Tonsils and Adenoids in Diphtheria Carriers, The Journal A. M. A., March 11, 1916, p. 810. Ruh, H. O.; Miller, M. J., and Perkins, R. G.: Studies on Diphtheria, II, The Treatment of Diphtheria Carriers by Tonsillectomy, ibid., March 25, 1916, p. 941. Albert, Henry: The Treatment of Diphtheria Carriers, ibid., Sept. 27, 1913, p. 1027.

[3] Brown, Mary W.: Diphtheria Bacilli in Microscopical Sections of Tonsils from Diphtheria Carriers, Jour. Infect. Dis., 1916, xix, 565.

[4] Tunnicliff, Ruth: Observations on Phagocytosis and Leukocytic Activity in Diphtheria Carriers, Jour. Infect. Dis., 1916, xix, 97.

Just because an operation is a minor one and is very likely to be harmless, there is danger of assuming that the new knowledge to be obtained from testing it justifies the test, even without the consent of the person on whom it is to be tried. Such an assumption is a serious error. There is no more primitive and fundamental right which any individual possesses than that of controlling the uses to which his own body is put. Mankind has struggled for centuries for the recognition of this right. Civilized society is based on the recognition of it. The lay public is perfectly clear about it. Any hospital official or physician known to commit or to allow violation of the sacredness of the person becomes at once the object of hostility. And the law, as an expression of public conscience, declares that deliberate injury done to the body of another is an assault, and provides severe punishment for it. Society as now constituted will obviously not countenance any operation performed for the satisfaction of the operator or for the assurance of the investigator, whether or not for the immediate benefit of others, unless the consent of the person on whom the operation is to be performed has previously been obtained.

No doubt the justice of this ethical standard is generally recognized in the medical profession, and the spirit of the Hippocratic oath shows that from the earliest times this primary regard for the patient has been the core of the physician's honor. Occasionally, however, reports appear which indicate that investigators have made tests on human subjects which possibly may not have been intended directly for the benefit of the person concerned. In some instances it has not been clear that the consent of the subject was obtained. In other instances, in which dependents have been subjects, the superintendent of the hospital or asylum has been responsible for his charges, and it has not been clear whether he has given his consent or secured the sanction of relatives. It is clearly the duty of the physician to secure the consent of the patient or of the patient's guardian in case the patient himself is not capable of granting consent before performing any mutilating operation. The medical profession is certainly not called on, in any sense, to support the physician who transgresses the elementary principles of ethics.

Especially are the reputation and esteem of medical men endangered by any failure on their part to stand firmly for the fundamental right of the individual to respect for his own person. For the sick commit themselves to the care of the physician and surgeon helplessly and with implicit trust that their welfare alone will be considered. Any practitioner or investigator, no matter how laudable his motives, who fails in scrupulous regard for this trust is liable to do incalculable harm by rousing suspicions, fears and disrespect as to the character of medical service.

THE HEMOSTATIC ACTION OF KEPHALIN

The importance of a better understanding of the nature of the coagulation of the blood is apparent to all who have to deal in a practical way with the control of hemorrhage. Howell of Johns Hopkins University contributed a significant item by the discovery that certain lipoids exert a thromboplastic action. The factor ordinarily lacking in fluid blood to make it clot promptly is available thrombin, which, in the presence of calcium salts, induces the production of the fibrin that forms the basis of the coagulum. The expression "available" thrombin has been used purposely in this connection because it is becoming apparent that the thrombin factor is ordinarily present in blood but is inhibited from its characteristic performance by some antagonistic substance (an antithrombin); or it may be that something is needed to "activate" the thrombin factor—to convert some antecedent substance into effective thrombin in the presence of which blood will clot promptly when the other essential conditions are attained.

Independent of any theoretical considerations as to the precise details of the coagulation process in blood, it has been established that contact with certain tissues, or addition of certain tissue extracts to blood plasma, leads to clot formation. In 1912 Howell[1] showed that the active substance concerned in this facilitation is presumably a phosphatid having the general properties of kephalin. Practical applications of this have already been reported. For example, Hirschfelder[2] of the University of Minnesota has described how an active thromboplastic preparation can be made from an ether extract of ox brain. The residue of such an extract or a weak emulsion of it in salt solution, when placed on an oozing surface of tissue, stops bleeding quickly and gives a very clean field for operation. Hemorrhages from bone, kidney, muscle and connective tissue, prostate and other glands are said to be easily controlled by this means. Hemorrhage from a cut artery obviously cannot be controlled so easily, because the force of the blood pressure pushes away the incipient clot as fast as it can be formed. In a pitted wound, however, such as occurs in warfare or when the femoral artery is cut through in Scarpa's triangle, and the pitted wound fills with blood, application of the lipoid brain extract causes hemostasis spontaneously, because a thick enough layer of fibrin can be found.

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[1] Howell, W. H.: Am. Jour. Physiol., 1912, xxxi, 1.

[2] Hirschfelder, A. D.: Brain Lipoid as a Hemostatic, Science, Aug. 18, 1916, p. 251; Brain Lipoid, New and Nonofficial Remedies, The Journal A. M. A., Aug. 5, 1916, p. 437.

With such evidences of possible usefulness in practical surgery, it has become doubly important to identify the facilitating agent. McLean[3] has therefore attempted to learn, in the physiologic laboratory of the Johns Hopkins University, whether the thromboplastic effects attributed to kephalin is a property of the substance itself, or the manifestation of some adherent impurity; and, further, whether it is shared by other related phosphatids in any degree. The evidence presented by him indicates that "impurities" will not account for the thromboplastic function. Not only brain kephalin, but also the comparable substance isolated from the heart and the liver exhibit the same reaction. Finally, the other phosphatids that have been described,[4] such as purified lecithin, cuorin, heparphosphatid and sphingomyelin, have no thromboplastic action. These facts give kephalin a unique physiologic significance.

THE RELATION OF PROTEINS TO MILK PRODUCTION

The recent contributions to our knowledge of the chemical differences between proteins are beginning to manifest themselves in many ways in the study of nutrition. The researches of Osborne, Mendel and others in this country have centered attention on the indispensability of certain amino acids for the growth of new tissues. The value of proteins for the purposes of constructive metabolism is thus closely connected with the type and quantity of these essential amino acids which they yield. The failure of "incomplete" proteins like gelatin from animal sources or the zein of corn or the gliadin of wheat to promote satisfactory nutrition for growth is today readily explained, thanks to the pioneer researches of the past few years, on the basis of the lack of needed constructive nitrogenous units in such proteins. A reviewer has recently summarized the situation by stating that investigations of this type into the biochemical deportment of the protein cleavage products will undoubtedly lead ultimately to the assignment of more or less specific functions to the various amino acids, and hence will indirectly indicate the relative efficiency of this or that protein in bringing about a desired result in nutrition.[5]

In more than a superficial sense the function of the mammary gland resembles the phenomena of growth. It is concerned with the construction of new products of a very specific and unalterable character from such pabulum as is brought to the secreting structure by the circulation. The question arises, therefore, whether the gland is independent of the quality of the nitrogenous units thus furnished to it for the manufacture of milk; whether it can synthesize almost from the elements, as it were, the proteins characteristic of its secretion, or whether, like the rest of the body about to build up new tissue, the mammary structures are dependent on a qualitatively and quantitatively suitable supply of amino acids as constructive units.

Hart and Humphrey[6] of the University of Wisconsin have studied this problem in the case of the milk-producing cow. Their results indicate that the quality of the proteins is an important factor in maintenance and production, and that the synthetic powers of the mammary gland will not compensate for deficiencies in protein structure. In an earlier series of experiments, it was found that milk proteins had an efficiency for milk production and tissue restoration of about 60 per cent., in comparison with an efficiency of only 40 and 36 per cent., respectively, for the corn and wheat grain proteins. On certain otherwise comparable rations, for example, positive nitrogen balances were maintained with milk proteins for the production of as high as 35 pounds of milk a day, but negative balances resulted when the proteins were derived from the corn or wheat grain. Latterly, in comparison of the proteins of gluten feed, oil meal, distillers' grains, casein and skim milk powder for milk production, the relative efficiency of these protein concentrates ranged in essentially the order mentioned, the milk itself being the most effective source of milk protein.

These facts gained from the laboratories of animal nutrition are surely not without immediate significance for the human mammary functions. The new experimental observations bear out the value of the empirically accepted custom of supplying milk liberally in the diet of lactating women. So long as the other preferable protein sources in the human dietary are not specifically known, it becomes essential to make the protein supply in the food liberal enough to prevent any shortage of desired amino acid units of any sort whatever. This is the more important because such deficiencies do not always reveal themselves promptly in alterations of the supply of milk from an underfed or improperly nourished person. The forces of maternity in maintaining milk production at a high level for a long time prevent any failure of milk supply even where it might be expected; for when the food does not furnish what is requisite, the individual derives the necessary constructive units from its own tissues. Improper food during a period of lactation may thus bring about emaciation or partial depletion of muscular tissue without a symptom of the lack being revealed by any impoverishment of the milk flow for some time. Hence any consideration of the efficiency of proteins from different sources for milk production must take into account not only the protein secreted in the milk but also that stored or destroyed in the rest of the organism; for milk production at the permanent expense of catabolizing tissues is far from an ideal situation.

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[3] McLean, J.: The Thromboplastic Action of Cephalin, Am. Jour. Physiol., 1916, xli, 250.

[4] The Lecithins of Milk, editorial, The Journal A. M. A., Nov. 13, 1915, p. 1734; Pure Lecithin, April 1, 1916, p. 1029.

[5] Underhill, F. P.: The Physiology of the Amino Acids, New Haven, Yale University Press, 1916, p. 158.

[6] Hart, E. B., and Humphrey, G. C.: The Relation of the Quality of Proteins to Milk Production, Jour. Biol. Chem., 1915, xxi, 239; Further Studies of the Relation of the Quality of Proteins to Milk Production, ibid., 1916, xxvi, 457.

RHUS POISONING

The discussion of the etiology and mechanism of poisoning through the agency of the poison oak (*Rhus diversiloba* T. and G.) and its near relatives, poison ivy (*Rhus toxicodendron* L.), and Japanese poisonous sumac (*Rhus vernix* L.), in recent issues of The Journal,[1] seems to indicate an especial interest in this subject. It becomes apparent that some believers in the toxicity of these plants postulate the poison to be of a gaseous nature, so that it can easily be transmitted without contact with parts of the plant. Some assert the probability of a bacterial nature of the poison in order to explain the often subtle and otherwise apparently inexplicable spread of the signs of affection with rhus intoxication. Others maintain that contact is necessary and that the toxic agent is unquestionably a chemical substance of defined properties.

A series of experiments, recently reported by McNair[2] from the Rudolph Spreckels Physiologic Laboratory of the University of California, establishes a number of facts concerning the active principles of poison oak. McNair, to whom we already owe chemical studies previously referred to on the nature of oak poison,[3] has tried some crucial experiments to determine or exclude certain of the possibilities of transmission of rhus poisoning still in doubt. These points were already known for poison ivy and poison sumac. The nonbacteriologic nature of the toxic substance, its nonvolatility, its resinous nature, its absence in the pollen and plant hairs, and its chemical properties were determined by the methods previously employed by other investigators in their studies of the poisonous constituents of the related plants. In fact, the results indicate that the toxic agents in the several plants are identical or very closely related.

The oft repeated assertion that poisoning may result from exposure to smoke from burning stems is experimentally verified. Smoke from the heated leaves causes dermatitis if blown on the wrist. If, however, the smoke is filtered through glass wool, it will no longer produce toxic effects, showing that smoke is only a mechanical carrier of the poison.

The part of the plant to be feared is the resinous sap. This sticky sap, exuding from all parts of an injured plant, comes into contact with hands or other exposed portions of the body, and may even be carried indirectly on clothing, tools, insects, smoke, etc., to the skin of persons far from the actual neighborhood of the plant, giving rise to those mysterious "recurrent" cases of oak poisoning. Sap thus carried loses its toxic properties by oxidation, the rate of loss being most rapid when the temperature is blood heat and the atmosphere humid. The irritant in the sticky resinous sap slowly diffuses through sudoriparous and sebaceous ducts, hair follicles, and through the skin itself where it is thin and delicate.

A suggestion has been advanced that possibly insects carry poison from plant to person. This McNair believes cannot, from present evidence, be denied; but it is doubtful whether severe cases of rhus dermatitis can be caused by the small amount of rhus poison that an insect might carry.

The principal lesions of dermatitis venenata from poison oak have been described by White.[4] McNair adds to the symptoms already recorded an accompanying leukocytosis (in severe cases blood counts frequently giving more than 12,000 leukocytes to the cubic millimeter), and constitutional disturbances, such as fever, coated tongue, loss of appetite, constipation, and a trace of albumin in the urine (he records one case in which an acute nephritis developed). As diagnosis is occasionally difficult, certain peculiarities may be noted, distinguishing it from eczema and herpes: Oak poisoning frequently begins between the fingers, and is markedly acute in character, with swelling and often large vesicles and blebs, the exudate from which is nontoxic. It occurs in sharply defined patches, elongated streaks, and other irregular shapes corresponding with the original area of contact. It does not follow the nerve trunks. It seldom attacks the scalp or the inside of the hands. The areas of the skin to which the poison has been conveyed from the original site of contact are usually less affected. It may subside in from four to six days, depending on the amount of the irritant and the sensitiveness of the skin.

Paraffin as a Petrol Substitute.—In view of the abnormally high price of petrol (gasoline) in England and the difficulty of obtaining it, an article in *Engineer*, 122, No. 3158, describes a specially constructed vaporizer and carbureter, by the use of which paraffin may be substituted for petrol in motor-driven vehicles. A small tank is fitted for the supply of petrol for starting the engine, and paraffin is used after the vaporizer has become sufficiently hot. The carbureter has two float chambers, one for petrol and the other for paraffin, and has a main jet and two pilot jets. The sprayed paraffin enters the vaporizer, which consists of two concentric tubes, between which the exhaust gases from the engine pass and thus heat the walls of the inner tube. The latter tube contains a worm which causes the mixed air and paraffin to whirl as the mixture traverses the inner tube. There is thus a tendency to throw an unvaporized paraffin into contact with the hot walls, where vaporization is completed.

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[1] The Poisonous Principle of Poison Oak, editorial, The Journal A. M. A., Aug. 5, 1916, p. 441; Poison Oak and Poison Ivy, Queries and Minor Notes, Sept. 2, 1916, p. 763; Etiology of Rhus Poisoning, Queries and Minor Notes, Oct. 4, 1916, p. 1175.

[2] McNair, J. B.: The Transmission of Rhus Poison from Plant to Person, Jour. Infect. Dis., 1916, xix, 429; The Pathology of Dermatitis Venenata from Rhus Diversiloba, ibid., 1916, xix, 419.

[3] McNair, J. B.: Jour. Am. Chem. Soc., 1916, xxxviii, 1417.

[4] White: Dermatitis Venenata, 1887.

Current Comment

THE TOXICITY OF THE PIGMENT OF CERTAIN FOODS

The controversy over the bleaching of flour[1] with chlorin has many issues, but on one point all agree, namely, that the transformation of the dark coloring matter from the wheat to a "pure" white does appeal to the esthetic sense. Casting aside for the moment the problem of its effect on health, it cannot be denied that it allows a poorer grade of flour to be placed on the market at a fancy price, since the public is thus prevented from estimating the value by the color. The character of the pigment of the flour has been shown to be identical with the coloring substance of the carrot, which had previously been isolated and given the name "carotin" or, as Monier-Williams[2] has more recently termed it, "carrotene." The relative amount of carotin in flour is much smaller than in carrots. Wells and Hedenburg[3] of the University of Chicago have been conducting an investigation on the effects of chlorin on flour, and in this connection undertook to determine the possible toxicity of the pure pigment matter, both bleached and unbleached, but using carrot as the source of supply of the carotin. The purified pigment, in olive oil, was injected intraperitoneally into guinea-pigs (weighing about 250 gm. each) in an amount of 0.2 gm.; this is equivalent to the amount of carotin in 200 kg. of flour. In addition, intradermic tests, such as used by Corper for the study of local toxicity, were made. The authors concluded that "even in relatively very large doses carotin, whether in its natural state or saturated with chlorin, is almost entirely devoid of toxicity." Since carotin is distributed throughout all animal bodies, derived in the main from food, these experiments would seem to indicate that no deleterious effects would arise from any such quantities as could accumulate in the tissues.

SCIENCE NOTE

Last week a Sporting Note appeared in this department relative to the alleged secret of Ty Cobb's baseball success — "Nuxated Iron."[4] Those of our readers into whose hands some not-too-particular newspapers may happen to fall are, doubtless, familiar with at least some of the claims made for the latest "patent medicine" sky-rocket, "Nuxated Iron." It was "Nuxated Iron" that "gave Ty Cobb such tremendous strength and vitality after he was so weakened and all run down." Mr. Jess Willard says: "Take Nuxated Iron if you want plenty of 'stay-there' strength and endurance and health and muscles like mine." Dr. Ferdinand King, according to the "Nuxated Iron" advertisements, prescribes this latest wonder. Dr. King, we are told, is a "well-known New York physician and author." He should be well known from the picture that appeared in his double-column advertisements in which, in "forty-eight point" black type, he appealed to the masculine sinners of New York: "I Guarantee To Cure the Following Male Diseases." Further continuing our scientific investigation of the literature, we learn from the *Police Gazette* and similar authorities that "Nuxated Iron" puts the "Most Astonishing Youthful Power Into the Veins of Men" and is in fact "A Wonderful Discovery which Promises to Mark a New Era in Medical Science." For fear that some of The Journal readers may not take this bibliography with sufficient seriousness, we hasten to call attention to the full-page advertisements of "Nuxated Iron" that have been running in the New York *Medical Record.* Here we learn that the preparation "as a tissue builder and tonic is well worth the careful investigation of every physician who wants results." To save our readers the trouble of further search: Up to the time of going to press, the New York *Medical Record* has had no editorial on this latest therapeutic marvel.

THE REGULATION OF BLOOD VOLUME

Dilution of the blood is usually followed by diuresis as one of the factors in securing a return of the organism to its normal condition. Because of the rapidity of the regulatory response it is not easy, even with the exclusion of the kidney cooperation, to maintain an excessive blood volume for any length of time. Some of the problems here concerned were recently discussed in The Journal.[1] Several years ago, Fischer and Hogan[2] called attention to the fact that intravenous injections of gelatin solutions are not diuretic and that, therefore, high arterial pressure is likely to be maintained for a longer time after such injections than after introduction of ordinary saline solutions. It was consequently suggested that gelatin-containing solutions might advantageously replace ordinary saline solutions for injection in cases of shock in which it might be desirable to keep the blood pressure high for a considerable period of time.[3] The hypothesis on which this suggestion was based concerns the hydrophilic or water-retaining capacity of colloids, such as gelatin. It is conceivable that, even if no diuresis occurs, the volume of the blood may be altered, after injection of saline-colloid solutions, by the disappearance of fluid into the tissue reservoir, as commonly happens when simple saline fluids enter the circulation.[1] An investigation of this question by Bogert, Underhill and Mendel[4] at Yale University shows, however, that though fluid injected in the form of colloidal solutions containing gelatin

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[1] Chlorin Bleached Flour, editorial, The Journal A. M. A., Nov. 28, 1914, p. 1959; Modern Bread and Deficiency Diseases, Current Comment, April 22, 1916, p. 1314.

[2] Monier-Williams, G. W.: Reports of the Local Government Board (Great Britain), Public Health and Medical Subjects Series, No. 73, 1912.

[3] Wells, H. G., and Hedenburg, O. T.: The Toxicity of Carotin, Jour. Biol. Chem., 1916, xxvii, 213.

[4] See the exposé of this "patent medicine" in the Propaganda department of The Journal, Oct. 21, 1916.

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[1] Remote Effects of Nephritis, editorial, The Journal A. M. A., Oct. 14, 1916, p. 1164.

[2] Fischer, M. H., and Hogan, J. J.: Kolloidchemische Beihefte, 1912, iii, 385.

[3] Hogan, J. J.: The Intravenous Use of Colloidal (Gelatin) Solutions in Shock, The Journal A. M. A., Feb. 27, 1915, p. 721.

[4] Bogert, L. Jean; Underhill, F. P., and Mendel, L. B.: The Action of Saline-Colloid Solutions upon the Regulation of Blood Volume: Studies of the Permeability of Cellular Membranes, II, Am. Jour. Physiol., 1916, xli, 219. Roger and Garnier: Arch. de méd. expér., 1913, xxv, 273. Boycott, A. E.: Jour. Path. and Bacteriol., 1914, xviii, 498.

may leave the circulation as readily as that in noncolloidal solution, the restoration of the blood volume to normal is as a rule not so prompt after the use of the colloidal solutions. The regulation is less efficient. There are, however, drawbacks to the introduction of foreign protein into the blood, so that further investigation of the proposed procedure in man seems to be called for before it is adopted as a routine in practice. In this connection it may be of some interest to consider the effect on the regulation of blood volume produced by injections of alkaline solutions. These have been proposed by Fischer[5] as a means of dehydrating the colloids of the body. Bogert, Underhill and Mendel[6] have demonstrated that the addition of alkali, up to 0.4 per cent. of sodium carbonate, to injected salt solutions has no apparent effect on the regulation of blood volume either in normal or in nephritic animals. The rate at which, and the extent to which, injected fluid leaves the blood vessels is unaffected by the addition of the alkali.

THE AUTOMOBILE AS A CAUSE OF POLIOMYELITIS

The newspapers have given an unusual amount of space to the recent epidemic of poliomyelitis, which is remarkable in view of the small number of cases of this disease as compared with epidemics of such diseases as scarlet fever, diphtheria and other exanthems. An explanation is to be found in the insidious nature of the disease and its serious after-effects, in addition to the high mortality. Naturally there has been a large crop of sensational statements as to its causation and treatment. Not the least remarkable is one which has gone the rounds of the press during the past week. This paragraph reports a statement to the effect that the epidemicity of poliomyelitis is due to the fumes produced by automobiles. As the announcement is alleged to have been made before the American Public Health Association, public opinion may possibly attach undue importance to it under the impression that it is endorsed by that association. Of course to maintain such a theory it would be necessary to show that epidemics of poliomyelitis did not occur before the development of automobiles, and that they do not occur now in places in which there is little or no such development. Since 1841, when the first epidemic of this disease was reported, though not recognized, in Louisiana, until the present day, a number of these outbreaks have occurred. It will be necessary to mention only some which are inconsistent with the theory advanced in the statement referred to. Such are an epidemic of forty-three cases in 1877 at Stockholm; an epidemic of from 150 to 160 cases in the summer of 1894, in Otter Creek Valley, Vt., and an outbreak in 1899 in Norway. All of these occurred before the development of the automobile industry. In 1905 and 1906, epidemics occurred in Norway with a total of 1,053 cases, especially prevalent in the northern part of Norway. No one will allege that the northern parts of Norway even now, ten years later, are places where poliomyelitis could, by any twist of the imagination, be attributed to "gases and fumes given off in the atmosphere by the combustion of oils and fluids used in automobiles." *Post hoc, ergo propter hoc* is a familiar fallacy; *ante hoc sed propter hoc* is as novel as it is startling.

MEDICAL LICENSURE IN THE UNITED STATES

During the last fifteen or twenty years, medical practice laws in nearly all states have been improved. Considering the country as a whole, however, more confusion and inefficiency still exist in connection with medical licensure in the United States than obtain in any other civilized nation. Instead of its being a function of the national government, as in other countries, the protection of the public against incompetent and ignorant practitioners of medicine has been left to each individual state. And, as a rule, state governments have not appreciated or assumed the responsibility, and have failed to establish a control of medical licensure comparable with that in other countries. Either adequate medical practice laws have not been enacted, or competent boards have not been provided to enforce them. At the present time, there are six states[1] in which the laws do not give the licensing boards authority to establish standards of preliminary education, or the boards have taken no action, and in fifteen states[2] the laws do not empower the boards to refuse recognition to seriously low grade medical colleges, or the boards have failed to make use of that authority. Still greater confusion exists in each of twenty states[3] in which the responsibility for licensing those who are to treat the sick has been divided between from two to five separate and independent boards which, of course, makes impossible a high degree of efficiency. Even in states in which there are single boards, however, there remains much room for improvement. Only a beginning has been made in the use of practical and clinical tests, and in most states the examinations — written questions and answers — do not test a candidate's real knowledge and ability, but rather encourage quiz-cramming methods of education. A satisfactory regulation of the practice of medicine in each state requires (*a*) that there be a single board of medical examiners, the members of which are qualified for the duties devolving on them; (*b*) that the authority to license those who assume the responsibility of caring for the sick shall rest absolutely in this board; (*c*) that this board establish a minimum standard of educational qualifications, in accordance with which every candidate for a license be tested by written, laboratory and clinical examinations. With such provision in each state, the highest efficiency, taking the country as a whole, requires a close cooperation among state boards through which uniformity of requirements and equally effective methods of examination may be established. When these principles have been put into effect, the people of the United States may be assured that those who assume the rôle of the physician will be as well trained and as skilled as the average of those in other countries.

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[5] Fischer, M. H.: Oedema and Nephritis, Ed. 2, New York, 1915.

[6] Bogert, L. Jean; Underhill, F. P., and Mendel, L. B.: The Influence of Alkaline-Saline Solutions upon Regulation of Blood Volume: Studies of the Permeability of Cellular Membranes, III, Am. Jour. Physiol., 1915, xli, 229.

[1] These states are Florida, District of Columbia, Idaho, Massachusetts, South Carolina and Wyoming.

[2] These states are Arizona, California, District of Columbia, Idaho, Kansas, Massachusetts, Montana, Nebraska, Nevada, Oregon, Tennessee, Texas, Utah, Washington and Wyoming.

[3] These states and the number of separate boards in each, are as follows: Arkansas, 5; Connecticut, 4; Florida, 4; Georgia, 2; Idaho, 2; Kansas, 2; Louisiana, 3; Maryland, 2; Michigan, 2; Minnesota, 2; Missouri, 2; Montana, 2; Nebraska, 2; New Mexico, 2; North Carolina, 2; North Dakota, 3; Pennsylvania, 2; Rhode Island, 2; South Dakota, 2, and Vermont, 2.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Sanatorium Opened.—The formal opening of the Rock Island Municipal Tuberculosis Sanatorium took place October 19.

Health Conference.—Arrangements are being made by Dr. C. St. Clair Drake, secretary of the state board of health, Springfield, for five district health conferences to be held in the state during the winter.

County Sanatorium.—Miss Grace Osburn, Chicago, state worker for a tuberculosis sanatorium, is touring Ogle County urging the voters to maintain a sanatorium in and for the county. This is the third county in the state to vote on this question.

School Vaccination Sustained.—The Illinois Supreme Court, on October 25, after considering the case of Wendell against the city of Peoria, rendered a decision upholding the right of the school board to bar from school children who have not been vaccinated.

Personal.—A farewell dinner was given by physicians of Peoria and vicinity to Dr. Elbert W. Oliver, October 20. Dr. Oliver left October 23 for his new home in Sheridan, Colo. ——Dr. John J. Hanmore, Urban, coroner of Champaign County, who sustained severe injuries when his automobile struck a telephone pole near Gifford, October 16, is still under treatment at the Julia F. Burnham Hospital, Champaign, and is said to be improving.

Chicago

To Name Hospital for Dr. Cotton.—The health commissioner has suggested that the Contagious Diseases Hospital be named after the late Dr. A. C. Cotton and has written a letter to Mayor Thompson, asking his approval of the plan.

Chinese Doctor to Lecture in Chicago.—Dr. Yamei Kin, for the last ten years the active head of the Pei Yang Woman's Hospital, Tien Tsin, China, has arrived in Chicago and is visiting the family of Dr. E. C. Dudley. Dr. Kin has been on a lecture tour through the East and will also be heard in Chicago.

Typhoid Fever in Englewood School.—After an exhaustive investigation Dr. Herman L. Bundesen of the city health department announced, October 24, that fifteen cases of typhoid among students of the Englewood High School were due to salad containing typhoid bacteria. There have been no further cases of typhoid in the school.

Personal.—Dr. Channing W. Barrett was elected president of the Chicago Gynecological Society at its thirty-eighth annual meeting.——Maj. Gustavus M. Blech, commanding Field Hospital, No. 2, Ill. N. G.; Capt. Frederick O. Fredricksen of Field Hospital, No. 1, and Lieut. Ray H. Davies, Field Hospital, No. 2, have been in Chicago on leave of absence.

Hospital Raises Fund.—The desired sum of $150,000 for the Norwegian Lutheran Deaconess Home and Hospital, to be erected at 1138 North Leavitt Street, was assured at a final rally held at the Hotel La Salle, September 24, when it was announced that $125,000 had been secured of which $100,000 was in cash and that two citizens of Chicago had guaranteed the remainder.

Field Hospital Mustered Out.—Field Hospital Company, No. 1, commanded by Maj. William J. Swift, was mustered out of the service of the United States, at Springfield, October 26.——Field Hospital, No. 2, is still in Springfield, awaiting muster out, which probably will be completed this week. This company arrived in Springfield, October 20, from the Mexican border.

Fenger Memorial Tablet Unveiled.—A copper, hand hammered memorial tablet, in honor of Dr. Christian Fenger, was unveiled at the Cook County Hospital, November 3. The presentation address was made by W. A. Bauer, president of the Dr. Fenger Memorial Fund. The tablet was accepted on behalf of the hospital by the president of the Board of Commissioners of Cook County, and an address was delivered by Dr. Augustus A. O'Neill, president of the Chicago Medical Society, on "The Life and Work of Dr. Fenger."

Lectures at Children's Memorial Hospital.—The auxiliary board of the Children's Memorial Hospital announces a series of lectures, to be given by members of the staff of the hospital. The following lectures have been announced: November 1, "Progress in Medical Care and Treatment of Infants," Henry F. Helmholz; November 8, "Some Medical Problems in the Hospital Care of Children," Samuel J. Walker; November 15, "Nature and Management of Contagion," Frank S. Churchill; November 22, "Surgery of Infants and Young Children," Coleman G. Buford; November 29, "Orthopedic Conditions in Children," Edwin W. Ryerson; December 6, "Nursing Methods as Applied to Children," Miss Elsie L. Burks, R. N. The lectures will be given in the lecture room in the Agnes Wilson Building, 735 Fullerton Avenue, on Wednesday morning at 11 o'clock.

Cook County Survey of Mental Defectives.—Dr. Herman M. Adler, until recently chief of staff of the Boston Psychopathic Hospital, has resigned that position, and has taken leave of absence for one year from his duties as assistant professor of psychiatry in Harvard University. At the request of the City Club of Chicago and of the Illinois Society of Mental Hygiene, he is conducting an investigation of the methods of dealing with insane, feebleminded and psychopathic delinquents in Cook County. This work is being undertaken under the auspices of the National Committee for Mental Hygiene and the Rockefeller Foundation, and is a part of the much more extensive survey of mental defectives which is being conducted throughout the country. The immediate object of the survey is to determine the facilities for dealing with mental deficiency and delinquency. The result of this survey must depend on the interest taken in it by the local authorities. Special committees on registration, research, publicity, lectures and affiliation, it is expected, will aid the general committee in its work.

INDIANA

Typhoid in Indianapolis.—During September, the state board of health reports that there were 185 cases of typhoid fever in Indianapolis, the largest number of cases ever reported in the history of the health department.

Hospital Wing Opened.—The new wing of the Methodist Episcopal Hospital, Indianapolis, was officially opened, October 12. It is a five-story structure with a roof garden, is devoted entirely to private patients, and can accommodate sixty-five patients.

New Field Hospital Company Organized.—Field Hospital Company, No. 2, Ind. N. G., which had recruited at Frankfort, has been mobilized at Fort Benjamin Harrison, and the following officers have been appointed: Maj. Archibald G. Chittick, Frankfort, and Lieuts. Martin L. Oilar, Russiaville; Ellis Trent Stout, Upland; George D. Haworth, Noblesville, and C. Herbert Bruner, Greenfield.

Personal.—Dr. Frederick A. Douglas, Richmond, has gone to Camp Borden, Toronto, Ont., to enter the Canadian Army Medical Service.——Dr. Robert C. Light, Indianapolis, while working over his automobile, injured his left eye so that it had to be enucleated.——Dr. Jefferson R. Hildrup, Windfall, has been appointed a member of the staff of the State Epileptic Village, Newcastle.——Dr. Floyd A. Loop has resigned as medical superintendent of the Wabash Valley Sanitarium, La Fayette.——Dr. James H. F. Prentiss, Gary, is reported to have retired from active practice and will make his home in Eustis, Fla.——Dr. James M. Dinnen, Fort Wayne, has been appointed chief surgeon of the Nickle Plate System.

IOWA

Southeastern Physicians Hold Meeting.—At the annual meeting of the Southeastern Iowa Medical Society, held at

Muscatine, October 19, Fairfield was selected as the place of meeting for next year and the following officers were elected: president, Dr. Campbell P. Howard, Iowa City; vice president, Dr. Elbridge H. King, Muscatine; secretary-treasurer, Dr. Charles F. Wahrer, Fort Madison.

Hospital Notes.—The Fraternity and Charity Society of Dubuque has inaugurated a campaign for the erection of a hospital for the treatment of persons afflicted with tuberculosis. It is proposed to erect a building to cost $75,000. The proposition will be submitted to voters at the November election.——The furnishing of the New Mary Greeley Memorial Hospital, Ames, is being carried on rapidly and it is expected the hospital will be in operation early next month.

Personal.—Dr. Alden R. Hoover, after ten years' work in Asiatic Turkey, where he was in charge of a hospital of the American Board of Commissioners for Foreign Missions and later in charge of the American Red Cross work in Constantinople during the Dardanelles campaign, has returned to America and has located in Des Moines, where he will devote himself especially to surgery.——Dr. Harley L. Sayler, city health officer of Des Moines, has gone to Wyoming on a leave of absence.——Dr. Henry Matthey, Davenport, has returned to America after two years' service with the German army.

MARYLAND

Dinner for Dr. J. P. Wade.—The friends and associates of Dr. J. Percy Wade commemorated the twenty-fifth anniversary of his services at the Spring Grove State Hospital by tendering him a dinner at the Baltimore Club on the evening of October 26. Dr. Wade was appointed assistant physician at the hospital on Oct. 26, 1891, and became superintendent, April 15, 1896.

Personal.—Dr. G. Milton Linthicum, captain in the Medical Corps of the Fifth Regiment, is at home on a thirty-day furlough. While on the border he has been connected with the new Eagle Pass Hospital.——Dr. Thomas B. McDonald, Cumberland, is in a critical condition from a general breakdown brought on by ill health and the shock he recently suffered when his little daughter died from infantile paralysis and his wife and son also contracted the disease.

Infantile Paralysis Quarantine to be Removed.—The infantile paralysis quarantine will be raised, November 1, according to a recent report from the city health department, Baltimore. Only three new cases have been found in the past two days, and this has been about the average for the last ten days. The conclusion reached is that the epidemic stage of the poliomyelitis has been warded off, and that there is no pressing fear of other outbreaks of the disease in the city. ——There were still a number of cases reported to the state department of health during the week, especially from Garrett County, where there has been an epidemic of the disease, and conditions in the counties are not as favorable as in Baltimore.

Municipal Hospital Planned.—It has been announced that the United States government will pay Baltimore $176,775 for the quarantine station and the money thus obtained will be devoted to the establishment of a general municipal hospital. The plans will be worked out by the board of estimates before it completes the tax levy for 1917. The need of such an institution was emphasized by the outbreak of infantile paralysis. The proposed hospital will be for the treatment of patients under the direction of the supervisors of city charities and cared for outside Bay View. The supervisors of city charities have contracts with several local hospitals, the cost of the service approximating $95,000 a year. The city will formally transfer the quarantine station to the federal government as soon as the report of the appraisers is ratified. Dr. Thomas L. Richardson and the other physicians at the station will be retained by the U. S. Public Health Service, which will operate the station. The city is to have the privilege of sending smallpox patients to the quarantine at a charge of $1 a day per patient.

NEW YORK

Medical Library Meeting.—The annual meeting of the Utica Medical Library Association was held, October 16, and the following officers were elected: president, Dr. Frederick T. Owens; vice president, Dr. William O. Weiskotten; secretary, Dr. John Gromann, and treasurer, Dr. John W. Rayhill.

Physician Gives Library to Society.—Dr. John G. Orton, Binghamton, has donated his entire medical library, which he has been collecting for sixty years, to the Binghamton Academy of Medicine, and at the meeting of the organization a movement was projected to procure and maintain a building or home for the use of the society to house the library and to include also an assembly hall and laboratory.

Tuberculosis Items.—The chairman of the plan and scope committee of the board of supervisors of Rensselaer County has received a letter from the state deputy commissioner of public health to the effect that a tuberculosis hospital of 200 beds, with a water supply and sewage disposal system, can be built on the site selected in the county for $150,000.——The board of managers of the Oneida County Hospital reported that there are now 144 patients in the institution, and the first of a series of portable houses for tuberculosis patients is being erected on the new addition of the hospital property.

New York City

Fordham Medical Alumni Organize.—The Fordham Medical School Alumni met, October 27, and organized an association, electing the following officers: president, Dr. James McSweeney; vice president, Dr. John J. Sheridan, and secretary-treasurer, Dr. Francis X. McGovern. Father J. Tivnan addressed the association on "The Menace of Birth Control."

Society Meetings.—The meeting of the New York Academy of Medicine, November 2, was held with the cooperation of the section on genito-urinary diseases. Dr. Hugh H. Young of Johns Hopkins Hospital, Baltimore, delivered an address on "The Relation of Chronic Infections of the Genito-Urinary Tract to Obscure Internal Disorders."——The second of the Harvey Society Lectures, delivered at the New York Academy of Medicine, November 4, was on the subject of "The Rôle of Fat in Diabetes" and was delivered by Dr. Frederick M. Allen of the Hospital of the Rockefeller Institute.

Personal.—Dr. Jay F. Auner of the Vanderbilt Clinic has located in Des Moines, Iowa, and announces that he will hereafter limit his practice to diseases of the skin and radiology.——Dr. J. Richard Kevin, New York, has returned from his duties with the Twenty-Third New York Infantry on the Texas border, on thirty days' leave of absence.——Dr. William C. Woolsey, Brooklyn, who has been on duty with the American Ambulance, Paris, has started on his return to this country.—Dr. Joseph Lipman, who recently received several gunshot wounds, inflicted by a patient who complained of the treatment given her, is being cared for in the Polyclinic Hospital and will probably recover.

Poliomyelitis Records.—*Bulletin No. 43* of the health department gives records of the case fatality, hospitalization and crippling from poliomyelitis during the past summer. The true cases of poliomyelitis numbered 8,927 and the total number of deaths, 2,343, or a case fatality of 26.24 per cent. The patients treated in the hospitals of the department of health numbered 4,474, with a case fatality of 14.59 per cent. The patients admitted to twenty-seven other hospitals in the city numbered 2,663, and showed a case fatality of 14.53 per cent. The patients treated at home numbered 2,040, and showed a case fatality of 63.87 per cent. This high case fatality was mainly due to the fact that these cases were of the severest type. From August 21 to October 13 there were discharged from the hospitals of the department of health 2,058 patients. Of these, 66 per cent. showed evidences of paralysis of some degree; 18 per cent. showed that paralysis had wholly disappeared, while 15 per cent. had not shown paralysis at any time in the course of the disease.

Paratyphoid Among New York Troops.—Of 1,100 men of the Fourteenth Regiment who left for Texas, 130 have been or are ill with paratyphoid fever. Of the 1,600 men in the Seventy-First Regiment, there have been to date fourteen cases of paratyphoid fever. The returning troops were ordered to Camp Whitman and while there a large amount of laboratory work was done by the New York State Department of Health. The examination of 850 stools revealed forty carriers, many without any history of illness. Before returning to New York all members of the Fourteenth and Seventy-First regiments received one dose of paratyphoid vaccine. In the case of the Fourteenth, because of the high degree of infection, a complete vaccination was insisted on. After returning to New York, the troops were kept at the armory, under supervision for two weeks, before being mustered out. The chronic carriers have been made known to the board of health, and will be under their supervision. The vaccination of the families of these carriers will also be carried out by the department of health.

The Tuberculosis Situation in New York.—The Bureau of Public Health Education has prepared a review of the present status of antituberculous work in this city. The statement is made that despite the strenuous antituberculous work of the past ten years, and the annual expenditure of hundreds of thousands of dollars, one seventh of all deaths are due to tuberculous infection. Though progress is slow, it is shown that tuberculosis is gradually being reduced; thus in this city the pulmonary tuberculosis rate per thousand of population has fallen from 2.37 in 1900 to 1.61 in 1915. According to the figures prepared by the health department there are, at the present time, over 35,000 recognized cases of pulmonary tuberculosis in the city. Only 10 per cent. of these patients are under the care of a private physician. This fact directly indicates the economic injury caused by the disease. It is estimated that the annual loss to the city from tuberculosis is $10,000,000. Over 6,000 patients with advanced disease are being cared for in institutions within the city, while nearly 2,800 are being cared for in out-of-town institutions. This report discusses the housing problem as a factor in the production of tuberculosis, and suggests that a great need at the present time is employment for the consumptive under conditions that will not only conserve his health but will protect his fellow workmen, and also the need of some method by which remuneration may be proportioned to the patient's needs and not merely to his earning capacity.

NORTH DAKOTA

Health Department for Fargo.—A committee has been appointed consisting of Drs. Edward M. Darrow, Olaf Sand. Leunis Van Es, the mayor and a member each of the board of city commissioners and commissioners of Cass County, to make a thorough investigation as to the advisability of the establishment of a permanent health department in Fargo under a trained full time health officer.

Hospital News.—The Luther General Hospital, Harvey, was formally opened last week. The institution has accommodation for fourteen patients and it is expected that a new wing will be added in the spring. The institution is under the charge of Dr. Arnt T. Floew.——At the annual meeting of the Minot General Hospital Association, October 19, it was decided to go ahead with the selling of stock of the association and to maintain a school for nurses in connection with the institution. The directors have agreed on the general plan of the building, which is to be on the unit system, the first unit of which will cost $85,000.

Personal.—Dr. LeRoy H. Labbitt has been appointed examining surgeon at Enderlin for the Minneapolis, St. Paul and Sault Ste. Marie Railway.——Dr. George W. Williamson, Grand Forks, has been appointed a member of the national committee on uniform laws and state regulations by the Federation of Medical Boards of the United States.——Dr. Carl F. Raver, Grand Forks, has been appointed health officer of Aberdeen, S. D.——Dr. Leverett D. Bristol, for two years professor of bacteriology and hygiene and director of the City Public Health laboratory at the University of North Dakota, University, has accepted the newly created Boston Dispensary fellowship in public health in the Department of Preventive Medicine at Harvard Medical School, Boston.——Dr. Nils Myklestad, Minot, has returned after four months in the hospitals of Germany and Austria.

PENNSYLVANIA

Hospital Activities.—Hospital day exercises were held at St. Luke's Hospital, South Side, Bethlehem, October 18. The principal address was delivered by Dr. Benjamin F. Royer of the state health department.——The Sacred Heart Hospital, Allentown, is undertaking a campaign to raise $150,000. Dr. Henry I. Klopp is chairman of the citizen committee, which consists of 100 business men, who will be in charge of the campaign.——The board of health of Erie has asked the appropriation of $10,000 for the construction of new buildings at the Municipal Hospital.

Personal.—Members of the Blair County Medical Society tendered a farewell banquet at Altoona, to Dr. Samuel Calvin Smith, Hollidaysburg, who is about to locate in Philadelphia.——Dr. and Mrs. Ambrose J. Herr, Lancaster, celebrated the fiftieth anniversary of their marriage, October 4.——Dr. Daniel A. Webb, Scranton, who is now on duty at the Military Hospital at Shorncliffe, England, expects shortly to be sent to France.——Dr. George J. Van Vechter has been appointed director of the department of health of Scranton.

Philadelphia

Memorial Meeting for Dr. Rodman.—At the stated meeting of the College of Physicians, Philadelphia, November 1, Dr. James W. Holland read a memoir of the late Dr. William L. Rodman.

Dr. Rush's Birthplace Destroyed.—On October 7, fire of undetermined origin destroyed the historic stone barn built in 1700 on the Parry estate at Torresdale. The barn is said to have been the birthplace of Dr. Benjamin Rush.

Glanders Prevalent.—On October 25, Dr. Wilmer Krusen, director of public health and charities, issued a warning to owners of horses, calling attention to the prevalence of glanders in this city and advising them to protect their stock. Since January 1,180 horses have been affected.

Pediatric Societies' Joint Meeting at Boston.—The joint meeting of the Philadelphia Pediatric Society, the Pediatric Section of the New York Academy of Medicine, the New York State Society, the New Jersey Pediatric Society and the New England Pediatric Society was held in Boston, November 4. The Harvard Club was the headquarters.

Med.-Chi. Men for University Faculty.—The following former members of the Medico-Chirurgical College Faculty have been duly elected members of the Faculty of Undergraduate Medicine in the University of Pennsylvania: Dr. Joseph McFarland, professor of pathology; Dr. John C. Heisler, professor of anatomy; George H. Meeker, Sc.D., LL.D., professor of chemistry; Dr. Horatio C. Wood, Jr., professor of pharmacology and therapeutics, and Dr. Seneca Egbert, professor of hygiene.

Personal.—Dr. C. Lincoln Furbush, who was appointed, October 26, special assistant to the American Embassy at Berlin, will leave for Germany about the middle of November. He will also act as medical inspector to the allied prison camps in Germany.——Dr. Wilmer W. Trinkle has been appointed coroner's physician, to succeed the late Dr. Thomas J. Morton.——Dr. J. Torrance Rugh has been made visiting orthopedic surgeon to the West Philadelphia Hospital for Women.——Dr. Leon Brinkmann succeeds Dr. Melvin M. Franklin as visiting surgeon to the Jewish Hospital, the latter becoming a consulting surgeon.

GENERAL

Southern Physicians to Meet.—The annual meeting of the Southern Medical Association will be held in Atlanta, November 13 to 16, under the presidency of Dr. Robert Williams, Jr., Charleston, S. C.

New England Surgeons Organized.—More than eighty surgeons of New England attended the inaugural meeting of the New England Surgical Society at Boston recently. Dr. Samuel J. Mixter, Boston, was elected president.

Guarding Against Typhus.—The United States Public Health Service has erected disinfecting stations in Texas at Eagle Pass, El Paso, Brownsville and San Antonio, in order to prevent typhus fever from crossing the Mexican border to the United States. A civil engineer, driven out of Mexico, is said to have died from typhus fever at El Paso, October 19.

Personal.—Maj. Thomas L. Rhoads, M. C., U. S. Army, who recently returned from Panama to await orders from the War Department, has been notified that he is to go to France to become the head of a hospital at Passy, near Paris, which has been presented to the French government by four Americans. Major Rhoads has been given four months' leave of absence for this purpose.

Railway Surgeons Meet.—At the second annual meeting of the Chicago Great Western Railway Surgeons' Association, held at the Hotel Sherman in Chicago last week, the following officers were elected: president, Dr. Paul E. Gardner, New Hampton, Iowa; vice president, Dr. Overton Brooks, Chicago, and secretary-treasurer, Dr. Orry C. Morrison, Carroll, Iowa. The 1917 meeting will be held at Red Wing, Minn.

Health Specialists Hold Meeting.—At the annual meeting of the American Public Health Association, held in Cincinnati, October 24 to 26, under the presidency of Dr. John F. Anderson, U. S. P. H. S., the following officers were elected: president, Dr. William A. Evans, Chicago; vice presidents, Drs. John H. Landis, Cincinnati; Maurice McD. Seymour, Regina, Sask., and Manuel Iglesias, Vera Cruz, Mexico; secretary, S. N. Gunn, Boston, and treasurer, Lee K. Frankel, New York.

Fraudulent Subscription Canvassers Arrested.—Word has been received that the subscription canvassers who falsely represented themselves as students in a contest for college scholarships and about whose activities frequent warnings have appeared in The Journal, have been arrested in California. On the various subscription blanks used were the titles—Michigan Educational Association, Cornell Educational Association, National Educational Association, and United Students Aid Society. An endeavor is being made to collect evidence for use in prosecution. Any one victimized who desires to aid may address The Journal.

Bequests and Donations.—The following bequests and donations have recently been announced:

Brooklyn Hospital, $5,000, by the will of Miss Elizabeth B. Estas.

Long Island College Hospital, $20,000; Brooklyn Hospital, $12,000, and House of St. Giles the Cripple, Brooklyn, $10,000, by the will of Francis S. C. A. Ripley.

Beth Israel Hospital, New York, an annual income of $500, and Hospital for Deformities and Joint Diseases, an annual income of $100, by the will of Harris Wolff.

Greenville (S. C.) Hospital, a donation of $6,300, from the Ladies' Auxiliary Association.

Norwegian Lutheran Deaconess Home and Hospital, Chicago, $150,000, as the result of a ten-day campaign.

Jackson Park Sanitarium, Chicago, $1,400, the result of a sale held at the residence of Mrs. Edward Tilden, October 19.

For a tuberculosis ward for negro women and children at the Charity Hospital, New Orleans, subscription of $1,543.84 of the $3,500 required.

International Hospital, Tokyo, Japan, subscriptions of $32,000, announced at the general convention of the Protestant Episcopal Church, St. Louis, October 21.

American College of Surgeons.—On Friday evening, October 27, the annual business meeting of the American College of Surgeons was held in Philadelphia and 232 fellowships were conferred. The following officers were elected: president, Dr. George W. Crile, Cleveland; first vice president, Dr. Robert G. LeConte, Philadelphia; second vice president, Dr. Rudolph Matas, New Orleans; general secretary, Dr. Franklin H. Martin, Chicago, and treasurer, Dr. Albert J. Ochsner, Chicago. At this meeting the question of the development of a closer relationship between the surgeons of North and South America was discussed. The following committee was appointed to visit South America and to invite the medical men of the Latin-American republics into closer communion with the doctors of the North: Dr. Edward Martin, Philadelphia; Drs. Charles H. and William J. Mayo, Rochester, Minn.; Drs. Franklin H. Martin and Albert J. Ochsner, Chicago, and Dr. Franklin F. Simpson, Pittsburgh.

Clinical Congress of Surgeons.—The seventh annual meeting of the Clinical Congress of Surgeons was held in Philadelphia, with headquarters at the Bellevue-Stratford Hotel, October 23 to 27. Twenty medical societies and forty hospital organizations of Philadelphia acted as hosts, and Dr. Robert G. LeConte was chairman of the committee of arrangements. The retiring president responded to the address of welcome and the new president, Dr. Fred Bates Lund, Boston, was inducted into office. Drs. Jasper Halpenny, Winnipeg, Man., and Samuel M. D. Clark, New Orleans, were inaugurated as vice presidents. The subject of the presidential address, delivered by Dr. Lund, was "The Indications for Cholecystotomy." More than 1,600 members were registered from all parts of the United States and Canada and abroad. The regular meetings were conducted from Monday until Friday. The first three meetings were for the visiting surgeons. Papers were presented and discussed by the masters in surgery. The evening sessions were unusually popular as evidenced by the fact that the large ball room and gallery of the Bellevue-Stratford Hotel were crowded. The last evening meeting (Friday), known as the public meeting, was held in Witherspoon Hall. At the regular business meeting held Thursday, October 26, the following officers were elected: president, Dr. John G. Clark, Philadelphia; first vice president, Dr. George Henderson Lee, Galveston, Texas; second vice president, Dr. Edgar W. Allin, Edmonton, Alberta, Canada; secretary general, Dr. Franklin H. Martin, Chicago (reelected), and treasurer, Dr. Allen B. Kanavel, Chicago (reelected). The next meeting place of the congress will be New York in 1917.

War Hospital Exhibit.—The first base hospital ever established for exposition purposes held a special exhibit for the visiting physicians of the Clinical Congress of Surgeons at the camp site on Belmont Plateau, Fairmount Park, Philadelphia, October 28. Dr. Franklin Martin, Chicago, and Col. Jefferson R. Kean, director general of Military Relief Red Cross, are the originators of the idea to establish exhibition base hospitals. Twenty-six similar models will be shown in different parts of the country and experts figure that at least twice as many should be at the disposal of the government in case of war. This exhibit was given by the Lakeside Unit Red Cross Hospital of Cleveland. Dr. George W. Crile was director of the unit and his principal coadjutor was Maj. H. W. Jones of the regular army, who had active charge of the demonstration. The staff was as follows: Dr. A. R. Warner, quartermaster; Dr. W. R. Barney, adjutant; Dr. L. B. Sherry, registrar, and Miss G. E. Allison, chief nurse. The tented hospital city was erected in the form of a hollow square. On the extreme flanks were the quarters of the surgeons and nurses, and the mess tents where the cooks prepared food for both unit personnel and the patients. The foreground was occupied with the administration offices, equipped like any regimental site in the regular army. Within the hollow square were pitched the tents that comprise the wards, accommodating 500 wounded, with the necessary tents for the storage of equipment, linen, surgical instruments and utensils. To each tent were assigned three nurses, a head nurse and two assistants. The entire personnel required one director and three assistants; six staff surgeons and five staff physicians; orthopedist, ophthalmologist, neurologist, bacteriologist, roentgenologist, two dentists, registrar, quartermaster, chaplain and two assistants, two pharmacists, fifty nurses, twenty-five aids, two laboratory assistants, eleven men in the record station, ten men in the supply station, twenty-eight in the subsistence department, twenty-six orderlies and sixteen civilians for various duties. The hospital equipment as it stood was estimated to be worth $70,000, of which half was in the cost of the surgical instruments. These were loaned by Dr. George E. Brewer and were the possessions of his hospital unit of the Presbyterian Hospital of New York. Col. George H. Penrose, commandant at the Schuylkill Arsenal, loaned the tentage.

FOREIGN

Death in the Profession Abroad.—E. B. Barnet, one of the organizers of the National Board of Health in Cuba and chief of its publishing department, founder of the *Revista de la Asociacion Medico-Farmaceutica* and official delegate from Cuba to various international medical and public health congresses.

Cancer Research in Norway.—The Norwegian Cancer Research Association pays a crown (27 cents) for each report of a case of cancer in Norway sent in to the secretary, Dr. F. G. Gade, Christiania. The association also examines and reports on specimens of tissue suspected of being cancerous, from the living subject or cadaver, with no expense to physician or patient. Question blanks for recording cases are sent on demand.

Soap Cards in Germany.—Our Christiania exchange relates that the ration allowed in Germany of soap and other washing materials made with grease has been definitely established as 50 gm. toilet and barber soap for each person per month, or 250 gm. soap powder. Green soap is not dispensed at all. Hospitals are given soap to correspond to the amount of their wash, but physicians, midwives and nurses get their soap on their bread card. This entitles physicians to 100 gm. toilet soap and 500 gm. other soap per month. It seems that the regulation of the food supplies was arranged without consulting the medical profession, and many difficulties have arisen in getting suitable extra fare for the sick, as the regulation of the milk, butter, cream and meat supplies is in the hands of separate departments.

Collective Study of Operations for Goiter.—The Swiss Surgical Association has sent out a question blank throughout Switzerland to collect data on operative treatment of goiter. All cases of radical operation for simple goiter and for exophthalmic and malignant goiter are to be listed separately, as also all minor operations on the thyroid. The complications, secondary lesions, recurrences, mortality, and causes of death are to be recorded, with the operative technic, grouping the cases by years and mentioning the very earliest symptoms. Those able to supply data for deceased colleagues are asked to honor their memory by doing so. The data are to be sent as soon as possible to the secretary of the association, Dr. F. Steinmann, Bern. All will be held strictly confidential and returned to the writer. The data are to be worked up and the summary presented at the next annual meeting of the association.

Improvised Hospital for Contagious Diseases.—M. Labbé has been called on to organize a number of contagious disease hospitals for the French troops at the front, and has encountered numerous practical difficulties as he relates in the *Annales de Médecine,* 1916, iii, 436, in what he calls a critical review of the whole subject. He tells how he surmounted the various difficulties, utilizing local resources and warding off possible factors of harm. A laboratory should be in the same building, he insists, so that the proper measures can be taken without a moment's delay when the bacteriologic diagnosis is once made. One great advantage of these military hospitals is that the physician in charge has all the reins in his own hands, and can supervise personally every detail. The twenty-three page article is intended for the novice in such matters and gives the rudiments as well as the minutest data for getting up such a hospital and running it satisfactorily at the least expense.

CANADA

Hospital News.—The Canadian Hospitals Commission is securing the Sanita, Chatham, Ont., and another hotel at Preston, Ont., where there are mineral waters. These will be used for the benefit of returned soldiers.——The Ontario government has agreed with the Canadian Hospitals Commission to bear the expense of enlarging sanatoriums at London and Hamilton, to the extent of $25,000 for the former and $15,000 for the latter. This will give larger accommodation for returned tuberculous soldiers.——Arrangements have been made by the Canadian Hospitals Commission to treat 1,000 to 1,500 Canadian soldiers suffering with rheumatism, now in England. They will be brought to Canada as soon as all arrangements are fully completed.——Fire destroyed St. Elizabeth Hospital, Farnham, Que., October 25. Twenty-seven lives were lost. The hospital is under the management of the Grey Nuns. The institution was partly a school for children. It is thought that the fire escapes were defective.

Personal.—Lieut.-Col. George Nasmith, C. M. G., chief of the Toronto Laboratories, who has been on active service in France, has resigned and is returning to take up the duties of his office in Toronto.——Dr. Helen MacMurchy, inspector of hospitals, prisons and public charities for Ontario, was entertained by government officials of Manitoba during a recent trip West.——Dr. F. W. Schofield of the laboratory of the Ontario Board of Health has gone to Seoul, Corea, to be professor of bacteriology and hygiene in the medical college there.——It is reported that Lieut.-Col. J. George Adami, professor of pathology in McGill University, Montreal, who held the position abroad of official Canadian recorder of medical history of the war, has resigned and will soon return to McGill.——Dr. Hadley Williams, London, Ont., has been appointed chief surgeon, to succeed Lieut.-Col. Irving H. Cameron (who has returned to Toronto) in the Ontario Military Hospital, Orpington, England.——Dr. George E. Armstrong, chief surgeon of the Royal Victoria Hospital, Montreal, has been appointed consulting surgeon to the Canadian overseas forces, with the rank of lieutenant-colonel.——Capt. H. B. Paul has been appointed commandant of the new Canadian hospital at Otchingill, near Shorncliffe, England.——Maj. C. A. Warren, Toronto, has been promoted to the rank of temporary lieutenant-colonel and is now acting A. D. M. S. at Camp Borden, Ontario.——Capt. D. A. McClenahan, Hamilton, Ont., district medical officer of health in that part of Ontario, is reported to have been wounded in France while commanding a draft of a sanitary section.——Captain Whittemore is reported wounded in recent fighting and now to be in Gray's Inn Road Hospital, London, England.——Lieut.-Col. Clarence Starr, Toronto, has been called to London, England, to do special orthopedic surgery for a period of six months.——Dr. John R. Irwin, Coburg, Ont., who has served for a year with the Royal Medicals in France, was recently summoned before the king to receive the Military Cross. Dr. Irwin was attached to the Second Worcestershire Regiment and went down into the front line at midnight when the enemy blew up a mine, burying two Canadian soldiers. He went down the shaft 30 feet and out 300 feet, bent double excepting when he had to crawl on hands and knees, and spent an hour working with the men.——Capt. Howard Brown Jeffs, Toronto, arrived home wounded early in October, but returns in January.——Lieutenant-Colonel McCombe, A. D. M. S., of the London area, has tendered his resignation and his place is being taken by Lieutenant-Colonel Watt, Winnipeg, who has been in command of the Granville Hospital at Bramshott, England.——Lieut.-Col. A. T. Shillington, Ottawa, A. D. M. S., of the personnel at headquarters, will take a similar position at Shorncliffe, England.——Lieutenant-Colonel Peters, Montreal, now in command of No. 9 Field Hospital, is succeeding Colonel Shillington.——Lieutenant-Colonel Wilson, A. D. M. S., Shorncliffe, will go to London as deputy director, vice Lieut.-Col. Murray Maclaren, C. M. G., who will probably take charge of a hospital in England.

PARIS LETTER

Paris, Oct. 5, 1916.

Death of Dr. Valentin Magnan

Psychiatry has suffered a great loss in the death of Dr. Magnan, honorary chief physician of the Asile Sainte-Anne at Paris, recently deceased at Suresnes (department of the Seine).

Valentin-Jacques Joseph Magnan was born at Paris, March 17, 1835. He was intern at the Salpêtrière under Baillarger and Falret, and, from the commencement of his studies, occupied himself with mental diseases. One year after receiving the degree of doctor of medicine, he was appointed physician of the Asile Sainte-Anne (1867). The following year he inaugurated in his service a clinical course which drew many French and foreign physicians; but although in reality a remarkable teacher, the faculty of medicine never confided a chair to him. During the forty years in which he remained at the asylum, Magnan contributed in this manner to the professional education of several generations of alienists. He published a series of interesting works on paresis, on hereditary insanity, on degenerates, on delirium, on sexual perversion and on other subjects. In addition, he carried on an energetic campaign against alcoholism, the ravages of which his experience as an alienist particularly qualified him to appreciate. In 1873 the Académie de médecine awarded the Civrieux prize to him for a memoir on this subject. A number of his lessons have been published under the title "Leçons cliniques sur les maladies mentales," the second edition of which appeared in 1893.

Magnan was elected a member of the Académie de médecine in 1893, and became president of that body in 1915. In his will he has left the sum of 25,000 francs ($4,825), the interest of which is to form a triennial prize to be awarded to the author of the best work on psychiatry or to the best study of a mental disease published in the course of the three previous years.

The War

CONTAGIOUS DISEASES AMONG THE TROOPS AT THE FRONT

Dr. Boigey, having observed the development of contagious diseases in a detachment at the front during the year 1915, has noted that notwithstanding fatigue, overcrowding and unfavorable climatic conditions (damp cold, rains, fogs), the total of contagious diseases in this detachment was almost three times less than in time of peace. The figures for the year 1915 are:

Disease	No. of Cases
Measles	176
Scarlet fever	122
Mumps	422
Diphtheria	105
Cerebrospinal meningitis	28
Total	853

According to medical statistics for similar forces of the army in time of peace, the mean annual number of cases of contagious diseases admitted to the military hospitals would have been:

Disease	No. of Cases
Measles	730
Scarlet fever	295
Mumps	1,050
Diphtheria	66
Cerebrospinal meningitis	16
Total	2,157

In spite of the extreme contagiousness of measles and scarlet fever, they did not spread among troops bivouacked or camping in the war zone in makeshift shelters where there was the utmost overcrowding. Dr. Boigey attributes this relative immunity to life in the open air and to the hyperoxygenation. Except for one epidemic episode of mumps which occurred in November in a camp near the front, it seemed to Dr. Boigey that repeated contact did not possess the importance usually attributed to it in the communication of contagious diseases. These facts lead even the most skeptical to believe that predisposition plays the most important rôle in this matter, and that the pathogenic seed, however abundant and however virulent, will not germinate in an inappropriate soil.

SANITARY TEAMS IN THE ARMY

The undersecretary of state for the military health service has decided on the immediate constitution of two crews or teams in each region to be called sanitary teams, intended for the service of the army. The object is to insure hygienic and sanitary measures necessary for the health of the troops in the war zone. Each team will consist of fifteen of the youngest men from the auxiliary service, who, from a technical point of view, will be under the orders of a pharmacist of the auxiliary forces, and will be commanded by a sergeant and two corporals. Men of these teams will receive special instruction, theoretical and practical, in the general hygiene of active service, notably, that which concerns lime washing, disinfection of latrines and disposal of manure, the fight against flies and mosquitoes, the destruction of garbage, the killing of lice, bathing arrangements, and the purification and protection of drinking water. As far as possible, each member will specialize in one part of this program so that he may, if necessary, be able to direct fatigue parties without hygienic instruction who may be called on to work under his orders. Distributed among the armies where needed, these teams are intended to insure a permanent hygienic surveillance and action which the camps lack at present, owing to frequent displacements of troops. These orders will go into effect October 15.

THE LIBRARY FOR THE BLIND

The Valentin Haüy Association has established a house for the blind at rue Duroc 9, the perfect equipment and services of which constitute a synthesis of the progress hitherto realized in construction, and in the technical and professional education of those who have lost their sight. This house contains a library of more than 45,000 volumes in Braille characters, to which acquisitions are constantly being added, and also various periodicals of interest. The annual circulation is more than 50,000 volumes, lent to more than 2,000 readers. It furnishes more particularly municipal libraries, and has at present sixty-seven depots in the departments. This institution, which is the best of its kind in the world, and intended to be useful to the blind not only of France, but also of foreign countries, will prove of the greatest value to those who have lost their sight during the war.

SALE OF SKIMMED MILK

At the last meeting of the Council of Public Hygiene of the department of the Seine, Professor Letulle read a report on an ordinance made by the mayor of a township of this department, regulating the transportation and sale of skimmed milk. A discussion ensued in which most of the members of the council took part. A very serious question is involved, as for children, even more than for adults, skimmed milk is an absolutely insufficient aliment, and consequently, dangerous. If any proof is necessary, it is to be found in the fact that in certain districts of the North where the sale of skimmed milk has greatly increased, infant mortality has been augmented. As a result of this report and of the discussion on the proposition of Vaillard and Sellier, the following resolution was passed: "As the consumption of skimmed milk, an insufficient aliment for adults, constitutes a real danger for children and for sick persons, the opinion of the council is that the prefect of police should refuse his approval of the municipal ordinance in question."

LONDON LETTER

London, Oct. 16, 1916.

The War

A NEW HOSPITAL FOR FACE INJURIES

In previous letters to The Journal, the advantage was pointed out of the practice now in vogue of segregating various kinds of war injuries in special hospitals. In the American Hospital at the Lycée Pasteur was first shown the advantage of providing special treatment for the disfiguring injuries of the face and jaws. A new hospital for these injuries has been formed in London. It contains thirty beds, and is completely equipped as a "maxillofacial hospital"; in other words, as a hospital where jaw injuries and injuries to the face may be dealt with by plastic surgeons and dentists. This work is specialized in the highest degree: it involves the replacing of lost bone by splints made of vulcanite and other materials; the resetting of badly healed fragments; the reduction of deformities; the grafting of skin to cover unhealed wounds, and, finally, the making of artificial skin areas, and even whole organs, as the ear and nose.

FOOD PRICES

Since the war began, the price of food has nearly doubled, which is a serious matter for many people. The board of trade has appointed a committee to deal with the question, and the committee has unanimously recommended, among other things: (1) the speeding up of mercantile shipbuilding; (2) the extension of the restrictions on the importation of superfluities; (3) the development of the government meat-purchase policy; (4) the imposition of conditions on merchants and retailers of government-bought meat to secure sale at reasonable prices; (5) the voluntary institution of one meatless day a week; (6) the empowering of local authorities to open municipal milk, meat, bacon and other foodstuff shops, where retailers are taking excessive profits, and (7) the revision by employers and public bodies of their payrolls in favor of the lower paid workers. Some of the members of the committee went further, and in a minority report asked the government to purchase meat and bacon on a large scale, and where possible become the sole purchaser and give the public the full advantage of this mode of buying. One of the causes of dearness of meat is the great demand of the allied army. Even in 1915 its consumption of frozen beef was so great that only half the usual supply was available for the civilian population.

Miners' Phthisis in South Africa

A government committee appointed to report on the working of the miners' phthisis acts in South Africa states that the disease is due to the inhalation of silicious dust. When inhaled over long periods, this is carried into the substance of the lung itself, setting up inflammatory changes and leading to the formation of new fibrous tissue. Though the disease begins as a silicosis, the affected lung is apt to become tuberculous. It is believed that the very fine dust (particles under 12 microns in diameter) is the most important factor in the causation of the disease. The fumes of explosives are a subsidiary factor in the development of the disease. Ventilation and water spraying are the only means of prevention, and there are practical difficulties in the way of fully satisfactory arrangements.

The English Face Altering

In the section of anthropology of the Annual Meeting of the British Association for the Advancement of Science, Professor Keith, in a paper on "Recent Modification in the Facial Type of the English People," described a modification of the cheek bones which, he said, is part of the general reduction which is affecting all the parts concerned in the act of chewing. There is also to be seen in a considerable proportion of modern skulls a change in the bones of the nasal aperture, which is becoming narrow. The most definite changes in the modern skull are in the jaws, gums, palate and teeth. In every tenth modern woman and in every fifteenth modern man there are deficiencies in the development of the jaws, contractions of the palate, and irregularities of the teeth, which did not become common until quite recent centuries. A minute comparison of skulls which Keith has made shows that the English face has become narrower and longer. He considers that there is urgent need of a physical survey and census of the British people. Physical changes are taking place, and some of them are not for our ultimate good.

Marriages

Walter Lee Nicholls, M.D., to Mrs. Theresa Kennedy O'Ferrall, both of Baltimore, at Washington, D. C., October 19.

Clayton Wilson Klontz, M.D., to Miss Lula Marion Swanson, both of Chicago, at Crown Point, Ind., October 19.

George Franklin Worcester, M.D., Merrimac, Mass., to Miss Blanche P. Thompson of Haverhill, Mass., October 18.

Charles Arthur Sima, M.D., Chicago, to Miss Alice Kathryn Burtch of Kansas City, Mo., October 21.

Frank M. McCartney, M.D., to Miss Elizabeth M. Mitchell, both of Denver, at Littleton, Colo., October 16.

John Albert Van Kirk, M.D., Watseka, Ill., to Miss Maude Florence Steele of Kentland, Ind., October 28.

Carl Schumann, M.D., Greene, N. Y., to Miss Nina C. Winn of Pageville, Ky., October 25.

Donald Keyes Clark, M.D., to Miss Susan Frances Brooks, both of Louisville, Ky., October 18.

Lorah Otho Fox, M.D., to Miss Emily Kyle Vawter, both of Ansted, W. Va., October 25.

Sidney Cohn, M.D., New York, to Miss Dorothea Cuddy of Stamford, Conn., October 16.

Joseph R. Mitchell, M.D., to Miss Rhoda A. Hess, both of Chicago, October 4.

Deaths

Owen Jason Evans, M.D., Minneapolis; Albany (N. Y.) Medical College, 1862; aged 76; formerly a Fellow of the American Medical Association; a veteran of the Civil War, in which he served as surgeon of the Fortieth New York Volunteer Infantry; once vice president of the Minnesota State Medical Association and president of the Hennepin County Medical Society; a member of the city council of Minneapolis; from 1878 to 1882 health officer of Minneapolis; a member of the board of education in 1881; and a member of the legislature in 1884; died suddenly at a banquet of the John A. Rawlins Post, G. A. R., October 17, from heart disease.

Frederick Charles Weaver, M.D., Dayton, Ohio; Miami Medical College, Cincinnati, 1894; aged 45; a member of the Ohio State Medical Association and of the Association of Military Surgeons of the United States; who entered the Ohio National Guard in 1887 and after passing through the various grades became major and surgeon in 1900, having had service during the Spanish-American War and as acting assistant surgeon, U. S. Army, in the Philippine Islands; visiting physician to St. Elizabeth's Hospital, Dayton, and surgeon of Dayton police department from 1894 to 1899; died at his home, October 14.

Alexander Augustus Uhle, M.D., Philadelphia, Pa.; University of Pennsylvania, Philadelphia, 1898; aged 42; a Fellow of the American Association, and College of Physicians of Philadelphia; assistant instructor in genito-urinary diseases in his alma mater; assistant genito-urinary surgeon to the Philadelphia Hospital and chief of the urologic dispensary of the German Hospital; after having been given a local anesthetic, preparatory to the performance of a minor operation on the throat; died in the Medico-Chirurgical Hospital, Philadelphia, October 22, from heart disease.

Edward Howe Grannis, M.D., Menomonie, Wis.; Hahnemann Medical College, Chicago, 1875; aged 62; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin, and of the Association of Military Surgeons of the United States; surgeon of the Third Wisconsin Infantry, U. S. V., during the war with Spain, with service in Porto Rico; for two years surgeon-general of Wisconsin; a specialist on diseases of the eye, ear, nose and throat; died at his home, October 14, from pernicious anemia.

Nathaniel Matson, M.D., Brooklyn; New York University, New York, 1864; aged 77; formerly a Fellow of the American Medical Association; a member of the Medical Society of the City of New York; a member of the medical staff of Bushwick Hospital and Bethany Deaconess' Home, Brooklyn; a practitioner of Brooklyn for more than half a century, and a veteran of the Civil War, in which he served as surgeon of the First Connecticut Volunteer Heavy Artillery; died at his home, October 15.

Eugene Clarence Dunn, M.D., Fresno, Calif.; New York University, New York, 1881; aged 62; a member of the Medical Society of the State of California and a practitioner of Fresno for twenty-seven years; formerly division surgeon for the Santa Fe System at San Marcial, N. M.; died in the Burnett Sanitarium, Fresno, October 14, from nephritis.

Henry Joseph McKenna, M.D., Long Island City, N. Y.; University and Bellevue Hospital Medical College, New York, 1901; aged 37; a member of the Medical Society of the State of New York; since 1904 consulting surgeon to St. John's Hospital, Long Island City; died in the Towns Private Sanitarium, Manhattan, October 17, from nephritis.

Joseph Ransom Brown, M.D., Seward, N. Y.; Albany (N. Y.) Medical College, 1868; aged 68; a Fellow of the American Medical Association; a veteran of the Civil War and acting assistant surgeon, U. S Army, until 1877; health officer of the town of Seward and since 1897 postmaster; died at his home, October 13, from arteriosclerosis.

Frank S. Stirling, M.D., Lewiston, Idaho; Cooper Medical College, San Francisco, 1864; aged 80; a member of the Idaho State Medical Association; formerly surgeon for the Pacific Mail Company and later a surgeon in the Modoc War; acting assistant surgeon, U. S. Army, in 1878; and on duty at Fort Lapwai; died at his home, October 15.

Isaac Robinson Godwin, M.D., Fincastle, Va.; Medical College of Virginia, Richmond, 1860; aged 79; assistant surgeon in the Confederate service during the Civil War; formerly a Fellow of the American Medical Association; a member of the Medical Society of Virginia and vice president in 1877; died at his home, October 1.

Charles William Penn Brock, M.D., Richmond, Va.; Medical College of Virginia, Richmond, 1859; aged 80; a member of the Medical Society of Virginia and one of the best known surgeons of the South; chief surgeon on the staff of Major General Kemper, C. S. A., during the Civil War; died at his home, October 19.

Chester L. Fought, M.D., formerly of Erie, Mich.; Western Reserve University, Cleveland, 1897; aged 45; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his old home in Oak Harbor, Ohio, October 12, from heart disease.

James P. Connell, M.D., Fond du Lac, Wis.; Northwestern University Medical School, Chicago, 1887; aged 54; a Fellow of the American Medical Association; attending surgeon to St. Agnes' Hospital, Fond du Lac; died in that institution while performing a surgical operation, October 21.

Ellzey Elijah Smith, M.D., Blue Mountain, Miss.; Kentucky School of Medicine, Louisville, 1876; aged 68; formerly a member of the Mississippi State Medical Association; died in a hospital in Ripley, Miss., October 13, from axe wounds inflicted by his insane wife.

Azarie Moise Joseph Provost, M.D., Berlin, N. H.; Dartmouth Medical School, Hanover, N. H., 1898; aged 46; a Fellow of the American Medical Association; formerly chairman of the board of health of Berlin; died at his home, September 9, from lobar pneumonia.

William Lander Settlemyer, M.D., Gaffney, S. C.; Kentucky School of Medicine, Louisville, 1892; aged 49; formerly a member of the South Carolina Medical Association; a member of the board of regents of the South Carolina State Hospital; died at his home, October 8.

Cecil Carew Kimmel, M.D., Fort Wayne, Ind.; Indiana Medical College, Indianapolis, 1907; aged 34; a Fellow of the American Medical Association; died in the Lutheran Hospital, Fort Wayne, October 18, from pneumonia complicating typhoid fever.

Edwin Elliott, M.D., Chesaning, Mich.; Detroit College of Medicine and Surgery, 1894; aged 52; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his home, September 23, from angina pectoris.

Isaac Diller Jones, M.D., Murdock, Neb.; University of Nebraska, Omaha, 1895; aged 52; a member of the Nebraska State Medical Association; local surgeon for the Rock Island System; died at his home, October 10, from chronic interstitial nephritis.

Fenton Devany Drewry, M.D., Virgilina, Va.; Medical College of Virginia, Richmond, 1898; a member of the Medical Society of Virginia; aged 39; died, October 18, at the Sara Leigh Hospital, Norfolk, two weeks after an operation for appendicitis.

John B. Peters, Macy, Ind. (license, Indiana, 1897); aged 64; a member of the Indiana State Medical Association; died at his home, July 2, from peritonitis following an acute suppurative appendicitis.

Thomas Corwin Frary, M.D., Hoquiam, Wash.; Michigan College of Medicine and Surgery, Detroit, 1890; aged 75; dropped dead on the street at Hoquiam, from cerebral hemorrhage, July 30.

James H. Shannon, M.D., Saco, Me.; Jefferson Medical College, 1884; aged 74; a member of the Maine Medical Association; died at his home, September 14, from cerebral hemorrhage.

Milton Scott McMurtry, M.D., Clovis, Calif.; Missouri Medical College, St. Louis, 1877; Bellevue Hospital Medical College, 1880; aged 60; died at his home, October 3, from pneumonia.

William Stiles, Jr., M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1875; aged 74; a veteran of the Civil War; died at his home, October 7, from uremia.

Daniel Newton Mason, M.D., Suison City, Calif.; American Medical College, St. Louis, 1879; aged 73; also a druggist; died at his home, October 5.

Frank Cline Ferguson, M.D., Baltimore, Md.; University of Maryland, Baltimore, 1901; aged 37; died at his home, October 11, from pleurisy.

Stockbridge Patton Graves, M.D., Saco, Me.; New York Homeopathic Medical College, 1861; aged 90; died at his home, October 12.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SOME MISBRANDED NOSTRUMS

DR. PORTER'S ANTISEPTIC HEALING OIL

The Paris Medicine Company, St. Louis, Mo., shipped in interstate commerce a quantity of "Dr. Porter's Antiseptic Healing Oil" which the government officials charged was misbranded. The federal chemists analyzed the preparation and reported it to be "essentially a solution of camphor and carbolic acid in cottonseed oil." The government charged that the following curative claims were false and fraudulent and made knowingly and in reckless, wanton disregard of their truth or falsity:

AN EXCELLENT REMEDY FOR BURNS
Registered in U. S. Patent Office
DR. PORTER'S
ANTISEPTIC
Healing Oil
Discovered by a Surgeon of the LOUISVILLE & NASHVILLE Railroad
A Most Excellent Healing Remedy
FOR MAN AND BEAST
Relieves Pain and Heals at the same time.
PARIS MEDICINE CO.,
St. Louis, & Dep., London, Eng.

> "An excellent remedy for cuts, sores, old chronic ulcers, corns, bunions, frost bites, sunburn, stings, bites, rash, prickly heat, hives, or all hurts and affections of the skin and mucous membrane."
>
> "Not only is the use of an Antiseptic necessary for the relief of the Throat Trouble, but, as many people know, disease germs are most frequently taken into the system through the mouth. This infection or entry of germs often results when there is even a slight irritation of the Throat, and the use of Dr. Porter's Antiseptic Healing Oil is a wise precaution against serious infectious diseases, such as Whooping Cough, Diphtheria and Tuberculosis."
>
> "Tumors and Cancerous Growths are growths of diseased tissues, and if taken in time and treated with Dr. Porter's Antiseptic Healing Oil they can be removed, and often most serious cases averted."

The company admitted that it was guilty of fraud and falsehood, and the court imposed a fine of $25 and costs.—[*Notice of Judgment No. 3969.*]

BALLARD'S HOREHOUND SYRUP COMPOUND

"Ballard's Horehound Syrup Compound" was put on the market by James F. Ballard, St. Louis, Mo. The trade package contained, among numerous claims, the following:

> "For Consumption, Coughs and Colds."
>
> "For Coughs, . . . Asthma, Dry Hacking Cough, . . . Irritation of Throat, Soreness of Chest, Croup, Spitting of Blood, Influenza, Lung Fever, Whooping Cough &c."

These claims the federal authorities declared were "false and fraudulent" and applied "knowingly and in reckless and wanton disregard" of their truth or falsity. Ballard pleaded guilty and was fined $10 and costs.—[*Notice of Judgment No. 3971.*]

DR. SHOOP'S NIGHT CURE, DR. SHOOP'S COUGH REMEDY AND DR. SHOOP'S RESTORATIVE

"Dr. Shoop's Night Cure," "Dr. Shoop's Cough Remedy" and "Dr. Shoop's Restorative" are among the many nostrums put on the market by "Dr. Shoop's Laboratories," Racine, Wis. The following claims were made for Dr. Shoop's Night Cure:

> "Dr. Shoop's Night Cure will promptly cure Ulceration, Inflammation or Congestion of the Womb, Leucorrhoea, painful Ovaries, falling of the Womb, irregular or painful Menstruation and all diseases or weakness of women. Will cure lacerated or torn Cervix (due to childbirth), Dropsy of the Uterus. Will prevent and cure Ovarian and other tumors when used early and faithfully, including cancerous conditions."

The "Night Cure" was a suppository. Analyzed by the federal chemists, it was reported to be made largely of cacao butter, with zinc carbonate, zinc sulphate and boric acid present. The government charged that the claims quoted above were false and fraudulent and applied knowingly in reckless and wanton disregard of their truth or falsity.

"Dr. Shoop's Cough Remedy" was analyzed by the federal officials who reported that the stuff was "a sirup containing ammonium benzoate and probably white pine tar and gum." Claims were made on the trade package that would lead the purchaser to believe that the preparation was effective as a cure for consumption. These claims the government charged were false and fraudulent and made knowingly.

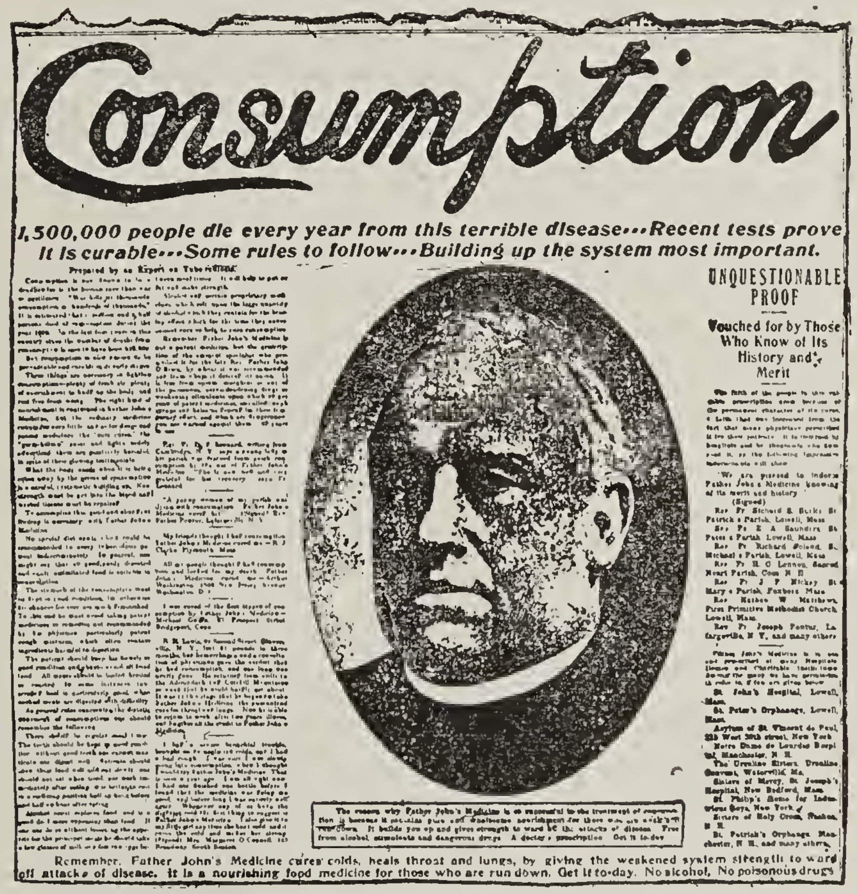
"Dr. Shoop's Restorative" was sold under such claims as:

> ". . . for the cure of all diseases of the stomach, liver, kidneys and blood."
>
> "Cures . . . Bright's disease, diabetes . . ."
>
> "The little child . . . who was suffering with Gastritis, is well. The Restorative has . . . made a perfect cure."

The federal analysts reported that examination of Dr. Shoop's Restorative showed it to contain 10 per cent. of alcohol and 26.9 per cent. of solids with benzoic acid, berberin, hydrastin and sugar present; ash containing iron, sodium, potassium, chlorids, sulphates and phosphates and indications of plant extractive matter. The claims quoted above were, the government officials charged, both false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity. The company pleaded guilty on all three charges and was fined $150.—[*Notice of Judgment No. 3972.*]

FATHER JOHN'S MEDICINE

Over 4,000 bottles of "Father John's Medicine," prepared by Carleton and Hovey Company, Lowell, Mass., were seized by the federal authorities on the charge that the product was misbranded. The officials declared that the claims to the effect that this nostrum was an efficacious medicine for consumption and that it was "without an equal as a body builder, health food, and for consumption," etc., were false and fraudulent and likely to induce the public "to believe that said drug was a cure for consumption, whereas, in truth and in fact, it was not a cure for consumption." The company, having withdrawn its claims and answers to the charge and having filed claims only, the court entered a judgment of condemnation and forfeiture and permitted the product to be delivered to Carleton & Hovey Co. on payment of all the costs of the proceedings and the execution of a bond in the sum of $5,000.—[*Notice of Judgment No. 3906.*]


Consumption

1,500,000 people die every year from this terrible disease...Recent tests prove it is curable...Some rules to follow...Building up the system most important.

Prepared by an Expert on Tuberculosis

UNQUESTIONABLE PROOF

Vouched for by Those Who Know of Its History and Merit

Remember, Father John's Medicine cures colds, heals throat and lungs, by giving the weakened system strength to ward off attacks of disease. It is a nourishing food medicine for those who are run down. Get it to-day. No alcohol, No poisonous drugs

No longer is "Father John's Medicine" sold as a "consumption cure." The photographic reproduction above is from an advertisement that appeared in the New York *Sun* in 1909. The original occupied more than 180 square inches.

DR. SHOOP'S TWENTY MINUTE CROUP REMEDY

Dr. Shoop's Twenty Minute Croup Remedy was another of the galaxy of nostrums put out by the Dr. Shoop's Laboratories, Racine, Wis. The following claims appeared on the trade package:

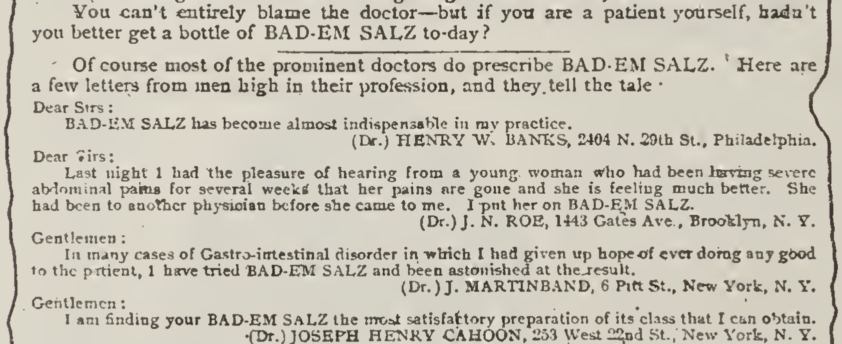
> "Dr. Shoop's Twenty Minute Croup Remedy Will usually check croup in Twenty Minutes."
>
> "It will prevent Croup, if given where there is fever and symptoms of approaching Croup."
>
> "Will usually check even desperate cases in 20 minutes."

These and similar claims the federal authorities naturally charged were false and fraudulent and applied knowingly and in wanton and reckless disregard of their truth or falsity. The federal chemists who analyzed the stuff reported that the "product is a sirup containing glycerin and a small amount of salicylic acid." The defendant pleaded guilty and was fined $100.—[*Notice of Judgment No. 3985.*]

BAD-EM SALZ

"Bad-Em Salz," made by the American Laboratories, Philadelphia, was analyzed by the federal chemists, who reported that the preparation "consists of common salt, Glauber salt, baking soda, and a small amount of tartaric acid." The following statements appeared on the trade package:

> "This Powder reproduces the medical properties of the great European Springs, famous for centuries for the cure of diseases of the stomach, intestines, liver, kidneys, or bladder."
>
> "This Powder represents the medicinal agents obtained by evaporating the water from the famous European Springs."



SOME DOCTORS DON'T PRESCRIBE BAD-EM SALZ.

Most doctors prescribe BAD-EM SALZ, but some of them don't. One doctor, more honest than the rest, explained it this way:

"BAD-EM SALZ? Yes, I used to prescribe it a great deal, but I stopped. Why? Simply because the patients didn't come back to me. If I had kept on they would all have been taking BAD-EM SALZ and getting well without my assistance!"

You can't entirely blame the doctor—but if you are a patient yourself, hadn't you better get a bottle of BAD-EM SALZ to-day?

Of course most of the prominent doctors do prescribe BAD-EM SALZ. Here are a few letters from men high in their profession, and they tell the tale·

Dear Sirs:
BAD-EM SALZ has become almost indispensable in my practice.
(Dr.) HENRY W. BANKS, 2404 N. 29th St., Philadelphia.

Dear Sirs:
Last night I had the pleasure of hearing from a young woman who had been having severe abdominal pains for several weeks that her pains are gone and she is feeling much better. She had been to another physician before she came to me. I put her on BAD-EM SALZ.
(Dr.) J. N. ROE, 1443 Gates Ave., Brooklyn, N. Y.

Gentlemen:
In many cases of Gastro-intestinal disorder in which I had given up hope of ever doing any good to the patient, I have tried BAD-EM SALZ and been astonished at the result.
(Dr.) J. MARTINBAND, 6 Pitt St., New York, N. Y.

Gentlemen:
I am finding your BAD-EM SALZ the most satisfactory preparation of its class that I can obtain.
(Dr.) JOSEPH HENRY CAHOON, 253 West 22nd St., New York, N. Y.

Gentlemen:
I know of nothing that will do the work of an eliminant so perfectly as BAD-EM SALZ.
(Dr.) H. M. BORING, 834 E. Preston St., Baltimore, Md.

13

A specimen of the Bad-Em Salz advertising. The exploiters of this nostrum when charged with making fraudulent claims for their product attacked the constitutionality of the Food and Drugs Act!

These claims were declared false and misleading by the federal authorities because "in truth and in fact. said article did not reproduce the medical properties of the Great European Springs," etc.; and, furthermore, "was not composed of salts or substances derived from the waters of the springs at Ems, Germany, but was an artificial preparation consisting essentially of common salt, Glauber salts, baking soda and tartaric acid." In addition, the following therapeutic claims were made for the preparation:

> ". . . dissolves Gall Stones and Gravel in the kidneys or bladder."
>
> "Gastritis . . . can be 'headed off' by a dose of Bad-Em Salz at bedtime and again the next morning."
>
> "Diabetes . . . yields to diet and Bad-Em Salz."

These claims and various others of a similar nature were declared by the federal officials to be "false and fraudulent" and made "in reckless and wanton disregard of their truth or falsity." The American Laboratories, in its answer to the government's charges, declared that that part of the federal Food and Drugs Act—the Sherley Amendment—which prohibits false and fraudulent claims for curative effect was "contrary to the Constitution of the United States of America." The jury before whom the case was tried declared the company guilty on both counts: the first count, that charging the company with falsehood and with making misleading statements, and the second, charging the company with falsehood and fraud. After the verdict of guilty had been returned, the company made a motion in arrest of judgment and for a new trial. These motions were both denied by the court, and the company was fined $100.—[*Notice of Judgment No. 3962.*]

KENNEDY'S CAL-CURA SOLVENT

Dr. D. Kennedy's Cal-Cura Solvent was a cure-all put on the market by the Dr. David Kennedy Company, Rondout. N. Y. According to the government chemists the preparation was a watery, alcoholic, sweetened liquid containing 2.44 per cent. potassium acetate, 16.75 per cent. alcohol, 52.46 per cent. cane sugar and vegetable matter resembling mint, cardamom and boneset. Reading the claims made for this preparation one might get the impression that there could be few ills that it would not cure. To quote a few of them:

> "Dissolves and eliminates lithic acid from the Blood; Gravel and Limestone formations from the Kidneys and Bladder; and Gallstones from the Liver."
>
> "Cures Diabetes, Bright's Disease, Constipation of the Bowels, Dyspepsia and all diseases peculiar to women."
>
> "Cures all Constitutional Diseases of the Blood; Scrofula, Cancer, and Canker Humors, Rheumatism and Rheumatic Pains of the Joints and Muscles."
>
> ". . . prevents appendicitis."

Naturally, the federal authorities declared that these claims and a number of others equally preposterous were "false and fraudulent" and were applied "knowingly and in reckless and wanton disregard of their truth or falsity." The company pleaded guilty and the court imposed a fine of $50.—[*Notice of Judgment No. 3770.*]

Correspondence

Bacteriologic Observations on Epidemic Poliomyelitis

To the Editor:—In reference to the article of Dr. George Mathers of Chicago on this subject (The Journal, Sept. 30, 1916, p. 1019), I beg to say that in the small epidemic of poliomyelitis which occurred in several of the western counties of Pennsylvania during the early autumn of 1907, a total of thirty-five cases of this disease were studied intensively, pathologically as well as clinically, and a report of these studies was published in the "Report of the Commissioner of Health" for the year 1907. In that study it was shown that a gram-positive diplococcus, such as the one mentioned by Dr. Mathers as having been found by him in eight cases of poliomyelitis in Chicago, was found in every one of the thirty-five cases studied by us in cultures made from the secretions from the noses and throats of these patients and in cultures of spinal fluid from four of these cases. A detailed account of the morphologic, biologic and biochemical characteristics of this gram-positive diplococcus appears on page 438 of the "Annual Report of the Commissioner of Health of Pennsylvania" for 1907.

So far as we were able to determine, this gram-positive micro-organism seemed to correspond with the coccus found by Geirsvold and by Harbitz and Scheel during the poliomyelitis epidemics in Norway and Sweden, some years before. As to pathogenicity, it was shown that on the introduction of 3 c.c. of a twenty-four-hour bouillon culture of the diplococcus into the peritoneal cavity of each of several guinea-pigs, no deleterious effects were observed. One c.c. of a twenty-four-hour bouillon culture inoculated subcutaneously at the root of the tail of a white mouse had no pathogenic effect.

A loopful of the culture of the gram-positive diplococcus, isolated from spinal fluid, was introduced high up into each naris of a monkey, with only negative result. Spinal fluid containing these diplococci was injected into a monkey's spinal canal on two different occasions without causing the least harm.

Two thirds of the surface growth of a twenty-four-hour agar culture of the gram-positive diplococcus isolated from the spinal fluid of Case 34 was emulsified in 2 c.c. sterile normal salt solution and injected into the spinal canal of a monkey. On the next day his legs and tail showed a spastic, not a flaccid, paralysis. His temperature rose to 102.8 and afterward rapidly declined to normal. The paralysis disappeared two days later and the animal seemed to regain perfect health. His spinal fluid contained a very high percentage of polymorphonuclears and but few mononuclears or lymphocytes. Gram-positive diplococci were recovered from this spinal fluid in pure culture by incubation in bouillon.

This animal showed no symptoms of poliomyelitis, but rather those of an acute meningitis. At the monkey's sudden death, fourteen days after intraspinal injection of the culture of diplococci, the necropsy showed a violent hemorrhagic meningitis bearing no resemblance to poliomyelitis. Microscopic sections showed an intense polymorphonuclear infiltration with congestion involving the meninges of cord and brain and the superficial layers of the cortex. There was no round cell infiltration of the anterior horns of the gray matter of the cord.

As a result of these experiments, therefore, we concluded that the gram-positive diplococcus as found in these thirty-five cases of poliomyelitis had nothing to do with the disease.

In the epidemic of 1910, further opportunity was given to experiment with the gram-positive diplococcus. This organism was isolated from the nasal secretions of all of our cases and found in smears from portions of the brain and cord of these cases, as also in the smears and cords of all the monkeys dying of poliomyelitis. In three instances in which the spinal fluid from as many different cases was received at the laboratory, the diplococcus was found in the smears from the sediment and isolated in pure culture.

The details of these studies may be read in the "Annual Report of the Commissioner of Health of Pennsylvania" for 1910, and on p. 479 the following general statements were made:

"We are not able to produce poliomyelitis by inoculation into the brains of monkeys of a filtrate of plain bouillon and monkey blood bouillon cultures of the gram-positive diplococcus found in nearly all of our cases.

"In our attempts to produce paralysis in rabbits by inoculation of a suspension of a diplococcus in bouillon in one instance, in the case of Rabbit No. 81, we seem to have been successful, although the histological examination of the cord did not show typical lesions of poliomyelitis and we were unable to reproduce the disease in another rabbit by the inoculation of brain and cord of Rabbit No. 81 into his brain.

"Our conclusion as to the rôle the diplococcus plays in the causation of poliomyelitis is that it is not the principal etiological factor. It may be symbiotic in its relation to the essential factors and is probably essential in itself to the growth and development of the principal agent in the infection. We believe that it has something to do with the causation of the disease, in the light of our constantly finding it in all secretions and nervous tissues from cases of poliomyelitis."

Samuel G. Dixon, M.D., Harrisburg, Pa.
Commissioner of Health, Commonwealth of Pennsylvania.

Destruction of Molds in Stock Solution by Copper Sulphate

To the Editor:—In hospitals and laboratories where 0.5 per cent. solution of acetic acid is used to make leukocyte counts, it will often be found that the stock solution will soon have growing in it a mold that forms macroscopic white flakes in the solution. Besides these large collections of fungi there are myriads of small ones that only the microscope can detect. These molds interfere with the proper spreading of the leukocytes over the counting chamber and often give rise to either erroneous counts or to guesswork on the part of the intern or technician doing the work. It seems that filtering the solution does not help, since the next day the solution is usually again filled with enough fungi to interfere with the count. I have found the following simple means to be effective in keeping the solution clean of these molds: A trace of copper sulphate in the solution does the work, and 1 grain of copper sulphate crystals in a liter (quart) of the solution is more than enough and does not interfere in any way with the leukocytes. Even rinsing the stock bottle with a 1 per cent. solution of copper sulphate will leave enough of the salt in the bottle when it is filled with the 0.5 per cent. acetic acid.

Josef Seilin, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BUROW'S SOLUTION

To the Editor:—I am at sea regarding the proper preparation of Burow's solution, since reading your answer to my letter in Queries and Minor Notes, Sept. 30, 1916. I have been accustomed to direct my pharmacist to put up Burow's solution according to the National Formulary, whereas I find, as you say, that the new formulary has reverted to the old (?) method wherein lead acetate is used. Can you give me the reasons for this change other than the saving of time?

I contend that the peculiar advantage of Burow's solution lies in the continuous giving off for a longer time of fresh (nascent?) acetic acid. Without any carefully conducted experiment, I have observed that the solution prepared according to the previous method with aluminum sulphate, acetic acid and calcium carbonate apparently has this property of gradually releasing its acetic acid, whereas the lead acetate method, and in particular the solution of a previously prepared powder when put to use, gives off its acetic acid at once and in a short time is relatively odorless, just as one would expect of a simple solution of acetic acid in water.

I should esteem it a great favor if you would clear up this confusion for me. There must be many others in the same state as myself.

Joseph S. Lewis, M.D., Buffalo.

Answer.—In 1857, according to O. Raubenheimer (*Proc. Am. Pharm. Assn.*, 1909, p. 1036), Dr. August Burow, professor of surgery at the University of Königsberg, prescribed a "solution of alum and a solution of sugar of lead to be mixed and then filtered after allowing the precipitate to subside." Burow used this original solution for the open antiseptic treatment of wounds. Subsequently, in the "Manual des New Yorker Deutsche Pharmazeutischer Vereins," published in 1858, the following appeared:

LIQUOR ALUMINIS ACETICI

℞	Aluminis crudi	Partes decem
	Plumbi acetici	Partes septemdecim
	Gas hydrothionic	
	Aquae ana sufficientem quantitatem	

The hydrogen sulphid was used to remove all the lead; enough water was added to make 48 parts. In later years one finds various modifications of this formula used, based on the same principle, but usually employing an excess of sulphate in order to insure the conversion of all the lead to the practically insoluble lead sulphate rather than removing lead as lead sulphid by means of hydrogen sulphid. A decided improvement was made by Eugene Dieterich (Dieterich Pharmaceutical Manual, Ed. 9, 1904, p. 265), in the substitution of aluminum sulphate for alum (potassium aluminum sulphate). This obviated the unnecessary presence of potassium sulphate, and made the solution less dense. Dieterich claimed that the lead sulphate would precipitate more completely when aluminum sulphate is used.

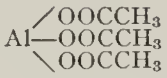
Unfortunately the name "Burow's solution" was often applied to any solution of an acetate of aluminum, such as "solution of aluminum acetate," "solution of aluminum subacetate," "solution of aluminum and sodium acetate," etc., using varying formulas; also the term aluminum acetate was frequently used for aluminum subacetate, as, for instance, in the third edition of the National Formulary. Hence much confusion resulted.

In view of this, Raubenheimer, in an address before the American Pharmaceutical Association in 1909, proposed that Burow's solution be described in the next edition of the National Formulary (now fourth edition) as "liquor alumini acetatis," made, according to special directions, by treating a solution of 150 gm. of lead acetate [$Pb(C_2H_3O_2)_2.3H_2O$] with a solution of 85 gm. of aluminum sulphate crystals [$Al_2(SO_4)_3.16H_2O$].

$$3Pb(C_2H_3O_2)_2 + Al_2(SO_4)_3 \longrightarrow 2Al(C_2H_3O_2)_3 + 3PbSO_4$$

The precipitated lead sulphate is filtered off and the solution made up to 1,000 c.c. This is the formula now used.

The solution contains about 5 per cent. of neutral aluminum acetate:

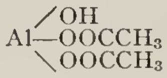


$$\mathrm{Al}\begin{cases}\mathrm{OOCCH_3}\\ \mathrm{OOCCH_3}\\ \mathrm{OOCCH_3}\end{cases}$$

The old solution of aluminum acetate (N. F. III) in reality was a solution of aluminum subacetate, as shown by G. C. Diekman (*Druggists' Circular,* 1908, p. 224). This is now properly described in the new edition of the National Formulary as "liquor alumini subacetatis," prepared according to the following equation:

$$\mathrm{Al_2(SO_4)_3 + 3CaCO_3 + 4HC_2H_3O_2 \longrightarrow 2Al(OH)(C_2H_3O_2)_2 + 3CaSO_4 + 3CO_2 + 2H_2O}$$

It contains about 8 per cent. of basic aluminum acetate:



$$\mathrm{Al}\begin{cases}\mathrm{OH}\\ \mathrm{OOCCH_3}\\ \mathrm{OOCCH_3}\end{cases}$$

As a precaution in preparing either of the foregoing solutions, one must bear in mind that the aluminum sulphate of the National Formulary, IV, contains 16 molecules of water of crystallization, whereas the aluminum sulphate of some foreign pharmacopeias, and much of the chemically pure product, contains 18 molecules. As would be expected, the normal or neutral aluminum acetate is more permanent than the basic. The basic often "gelatinizes" during the preparation.

We believe that our correspondent erred in his observations concerning the liberation of acetic acetate. The normal aluminum acetate would be hydrolyzed by water according to the equation:

$$\mathrm{Al(C_2H_3O_2)_3 + HOH \rightleftarrows Al(OH)(C_2H_3O_2)_2 + HC_2H_3O_2}$$

If sufficient acetic acid is removed, the solution would contain the basic acetate. The basic acetate, however, is hydrolyzed, but less easily:

$$\mathrm{Al(OH)(C_2H_3O_2)_2 + HOH \rightleftarrows Al(OH)_2(C_2H_3O_2) + HC_2H_3O_2}$$

On prolonged boiling, the dibasic acetate would be further hydrolyzed to $\mathrm{Al(OH)_3}$. In this connection, it is well to point out that aluminum hydroxid is amphoteric, that is, it ionizes both as a base and an acid:

$$\mathrm{3H^+ + AlO_3^{\equiv} \rightleftarrows Al(OH)_3 \rightleftarrows Al^{+++} + 3OH^-}$$

Although acetic acid is considered a weak acid, nevertheless, all of its salts of aluminum, when in solution, would be distinctly acid and, as would be seen, the neutral salt would liberate the greatest amount of acetic acid. The acetic acid thus liberated is not different in character or "nascent." It is quite likely the therapeutic action of the acetate of aluminum is due, to a certain extent, to the freed acetic acid, the concentration used (0.5 per cent.) being conducive to a high degree of hydrolysis; but it is also likely that its action is not due *entirely* to the acetic acid, but, in a large measure, to the aluminum ion.

LIQUOR AMMONII ANISATUS — RECIPROCITY WITH NEW YORK

To the Editor:—Please advise me: 1. As to the origin and uses of liquor ammonii anisatus; 2. What states reciprocate with New York.

W. Franklin Wood, M.D., Boston.

Answer.—1. Liquor ammonii anisatus is an old preparation with somewhat obscure origin. It is described in several of the foreign pharmacopeias, although the proportions of the several ingredients differ slightly in the various books. The following is a typical formula:

Oil of anise	3
Alcohol	77
Ammonia water	20

The dose is from 1 to 4 c.c. (15 to 60 minims). It has been used as a carminative and mild nervous sedative, but is rarely prescribed in this country.

2. Delaware, Indiana, New Jersey, Ohio, Utah, Virginia and Wisconsin.

SANITARY PAPER MILK BOTTLES — ADDRESS OF MANUFACTURERS WANTED

A correspondent desires the name and address of firms making sanitary paper milk bottles, which are being recommended by many health officers as a substitute for the present glass containers for the retail distribution of milk. We believe there are several firms making such bottles, and should be glad to have their addresses.

Death an Alleviation.—It is by no means a fact, that death is the worst of all evils; when it comes, it is an alleviation to mortals who are worn out with suffering.—Metastasio.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

Connecticut: Regular, New Haven, Nov. 14-15. Sec., Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, Nov. 14-15. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Delaware: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka; Homeopathic, Jacksonville, Nov. 10. Sec., Dr. J. B. Griffin, St. Augustine.

Kentucky: Louisville, Dec. 12-14. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Maryland: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

Nebraska: Lincoln, Nov. 8-9. Sec., Dr. E. Arthur Carr, Lincoln.

Nevada: Carson City, Nov. 6. Sec., Dr. S. L. Lee, Carson City.

Ohio: Columbus, Dec. 5-7. Sec., Dr. George H. Matson, State House, Columbus.

Rhode Island: Providence, Nov. 15-16. Sec., Dr. Gardner S. Swarts, 70 Waterman St., Providence.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

Virginia: Richmond, Dec. 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

West Virginia: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

California June Report

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the oral and written examination held at San Francisco, June 26-30, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 125, of whom 115 passed, including 11 osteopaths, and 10 failed, including 6 osteopaths. Thirty-eight candidates were licensed through reciprocity. Two osteopaths were licensed through reciprocity. Twelve candidates were granted drugless practitioner's license and 4 chiropodist's license. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Medical Evangelists	(1915) (1916)	81.7, 89.1 86, 86.5, 89.2, 89.9, 90.9.
Coll. of Phys. and Surgs., Los Angeles	(1916)	80.7, 81, 81.3, 84.8, 85.7, 86.1, 86.7, 87, 89.1, 91.5, 91.9, 92, 92.2, 93.8.
Coll. of Phys. and Surgs., San Francisco	(1905) (1915) (1916)	87.2 78.4, 84 80, 82.1, 84.5.
Hahnemann Med. Coll. of the Pacific	(1915) (1916)	88.9 78.1, 80.9, 81.9, 82.4, 82.7, 84.4, 84.7, 88.1, 88.9.
Leland Stanford Junior University	(1915) (1916)	88.2 78.1, 81.2, 83.4, 83.5, 84, 84.1, 84.9, 85.2, 86, 86.3, 86.8, 88.2, 88.5, 90.3, 90.8, 91.2, 93, 93.4, 94.9, 95.5.
University of California	(1903) (1916)	75 83, 86, 86.1, 86.1, 86.2, 86.5, 86.7, 87.2, 88.4, 88.7, 88.8, 89, 89.1, 89.9, 90.3, 90.5, 91.1, 91.1, 91.1, 91.5, 91.8, 91.9, 92, 92, 92.5, 93.1, 93.6, 93.9, 95.4.
Oakland College of Med. and Surg.	(1916)	88.3, 94.7
Hahnemann Med. Coll. and Hosp., Chicago	(1916)	88.9
Rush Med. College	(1915)	91.8
Johns Hopkins University	(1905) (1911) (1914)	89.4 87 85.8
Boston University	(1914)	81.7
Harvard University	(1913)	92.2
St. Louis University	(1904)	76.8
Jefferson Medical College	(1915)	84.2, 86.1
University of Pennsylvania	(1915) (1916)	89.7 84.5
Vanderbilt University	(1915)	81.3
McGill University	(1912)	75
Univ. of Central Spain, Madrid	(1903)	87
FAILED		
College of Phys. and Surgs., San Francisco	(1914)	72.2
John A. Creighton Medical College	(1913)	67.8
School of Med. and Pharmacy of Jalisco, Guadalajara	(1901)	63.8
Imperial University, Kyoto	(1910)	67.4

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross Coll. of Med.	(1907)	Washington
American Med. Missionary Coll., Chicago	(1909)	Michigan
Bennett Coll. of Eclectic Med. and Surg.	(1898)	Illinois

Chicago College of Med. and Surg.	(1914)	Illinois
Chicago Homeopathic Med. College	(1886)	Ohio
College of Phys. and Surgs., Chicago	(1901)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1890)	Nebraska
Rush Medical College	(1902)	Washington
University of Illinois	(1905)	Illinois
Central Coll. of Phys. and Surgs	(1896)	Indiana
Indiana University	(1911)	Indiana
Sioux City College of Medicine	(1907)	Iowa
Kentucky School of Medicine	(1889)	Texas
University of Louisville	(1908)	Georgia
Tulane University of Louisiana	(1895)	Washington
Baltimore Medical College	(1911)	Oregon
Johns Hopkins University	(1912)	Maryland
University of Maryland	(1907) Ohio; (1908)	N. Carolina
University of Michigan Medical School	(1909)	Ohio
University of Minnesota	(1901)	Minnesota
Columbian Med. Coll., Kansas City	(1899)	P. I.
Kansas City Medical College	(1904)	Kansas
St. Louis Medical College	(1878)	Missouri
St. Louis University	(1906)	Missouri
Washington University	(1912)	Missouri
Albany Medical College	(1906) New York; (1914)	Mass.
Eclectic Medical Coll., Cincinnati	(1901)	Ohio
Medical College of Ohio	(1882) Ohio; (1903)	Montana
University of Cincinnati	(1911)	Nevada
Jefferson Medical College	(1904)	Penna.
University of Pennsylvania	(1892)	Arizona
University of Pittsburgh	(1909)	Penna.
University of the South	(1904)	Penna.
University of Toronto	(1911)	New York
Imperial University, Tokyo	(1899)	Washington

Kansas June Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, June 13-14, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 20, all of whom passed. Thirty-nine candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1912)	79.9
University of Kansas	(1916)	81.7, 82, 82.5, 83.5, 83.7, 84.2, 84.6, 85.1, 85.3, 87.7, 89.5
Tulane University of Louisiana	(1916)	85.6
Harvard University	(1914)	88.4
National University of Arts and Sciences	(1916)	88.3
Southwest School of Med. and Hosp.	(1916)	76.3, 77.8, 79.7, 79.7, 81.7

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1892) Oklahoma; (1914)	Illinois
College of Physicians and Surgeons, Chicago	(1912)	Illinois
University of Illinois	(1913) Oklahoma; (1915)	Missouri
Hospital College of Medicine, Louisville	(1906)	Kentucky
Kentucky School of Medicine	(1882)	Kentucky
Louisville National Medical College	(1905)	Kentucky
University of Louisville	(1896) Missouri; (1907)	Tennessee; (1914) (1915) Kentucky
Johns Hopkins University	(1910)	Missouri
Boston University	(1900)	New Jersey
Eclectic Med. Univ., Kansas City	(1906) (1911) (1915)	Arkansas
Ensworth Medical College	(1894)	Missouri
Kansas City College of Med. and Surg.	(1916, 9)	Arkansas
Kansas City Hahnemann Med. Coll.	(1910) Missouri; (1912)	Arkansas
National Univ. of Arts and Sciences	(1913) (1914) (1915)	Missouri
St. Louis University	(1905)	Illinois
University Med. Coll., Kansas City	(1911) Missouri; (1913)	Oklahoma
Omaha University	(1896)	Nebraska
Western Reserve University	(1914)	Ohio
Jefferson Medical College	(1915)	Missouri
University of Pennsylvania	(1903)	Penna.

New Hampshire June Report

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the oral and written examination held at Concord, June 26-28, 1916. The total number of subjects examined in was 12; total number of questions asked, 60; percentage required to pass, 75. The total number of candidates examined was 7, of whom 5 passed and 2 osteopaths failed. Three candidates were granted reregistration licenses. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Boston University	(1915)	83
Tufts College Medical School	(1914) 85; (1916)	79, 81
Harvard University	(1898)	95

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Johns Hopkins University	(1915)	Maryland
University of Maryland	(1883)	Mass.
Harvard University	(1885) (1911)	Mass.
Tufts College Medical School	(1903) (1911) (1913) (1915)	Mass.
Dartmouth Medical School	(1905)	Mass.
Fordham University	(1915)	New York
McGill University	(1888)	Mass.

Book Notices

Skin Cancer. By Henry H. Hazen, A.B., M.D., Professor of Dermatology in the Medical Department of Georgetown University. Cloth. Price, $4. Pp. 251, with 98 illustrations. St. Louis: C. V. Mosby Company, 1916.

The larger part of this book is devoted to a description of the various tumors of the skin. In this Dr. Hazen has not confined himself strictly to malignant growths, but has considered in addition not only precancerous growths of the skin, but also numerous cutaneous tumors which are in no sense related to malignant growths, such as benign epithelial proliferations, and many benign connective tissue tumors—keloid, fibroma, neuroma, myoma, lipoma, etc.—lesions which have only the most remote relationship to malignant tumors. While these inclusions increase the usefulness of the book in some ways, they detract from it as discursive and not germane to its purpose. It is noted with surprise that the author considers sarcoid with sarcoma. This is particularly to be regretted, because it tends to increase the already existing confusion produced by the unhappy name sarcoid. Further, there is no reason to consider it with sarcoma, or, indeed, in a book on cancer of the skin. Sarcoid is neither a tumor nor a cancer, and it is not related to sarcoma. The descriptions of the symptoms and causes of malignant growths of the skin are adequate and clear. The last few chapters in the book are devoted to differential diagnosis, prognosis, prophylaxis and treatment. These chapters are all good. In the chapter on treatment, the various methods of treating cutaneous cancers are fully considered, and the attitude is conservative. The book is a useful summary of our knowledge of cutaneous cancer, and will be found valuable for reading or for reference. Some of the author's views, such as his belief in the infectiousness of cancer, are not conclusively established. The book is well printed, but many of the illustrations are poorly reproduced. This applies especially to the photomicrographs, many of which are so ill defined as to be valueless.

A Manual of Practical Laboratory Diagnosis. By Lewis Webb Hill, M.D., Graduate Assistant, Children's Hospital, Boston. Cloth. Price, $1.50. Pp. 179, with illustrations. Boston: W. M. Leonard, 1916.

The author states that it has been his aim to include the information which an everyday practitioner wants, but to weed out carefully all tests and methods which are not of ordinary clinical application, or which require for their performance complicated apparatus and trained technicians. He has succeeded admirably in giving us a book which offers to students and house officers the technic for the necessary routine of daily laboratory practice. Theoretical considerations are not introduced to confuse the worker, thus adding to the practical working value of the book. The tests given are those which are well recognized and established. The more technical and elaborate tests are eliminated, as they are not ordinarily performed by those for whom the book is intended. The style is clear, and the illustrations are adequate.

Clinical Disorders of the Heart Beat. A Handbook for Practitioners and Students. By Thomas Lewis, M.D., D.Sc., F.R.C.P., Assistant Physician, University College Hospital, London. Third Edition. Cloth. Price, $2 net. Pp. 116, with 54 illustrations. New York: Paul B. Hoeber, 1916.

This is practically a reprint of the first edition of 1911. There are some slight changes in the text, however, and the statistical tables show different figures as they embody the author's experience of the last five years. The real addition is the chapter of eleven pages on auricular flutter. The favorable comments elicited by the other editions need not be here repeated. The practitioner or student who desires to understand cardiac irregularities according to modern conceptions will find nowhere else within the same number of pages such a clear and succinct exposition. It is to be understood that in this book Lewis discusses the irregularities as studied without the aid of the polygraph or electrocardiograph.

Social Medicine, Medical Economics and Miscellany

THE INVERACITIES OF ANTIVIVISECTION *

W. W. KEEN, M.D., LL.D.
Emeritus Professor of Surgery, Jefferson Medical College
Philadelphia

In my book on "Animal Experimentation and Medical Progress" I wrote as follows:

> I HAVE BEEN COMPELLED TO CONCLUDE THAT IT IS NOT SAFE TO ACCEPT ANY STATEMENT WHICH APPEARS IN ANTIVIVISECTION LITERATURE AS TRUE, AND ANY QUOTATION OR TRANSLATION AS CORRECT, UNTIL I HAVE COMPARED THEM WITH THE ORIGINALS AND VERIFIED THEIR ACCURACY FOR MYSELF.

It seems to be curiously impossible for the antivivisectionists to make straightforward, accurate statements of fact, or even accurate quotations. As to the latter, I have shown in my book very many misquotations, mistranslations, omissions, and even interpolations not in the originals.

Two recent instances and a third of a somewhat older date, corroborating my statement, occur in two antivivisection journals, the *Open Door,* p. 5 of the issue for April, 1916, and the *Journal of Zoöphily* for May, 1916, p. 74, and the Philadelphia *Public Ledger* of Dec. 19, 1913.

Dr. Wile of the University of Michigan made a small trephine opening in the skulls of six persons who had become insane as a result of paresis. The syphilitic nature of this disease, which is a frequent cause of insanity, has been long suspected and partly proved. Wile removed a very small portion of the human brain tissue from these patients and injected it into rabbits. The result of this injection proved conclusively that the brain tissue in these cases was full of the active germs of syphilis and that syphilis is the cause of the paresis.

These investigations, however, in my opinion, were wholly unjustifiable. This opinion, too, I know is shared by others who, like myself, are warm advocates of research by animal experimentation. The very fact that we can obtain information of the greatest value to animals and human beings alike by experiments on animals (which are almost identical with human beings both in structure and function) is the strongest reason why we should utilize animals instead of human beings. Hence I wish to register here my condemnation of Dr. Wile's experiments and a protest against any similar experiments in the future.

The article in the *Open Door* has this title:

> VIVISECTION OF THE HUMAN BRAIN
> BY UDO J. WILE, M.D., UNIV. OF MICHIGAN
> (Excerpts from *Jour. Experimental Medicine,* Rockefeller Institute, Feb. 1, 1916)

The first paragraph of this article is in quotation marks and reads thus:

> "THE AIM OF SCIENCE IS THE DISCOVERY OF A NEW FACT AT ANY SACRIFICE OF LIFE. . . . I DO NOT KNOW ANY HIGHER USE WE CAN PUT A MAN TO.—PROFESSOR SLOSSON."

Then follow a number of "excerpts" from Dr. Wile's paper, also in quotation marks, with running commentaries.

Any incautious reader would think that Professor Slosson was a red-handed vivisectionist, and also that the quotation from Professor Slosson was a part of Dr. Wile's paper—a sort of motto expressing Wile's own sentiments. Not a word of this quotation from Professor Slosson appears in Dr. Wile's original paper. It is thrust into the text to catch the eye and mislead the reader. Professor Slosson's communications appear in the *Independent* for Dec. 12, 1895, p. 1679, and Feb. 13, 1896, p. 207.

As I suspected, the quotation does not reproduce (as a quotation always should) the *ipsissima verba* of the author. It should read:

> THE AIM OF SCIENCE IS THE ADVANCEMENT OF HUMAN KNOWLEDGE AT ANY SACRIFICE OF HUMAN LIFE. . . . WE [NOT "I"] DO NOT KNOW OF ANY HIGHER USE WE CAN PUT A MAN TO.

But while changing the wording of an excerpt as in this case is blameworthy, a far more important sin is an inexcusable but evident intention to make a wrong impression on the mind of the reader by this isolated, unqualified quotation. In his paper, Professor Slosson was urging young men to devote a lifetime of labor to the advancement of knowledge as the highest of human callings. It was an appeal for a life of self-sacrifice and devotion to scholarship even at the cost of *their own* lives. Among the fields of research he specified physics, mathematics, geography and pathology, sciences in which vivisection is never employed. He expressly disclaimed (p. 208) any reference to the sacrifice of other people. Could anything be clearer than the following additional quotation which I take from Professor Slosson's paper?

> IF HE [THE INVESTIGATOR] SUCCEEDS . . . HIS VERY NAME IS SOON DROPPED FROM THE PARAGRAPH HE HAS ADDED TO THE WORLD'S KNOWLEDGE. THIS IS AS IT SHOULD BE . . . IT IS FITTING THAT HIS NAME SHOULD BE FORGOTTEN WHILE THE TRUTH FOR WHICH *HE* GAVE *HIS LIFE* SHALL LIVE FOREVER.

Viewed in this new light, and recalling the many martyrs of science, who would not say that Professor Slosson was absolutely right? Such juggling with words, even though the very words of the author, should receive the sternest reproof.

At the time when he wrote the article from which the quotation is taken, Professor Slosson was professor of chemistry in the University of Wyoming. He had never done then, nor has he ever done since, any experiments on animals. Yet quoted apart from the text and without the explanation I have just given, readers of the article in the *Open Door* would inevitably think that he was an ardent advocate even of human vivisection.

Later in his paper, Professor Slosson considers vivisection; but again the sacrifice of human life to which he alludes is the lives of the experimenters themselves.

While condemning Dr. Wile, I wish, however, to be just to him. Dr. Wile used every precaution known to science—careful disinfection, an efficient anesthetic, great care in selecting a location where no harm would be done to the brain functions; and the prompt recovery of all the patients showed that his precautions were efficacious. It may be objected that Wile used no anesthetic in the brain itself. This was wholly unnecessary as the brain has *no feeling whatever.* I well remember a case thirteen years ago—a terrible crush of the top of the skull with loss of much bone and brain substance. Three days after the accident, when I was slicing and even scraping away some of the protruding brain substance, the patient, fully conscious (as there was no need for an anesthetic) suffered not the least pain, but shook with laughter when I told him "he had too much brains" and I was scraping some of them away. I saw him within a year in perfect condition physically and mentally.

As Dr. Wile did not state in his article whether the patients lived or died, I inquired as to the results. Dr. Victor C. Vaughan, dean of the University Medical School, in which Dr. Wile works, assures me that *not one* of the patients suffered any ill effects.

Only of late has syphilis been definitely recognized as the principal cause of paresis, which blights not only the body but so often eventually destroys the mind. Remedies—even salvarsan—which may be efficient in curing syphilitic affections in other parts of the body do not reach the germs in the brain. These are peculiarly virulent. As a result of Dr. Wile's researches it may hereafter become possible in the early stages of the disease to kill these germs even in their remotest stronghold. We may then be able to combat this dreadful affliction and restore both the bodies and the minds of these unfortunates.

Another misrepresentation of Wile's investigation appears in the *Journal of Zoöphily.* It says, "A long-nozzled syringe was inserted . . . and a *syringeful* of brain contents was extracted." Dr. Wile's paper distinctly states that "a small cylinder of gray and white matter with some fluid from the ventricle was removed." No "syringeful" was removed, but only a "small cylinder" like part of a pin.

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* See The Right and Wrong of Making Experiments on Human Beings, editorial, this issue, p. 1372.

The sneer of the *Journal of Zoöphily* that Dr. Wile "used apparently only a local anesthetic" shows either ignorance or wilful misrepresentation. Many hundreds—or rather thousands—of operations have already been done on human beings by "only a local anesthetic" without pain. It is a surgical method of anesthesia as well recognized as that by ether or chloroform, and has largely supplanted other anesthetics in certain operations, because of obvious surgical advantages.

The *Journal of Zoöphily* is the last paper which should urge any objection to "human vivisection," for its late editor-in-chief, Mrs. Caroline Earle White, was an avowed advocate of "human vivisection."

Replying to an address of my own in which I asserted that experiments "must not be tested first upon man" she asserted, "on the contrary that in the majority of cases they *must* be tested *first* upon man, or not tested at all." Now if no new method nor any new drug had ever been tried, either on animals or man, it is evident that we should today be still practicing the medicine and surgery of the middle ages.

Still further, Mrs. White opposed my plea for attempting by experiments on animals to discover an antidote to snake venom which in India kills over 20,000 human beings every year. She actually proposed that "the experimenters go to India where they could find as large a field . . . as they require in the *poor victims themselves.* Here is an opportunity such as is not often offered for *experimenting on human beings,* since as they would invariably die from snake bite there can be no *objection to trying upon them every variety of antidote that can be discovered.*" This, she declared, "is the one case in which they could be observed with so *much satisfaction and certainty upon man*" [all italics my own]. Could there be a more cruel—and as elsewhere I also have shown—a more absurd proposal?

But New York and Philadelphia must not claim superiority in misstatements over Boston. In the Philadelphia *Public Ledger* of Dec. 19, 1913, Mrs. Jessica L. C. Henderson, a resident of a suburb of Boston, and a vice president of the American Antivivisection Society, said:

> We eagerly offer our citations in the hope that the public will take the trouble to verify them. Doctor Crile's book, from which the antivivisectionists quoted accurately, repeatedly describes experiments followed by the words "no anesthesia." The book has been withdrawn from public sale.

I at once challenged both statements. As to the latter statement the book has never been "withdrawn." No more copies were for sale (except possibly second-hand) simply because the entire edition had been "sold out," the publishers inform me.

As to the first charge, I asked Mrs. Henderson to give me the pages on which the words "no anesthesia" "repeatedly" occurred. She assured me in reply "that at the first opportunity I shall vindicate my reputation." Then began a series of excuses and subterfuges. "The days and the hours are all too few." Next it is her "firm conviction that the edition has been recalled and another issued" in which these culprit words were omitted. This was disproved by the statement to me by the publishers (J. B. Lippincott Company), which I communicated to her, that only one edition of Crile's book on "Shock" had ever been printed. She said also that she had advertised for a copy and when she obtained it she would "at once comply with your [my] request for the page numbers." Thereupon I sent her my own copy, asking her to return it with the pages indicated. After a long interval it was returned, but without any marked pages.

Next she claimed that she had not indicated which book by Dr. Crile was the one in which these words appeared! To this I replied that I had all of Dr. Crile's books and if she would indicate which was the guilty one I would send it to her at once. This offer was never accepted. As a matter of fact, in her letter to the *Public Ledger* she *did* indicate which book it was, for she described it as the one "from which the antivivisectionists quoted accurately." These quotations I have compared with Dr. Crile's book on shock and found that they *were* taken from his book on shock, and for a wonder they were accurately quoted. I have "repeatedly" reminded Mrs. Henderson that I am "eagerly" awaiting her "vindication" by giving me the pages, but a long period of eloquent silence has followed. I despair of ever receiving them. A good reason exists—there are no such pages.

Why should she not follow the example of her illustrious co-worker, the late Mrs. White? The latter had stated that certain experiments were done on "between forty and fifty children" and that every one of them died. When the fact was pointed out to her that "lumbar puncture" (now an everyday and often indispensable means of diagnosis) was done on only twenty-seven living children of whom only fourteen died (not one of whom died from the lumbar puncture, but from the various diseases of which they were the victims), she promptly and publicly acknowledged her error. Mrs. Henderson owes it to Dr. Crile, but above all to herself, to acknowledge that her statement was incorrect and to offer an apology to Dr. Crile. Had Mrs. Henderson's charge been private, my reply would have been also private; but her charge was specific and public, and made in a very widely circulated and responsible newspaper; hence my public reply.

But what can one expect from persons who heartlessly call the recent terrible epidemic of infantile paralysis as "the Summer's Foolish Panic" and "the New York Infantile Paralysis Epidemic a Fake" and commend the treatment by the Chinese who "divide the human body into twelve sections all connected by interlacing nerves," each section being "rooted in some vital organ"! (*Open Door,* October, 1916.)

1729 Chestnut Street.

Medicolegal

Care Required to Prevent Escape of Patients from Private Institutions

(*Torrey vs. Riverside Sanitarium* (*Wis.*), *157 N. W. R. 552*)

The Supreme Court of Wisconsin affirms a judgment for the defendant, which was sued for damages for personal injuries alleged to have been caused the plaintiff by shock and fright from a partly clad patient coming to her home and demanding the use of the telephone and asking for some clothes. Two days before the patient had voluntarily come to the sanatorium accompanied by a male relative. His physician had previously informed the superintendent that he seemed to be in a confused state of mind and had had certain obsessions for a couple of days, and wanted him kept under observation to see whether his mental condition was a mere brain trouble, or the result of some acute disease like typhoid fever coming on. The second night the patient got up, dressed, and left the institution without permission or the knowledge of the night nurse. He returned in the morning. To prevent any recurrence like that, he was told that it was desired to transfer him to another department, to which he said, "All right." He got out of bed, and with his underclothes on and a blanket thrown over him was conducted by a bath attendant from his room up a stairway toward the men's hall. He seemed to go with perfect willingness. The superintendent followed them along the corridor to the foot of the stairway, and then proceeded toward his office. The patient and attendant walked side by side up stairs, when he suddenly threw off the blanket, of which the attendant had hold, and, pursued by the attendant, made his escape, running across the fields until he came to the plaintiff's dwelling house as stated above. The jury found that the defendant did not exercise ordinary care while transferring the patient; that such want of ordinary care was the proximate cause of her injury; and that the sum which would reasonably compensate her for her injuries was $1,000. On motion, the trial court changed the answer as to the failure to exercise ordinary care, and rendered judgment for the defendant, which is affirmed by the supreme court. The latter says that doubtless it is incumbent on the defendant and its employees at all times during the treatment of nervous and insane patients to use such means to restrain and guard them as would seem reasonably sufficient to an ordinarily prudent man under like circumstances to prevent such an occurrence as took place here, and for breach of that duty liability will arise, if such breach proximately causes injury to another. The trial court held that the evidence would not justify a finding of breach of that duty in this case, and the supreme court cannot say that this conclusion was wrong. It is to be remembered that the patient in question never exhibited symptoms of violence; that he came to the institution voluntarily, and was apparently normal, and entirely tractable; that at the time of his escape there was a male attendant at his side; that an attempt to place greater restrictions on his liberty might easily have resulted in exciting the patient and producing serious results; and, further, that the defendant is a private institution receiving voluntary patients, and not a public institution receiving patients on legal commitment. There are probably no questions more delicate than the questions arising as to the proper care of such patients. Humanity demands that they be treated and cared for somewhere, but it cannot demand omniscience in that treatment. The same measures may produce the best results in some cases and the worst in others. The evidence impresses the supreme court with the belief that the defendant's employees were performing an exceedingly difficult task with all the care and caution which ordinarily prudent persons in their situation would deem it necessary to exercise.

Right of Selecting Physician

(Pecott vs. American Mut. Liability Ins. Co. et al. (Mass.), 112 N. E. R. 217)

The Supreme Judicial Court of Massachusetts reverses a decree which confirmed an award of $50 in favor of the plaintiff, who sought compensation under the workmen's compensation act. The plaintiff was injured in a mill in which he was employed, near noon when the mill closed. In the afternoon the pain from the injury became intense and he consulted a physician, who advised an operation, and performed one for hernia on the following Wednesday. At the time the plaintiff was injured there were posted in the mill printed notices informing employees that in case of injury one of two other physicians named was to be called; "bills of other physicians will not be paid by the insurance company." The court says that, under the workmen's compensation act, the reasonable medical services required during the first two weeks after the injury are to be furnished by the insurer; the duty of supplying medical aid being imposed on the insurance company, with the obligation of paying therefor. The right to select the attending physician is given to it by the statute. It is evident that the legislature, in passing this act, did not intend to give the employee the privilege or right of selecting his own physician at the expense of the insurer. Under the amendment of 1914, where a physician other than the one provided is called in case of an emergency, or for other justifiable cause, the insurer is required to pay for this service, if in the opinion of the industrial accident board the charge is reasonable and the cause of employment justifiable. The purpose of the legislature in passing this amendment was not to deprive the insurer of the right to select its own physicians. By this change in the law, provision was made for the case of emergency, where there was imminent danger, where the suffering, and pain were severe, where immediate attention was required and the services of the insurance physician could not be obtained in time to give relief. The amendment was also intended to apply to a situation where there was no actual emergency, but where the employee, acting as a reasonable man, would be justified in refusing the care of the physician selected by the company. In this case there was no evidence which justified the plaintiff under the statute in neglecting to secure the services of either of the physicians named in the notices. He could read and speak English; the notices were conspicuously posted, and the court thinks he was charged with knowledge of them and their contents. His ignorance of his rights under the workmen's compensation act could not excuse him from compliance with its terms.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
Southern Medical Association, Atlanta, Nov. 13-16.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

AMERICAN ROENTGEN-RAY SOCIETY

Seventeenth Annual Meeting, held at Chicago, Sept. 27-30, 1916

The President, Dr. A. W. Crane, Kalamazoo, Mich., in the Chair

SYMPOSIUM ON ROENTGEN THERAPY

Roentgen Therapy of Skin Affections

Dr. H. W. Dachtler, Toledo, Ohio: In 530 cases occurring on the face and lips, treated during the past seventeen years, in which the history is complete, excluding carcinoma involving the neck, clinically 62 per cent. were diagnosed as malignant. Of sixteen cases involving the forehead, there was but one failure; chin, 8 cases, all cured; neck, 7 cases, all cured; upper lip, 18 cases, 16 cured; nose, 110 cases, 102 cured; cheek, 95 cases, 81 cured; external ear, 25 cases, 20 cured; eyelids, 145 cases, 134 cured; lower lip, 57 cases, 52 cured. Three patients with erythematous lupus were not benefited by the treatment. Seven cases of lupus gave discouraging results, three patients being cured. Of eleven patients with keloid, all were so much improved as to be classed as cured. The end-results in this series compare more than favorably with the results obtained by other methods covering a like period of time.

Roentgen Therapy of Tuberculous Peritonitis

Dr. Paul Eisen, Chicago: Of eleven cases of tuberculous peritonitis treated with deep therapy, operation was performed in seven before the treatment was instituted, thus verifying the diagnosis beyond any doubt; the other four were diagnosed from clinical symptoms, including roentgenographic findings. Of the seven patients operated on before treatment, four have been entirely cured and one still under treatment is getting well. Of the remaining four patients not operated on, in whose cases the diagnosis was based on clinical symptoms alone, two are still under treatment and improving, one was well after six months' treatment and the fourth discontinued treatment after two weeks. In all but two cases there was a steady increase in weight. The amount of rays given was different in each case. I judge the dose to be employed by the gain in weight, a steady gain of 1 pound a week being desired and often more attained. The accumulation or disappearance of free fluid must be taken into consideration in cases in which it is present. In the one unsuccessful case I also added ultraviolet rays to the rest of the body to help raise its immunity, but without success.

Treatment of Nevi

Dr. W. S. Newcomet, Philadelphia: All "birth marks" should be treated as soon after birth as is practicable. Some of these nevi, particularly the moles, tend to become malignant. Of the true nevi, the best results are to be expected in the cavernous type, in which the veins are covered with healthy skin; here several methods are available. The electric needle, galvanism, or diathermy will destroy these enlarged veins without injuring the overlying skin. If, however, the skin is involved with discoloration of the superficial layer, then the application of radium will give the best results. The most difficult nevus to treat and to obtain a result that is cosmetically good is the superficial and widely disseminated variety. Radium, high frequency and the ultraviolet light have been employed. The pigmented nevus, when not too deep, will yield most satisfactory results under radiation, either from the Roentgen rays or from radium. If the area is wide, the use of the Roentgen ray is attended with some danger from overtreatment of the underlying parts.

When the nevus is thick and leathery, the cosmetic result is questionable. The fact that these nevi are covered with hair does not seem to have any effect on the result. In the more severe types of nevi, radiation offers the best means for their eradication. The scar tissue produced from the application of caustics and similar methods depending on cauterization leave them extremely sensitive to radiation, and at times ulceration is difficult to avoid. The results under such circumstances are extremely poor.

Present Status of Roentgen Therapy of Leukemia

Dr. H. K. Pancoast, Philadelphia: Successful results require care in the preliminary treatment of the active period of the disease, persistence in treatment until every manifestation has disappeared, a careful watch over the patient thereafter, and a resumption of applications on the appearance of the first evidences of a relapse. The institution of modern methods of deep therapy in leukemia, modified to suit the peculiar condition, has shortened the time for inducing a primary symptomatic cure in our cases, and the average prolongation of life has, perhaps, been slightly increased, but the ultimate results have not been altered. We still advocate the use of small doses of arsenic in those cases in which progression ceases and the condition remains stationary without further improvement, and also those in which there is a low red count, or the red corpuscles or hemoglobin are diminishing. In recent years, benzene (benzol, C_6H_6) has become a strong competitor of the Roentgen ray as a therapeutic agent in leukemia, but when results have been carefully compared we believe that the latter is to be preferred and is safe. The results of the past few years show that Roentgen therapy is the most successful and the safest agent known in the treatment of leukemia.

Discussion on Roentgen Therapy

Dr. W. A. Pusey, Chicago: My views with regard to epithelioma are the same as I held ten or twelve years ago. When the deep structures or adjacent glands are involved, it is not a case for Roentgen therapy, but a mass of epitheliomatous tissue on the surface of the body can be destroyed effectively with the Roentgen ray. When the lesion is situated on the eyelid, the Roentgen ray is very valuable, because you can cure the lesion and save the eyelid, which you cannot do if you resort to surgery. In the case of lesions in the inner canthus or intra-orbital fat, my experience has not been good. As to epithelioma of the lower lip, some surgeons maintain that every such case should have a radical incision, including cleaning out of the neck. That sounds good, but in some cases it is not a feasible procedure. If I had a superficial epithelioma of my lower lip, no surgeon could cut it out. My rule is to touch no case wherein operation is practicable, unless it is one in which you may expect there is no involvement of the glands under the jaw. In cases in which the deep structures are involved, the surgeon should have the first chance; but the probabilities of a cure by any method are extremely remote. I do not think that the Roentgen ray is best for the treatment of most vascular nevi. I treat pigmented nevi with the Roentgen ray to the point of getting a reduction and getting rid of the hairs; then I try to smooth up the surface with the careful use of carbon dioxid snow. One must be very careful in these cases, because the Roentgen ray has produced hyperemia of these tissues and endarteritis in the smaller vessels. When one uses carbon dioxid snow, one must use very weak applications for a very short period of time. For vascular nevi, I have ceased to use the Roentgen ray. In some flat vascular nevi I have obtained perfect results; they disappeared completely. In large angiomatous nevi, I often get a great shrinking and a great improvement, although at times I do not succeed so happily. In the flat nevi one is apt to get some telangiectasia, which interferes with the result. Radium in nevi gives the same results as the Roentgen ray. The objection to radium is that in using an applicator one must treat small areas, and one is apt to checkerboard the skin. For flat vascular nevi the best treatment at present is the ultraviolet ray from the quartz lamp. This gives beautiful results without any unpleasant after-effects. In the cavernous angiomas I use radium, the Roentgen ray or carbon dioxid snow, depending on the case and the results I am trying to produce. As to the Roentgen treatment of tuberculous peritonitis, I too have had a considerable experience with it. My results have been quite in accord with Dr. Eisen's. One patient was treated surgically, as well as with the Roentgen ray. The former failed; the latter succeeded. She has remained well for twelve years. I see no reason why we should be surprised that the Roentgen ray does not cure leukemia or pseudoleukemia. It affects only the adenoid tissue. I have seen cases cured symptomatically, and improvement was maintained for a considerable period of time. I believe that Roentgen ray offers more prospect of amelioration than anything else. I have not seen any toxic effects from the use of the Roentgen rays in leukemia. I have always given very light exposures, which may account for my experience.

Dr. George C. Johnston, Pittsburgh: Regarding the treatment of tuberculous peritonitis with the Roentgen ray, if the abdomen has been opened previously the atmosphere has played its part. If the patient is exposed to the Roentgen ray afterward, we cannot claim for it the credit of a cure. I have seen cases of tuberculous peritonitis cured without the use of the Roentgen ray, in which the abdomen was opened and closed.

Dr. Kennon Dumham, Cincinnati: Dr. Savage of Cincinnati is carrying on investigations in cattle. He uses ether, without opening the abdomen or letting any air into it. Murphy of the Rockefeller Institute has shown that great good could come by raising the lymphocyte count, and it is here that the Roentgen ray may prove valuable.

Dr. George E. Pfahler, Philadelphia: I believe that, properly used, the Roentgen ray is useful in tuberculosis in different parts of the body, but the work must be controlled and studied carefully. I was very much interested in Murphy's work on the lymphocyte count. I made a series of investigations in a number of cases that I treated, but did not find any more variation in these cases than in the average case. My experience with the lymphocyte count was discouraging. Regarding epithelioma of the lip, I destroy the tumor with the high frequency current and then give deep Roentgen therapy over the lip and the glandular area leading therefrom. I am getting better results than from the Roentgen ray alone or from surgery. As to nevi, I have had most satisfactory results by destroying the lesion by means of the high frequency current and then using the Roentgen ray afterward to prevent the formation of keloids. In cases of flat nevi, I have seen the best results from the use of the quartz lamp, although I have not used it myself. In leukemia, I have been following Dr. Pancoast's method, and my results correspond with his. The early results are brilliant; three or four or five years later there is a sudden relapse, and the patient dies.

Dr. W. S. Newcomet, Philadelphia: I know of two cases in which the Roentgen ray accomplished what benzene failed to do. Radium therapy is at present where the Roentgen ray was fifteen years ago, and our results will not be good until our technic is better, and that cannot be improved while we know so little about radium. The flat applicator is worthless. The tubes are the best, no matter what strength of radium they contain. But a better method for using radium must be found. The great trouble is the cost and the manipulation.

Dr. H. K. Pancoast, Philadelphia: I treated a number of cases of tuberculous peritonitis some years ago. Patients with fluid and tubercles all over the peritoneum usually recover, but when there is a thick plastic exudate the outcome is not so good. Dr. Pusey spoke about the small dosage in leukemia. That is a method with which we were able to accomplish much where others had failed. In the cases of acute lymphatic leukemia, a great deal of harm is still being done; the final outcome is hastened. I recall an instance in which I was asked by mail to give some advice as to the treatment of such a case. I replied, urging them not to use the Roentgen ray. If I had wired my answer, the fatal outcome in that case might have been postponed.

(*To be continued*)

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Sixth Annual Meeting, held at Scranton, Sept. 18-21, 1916

(*Continued from page 1329*)

Diabetic Gangrene

Drs. John H. Jopson and E. H. Goodman, Philadelphia: Judging from the favorable result of the treatment of diabetes by the Allen method, it is perhaps not too much to hope that, with careful consideration of every case of uncomplicated diabetes, diabetic gangrene may be prevented. We believe that diabetic gangrene is only a manifestation of an infection on the basis of lowered tissue resistance plus arteriosclerosis in most cases. There is, however, no specific organism of diabetic gangrene. The rational treatment of diabetic gangrene should be dietetic and local. Should the condition progress in spite of the strict observance of Allen's dietetic method together with proper local measures, then the indications for amputation must be considered. These indications are extension of the local process with signs of septicemia and high glycosuria; or extension of the local process with signs of septicemia in the presence of acidosis. However, in the presence of septicemia, even with low glycosuria or sugar-free urine, operation may be indicated. A high percentage of glycosuria in no way contraindicates operation, although it is better to reduce the urinary sugar if possible. When the local and general conditions become grave, operation should not be deferred. Our experience has shown that fasting should give place to free feeding some time before operation. We favor the use of alkalies in large enough doses to render the urine alkaline before operation, and prefer to administer sodium bicarbonate by mouth and by proctoclysis. Water is given freely before operation, and operation may be performed under local anesthesia. Ether and chloroform are contraindicated with patients giving a history of glycosuria.

DISCUSSION

Dr. Moses Behrend, Philadelphia: It has been my experience that results of operation after the Allen treatment have been far superior to any other form of treatment. There is another form of gangrene in diabetes. It is an insidious form of localized gangrene which occurs around the extensor tendons of the toes. It is a grave symptom, and the prognosis in all these cases must be guarded. Death results whether or not operation is performed.

Attitude of the Department of Labor and Industry Toward the Problem of Occupational Diseases

Mr. John Price Jackson, Harrisburg: Since the inauguration of the system of accident compensation, January 1 of this year, between 50,000 and 60,000 injured workmen have received compensation. But 2 per cent. of these cases were appealed to referees. This law has not been paternal in its operation, but has offered an effective medium for the amicable settlement of claims. The matter of division of payment between hospitals and physicians, and the inclusion within the scope of the law of vocational or occupational diseases are problems to be adjusted by succeeding legislatures. The difficulty arising in the latter problem is the question of what constitutes occupational disease. The Pennsylvania Department of Labor and Industry is inclined to believe that strictly vocational diseases should be treated under the compensation law in the same manner as industrial accidents. Great care, however, in the preparation of such legislation is necessary. Reports on occupational diseases should be made to the bureau of statistics of the department, and clinics on occupational diseases might be established throughout the state. In the matter of the proposed compulsory health insurance, we face the problem of maintaining individual freedom, initiative and self-reliance against the advantages of community action. It has also been argued in favor of compulsory health insurance that many of the poorer population do not have needed medical attention. A system of compulsory health insurance which will not deprive our people of the ability to care for themselves is undoubtedly desirable. The medical profession of the state, possibly headed by a commission appointed by the legislature and the governor, should give most careful attention to health insurance and its corollary, old age insurance. If such attention is not given, the movement may result in a paternalistic injurious governmental system.

DISCUSSION

Dr. J. W. Schereschewsky, Washington, D. C.: Commissioner Jackson has outlined two problems of greatest concern to those interested in social medicine: (1) whether certain occupational diseases shall be included in the scope of the compensation act; and (2) whether the United States shall establish systems of health insurance. There has been a general objection to industry bearing the economic loss due to certain forms of occupational disease. This attitude gives rise to many inconsistencies. For example, a man may be suddenly overcome by benzene fumes while waterproofing a tank. On the other hand, a girl working in a cannery may become chronically poisoned by the fumes of benzene with resulting death. The only difference in the two cases is the period of time in which death was produced. The inference is logical that if compensation is due in the first instance it is equally so in the second. Social insurance must be regarded as our next most important social advance. It is obvious that if the cost of social insurance were conditioned in a special locality or industry by the general prevalence of disease, it would create a strong financial stimulus to preventive measures.

Dr. H. F. Smyth, Philadelphia: In deciding on the rôle of an occupation in the cause of disease we must consider the individual's previous occupation, his general health and physique, his personal habits and home hygiene as well as the general hygiene of the plant in which he is employed and the special precautions taken to minimize the particular hazard. As Dr. Jackson says, the definite occupational diseases are limited in number. To increase this list of compensable diseases, full reports on all occupational diseases should be made compulsory. The tabulation should show also the proportion of diseased to healthy individuals in the industry or process. The adoption of general health insurance for workmen would minimize some difficulties of decision, but I doubt whether this country is yet ready for this.

Dr. James I. Johnston, Pittsburgh: A case coming under my observation and illustrating some of the complexities of this subject was that of a coal miner who sustained a fractured rib injury, for which he was, of course, entitled to compensation. We all know how conducive this occupation is to fibroid phthisis. This man claims that he does not recover, and a diagnosis has been given of established tuberculosis. It is not improbable that the man had tuberculosis and that when injured his resistance was lowered, as a consequence of which the tuberculosis became active. How to meet the situation and treat the man justly is difficult to determine.

Dr. Francis D. Patterson, Harrisburg: I believe the medical profession of Pennsylvania should formulate a definition of occupational disease which will stand an "acid test." On behalf of the Department of Labor and Industry I want to make a plea that the department be given opportunity to gather definite statistics on such diseases.

SYMPOSIUM ON FIRST AID

The Railroad Phase

Dr. Joseph B. Hileman, Harrisburg: The problem of first aid on the Pennsylvania Railroad has been to provide a suitable simple dressing and to instruct the employees in its use. The first aid packet is air and moisture proof and is distributed in tin boxes which hold six dressings. On the outside are printed instructions for its use and a tag bearing an order for a fresh box as soon as the seal is broken. These packets are placed wherever they may be of use. Stretchers and blankets are supplied to all baggage, mail, express and work cars, stations and shops. Employees are taught to confine themselves strictly to first aid and in severe cases to send for the nearest physician. The dangers of infection and hemorrhage are pointed out. No drugs or whisky are to be given. Employees are taught methods of resuscitation from electric shock by means of the Schäfer method. The results have been most satisfactory.

Injuries Common to Policemen and Firemen and Their First Aid Treatment

Dr. Hurley R. Owen, Philadelphia: The principles of first aid treatment of injuries are to stop hemorrhage, keep the wound clean and put the part at rest. We use the army tourniquet; wounds are swabbed with iodin. An immunizing dose of antitoxin is given in all cases of punctured wounds; only one case of tetanus has developed in the fire department since 1871. In shock we use morphin freely. Whisky is not a good remedy for smoke cases. We use six pulmotors in the fire department.

DISCUSSION ON FIRST AID

Dr. J. B. Carnett, Philadelphia: Unfortunately it is not often possible to have at the scene of accident the surgeons and equipment described by Dr. Owen. The fact that more than a million serious accidents occur each year in the United States urgently demands more widespread knowledge of first aid. A great many lives have been saved each year by the prompt application of first aid, and many more could have been saved had the principles of intelligent first aid been more generally known. It is no doubt true that in exceptional instances first aid teaching when perversely applied may lead to meddlesome surgery or even to disastrous results. Such deplorable instances fortunately are rare, and are overwhelmingly counterbalanced by the great number of lives that are saved by intelligent first aid attention. First aid should be included among the subjects taught in the public schools.

Dr. W. F. Skinner, Chambersburg: With reference to burns generally, a good rule to follow is the washing of the parts with Castile soap and warm water, using pledgets of cotton for the removal of foreign matter and then applying normal salt solution, heavy dressings of gauze and parchment paper.

Dr. A. W. Colcord, Clairton: The tourniquet must never be made tight enough to stop hemorrhage, only the spurting from the wound. The remaining hemorrhage must be stopped by direct pressure on the wound. The iodin treatment for wounds is the best for application at the roadside, the private home, hotel, or anywhere outside of the hospital. In emergency hospital work the constant wet dressing is the best. This is made of a saturated solution of boric acid, one fourth, and alcohol, three fourths. It is applied directly to the wound. In several thousand cases we have not had a primary infection.

Dr. Edward Martin, Philadelphia: The emergency which is commonest is not the fatal hemorrhage, or the discrimination between uremia, apoplexy, heat exhaustion or sunstroke, but infection, and there is no concerted view as to how infection should be treated in emergency, excepting that it should not be treated by fingers. It is time to formulate our knowledge.

Modern Hospital Organization in Rural Pennsylvania

Dr. Harold L. Foss, Danville: Pennsylvania, with a population of about 6,000,000 outside of the large cities, has about 150 hospitals, good, bad and indifferent. Fully 90 per cent. of these have no trained laboratory worker; not over 20 per cent. of them are prepared for Roentgen therapy or fluoroscopy. Whenever a young member of the staff attempts to develop a laboratory he receives such poor cooperation that he soon becomes discouraged. The recent requirement of an internship of one year on the part of those applying for license to practice medicine has led to great improvement in these conditions. Organization is first and last the paramount factor in efficiency. Staff appointments should be only on merit. The success of the rural hospital will depend largely on the education of the people, the training of the general practitioner, a clearly defined need for a hospital in the community, the construction of an adequate and well equipped institution, a sound financial basis, a competent and efficient administrator, a broad, sensible policy, thorough and scientific care of the sick, individual investigation of the financial resources of all patients and discouragement of undiscriminating charities, and an efficient system of purchasing.

DISCUSSION

Dr. T. B. Appel, Lancaster: We should all agree on the importance of the development of the laboratories. The modern hospital, particularly in a small town, is in a sense an educational institution for the profession.

Dr. A. R. Allen, Carlisle: The present board of medical examiners has done more to elevate the medical profession and bring the hospitals up to the standard than all the work done heretofore in Pennsylvania.

Dr. Fredrick L. Van Sickle, Olyphant: Because of compensation laws and workmen's insurance, the manufacturer and the mine and mill owner are willing to pay somebody well to get the sick man cured. Therefore the efficiency of the smaller rural hospital must be increased.

Dr. John B. Roberts, Philadelphia: Some things must be obtained for efficiency, first, a permanent medical dictator. The damnation of small and large hospitals is the fact that nobody is boss and every man who comes on duty every six weeks orders something different.

Dr. J. M. Baldy, Philadelphia: The matter rests with the staff of the hospital. If they rise to the opportunities that have now come to them for the standardiaztion of their institutions, we will be patient. We found in our inspection that from 75 to 80 per cent. of the work done in the rural districts was surgical and that, of that, about 75 to 80 per cent. was emergency work. How can the Bureau of Medical Education and Licensure send an intern into such a hospital for his fifth year? If this condition is not altered, such institutions will simply get a credit for second or third year internship and be classified as special hospitals.

Treatment of Deformed Union and Nonunion of Fractures

Dr. John B. Roberts, Philadelphia: Deformed union of bone is usually due to lack of knowledge of efficient treatment of the fracture or to neglect in applying well-known mechanical or physical principles to the problem of treatment. Operative exposure for remedying deformed union of bone is demanded in only a limited number of cases. Subcutaneous refracture for the correction of angular deformity is comparatively easy. This procedure is available and successful for a long period after the fragments have been firmly united. After-treatment is on the same lines as in accidental fracture. Repair in delayed union should be hastened by massage and good food, air and surroundings, and the interrupted use of constriction with a rubber band at the proximal side of the fracture. There should not be too hasty resort to operation in nonunion. Use of the limb and rubbing the ends together by manipulation, and injection of blood hypodermically into the tissues around the fracture are helpful. When these measures fail, operative treatment is demanded.

Ligation of the Superior Pole of the Thymus in Operating for Goiter

Dr. Lever F. Stewart, Clearfield: In dissections which I have made, in the majority of cases, the inferior thyroid arteries gave branches to the superior pole of the thymus. In some instances this branch is given off on only one side. In one out of ten cases no such branch is given off. Ligation of the inferior thyroid artery close to the gland does not touch its branch to the thymus. As a result, the thymus may become congested and enlarged. Ligation of the superior pole of the thymus would circumvent this and in addition have a favorable influence on the thyroid participating in the disease.

DISCUSSION

Dr. G. T. Matlack, Wilkes-Barre: In my experience in doing thyroidectomy it is rarely that we see the enlarged thymus. We have removed three enlarged thymus glands, but not in exophthalmic goiter. We are looking for it all the time and do not find it. I believe we shall have to give the thyroid credit for most of the evils.

Dr. Charles H. Frazier, Philadelphia: I rather feel disposed to take the view that Dr. Matlack has as to the importance of the thymus gland in the intoxication we see associated with the enlarged thyroid. I have not found in my clinic, and I have been looking for it, any coincident enlargement of the thymus in thyrotoxicosis.

Dr. George C. Johnston, Pittsburgh: The relation between the thymus and thyroid in cases of thyrotoxicosis is a very doubtful one. Practically there is little connection. Many of these cases of undoubted thymus are diagnosed as aneurysm or mediastinal tumor, but if you place the patient in the recumbent posture you will find that the thymus drops over and gives the shadow of a dog's ear. It is so unusual that it is absolutely diagnostic.

Cholecystectomy the Operation of Choice

Dr. A. Ralston Matheny, Pittsburgh: Gallstones do not constitute a disease per se, but are always a sign of a previously diseased gallbladder which, once diseased, either remains a nidus of infection or, as a result of inflammation, loses its function. Therefore, it is reasonable to remove it if the risk is no greater than drainage would be. If we remove the gallbladder, except where it is necessary for drainage, we shall avoid the unpleasant experience of an unimproved patient and removal of the gallbladder by another surgeon.

DISCUSSION

Dr. J. A. Lichty, Pittsburgh: I should rather have a live patient with the gallbladder in than a dead patient with the gallbladder out.

Dr. Ernest Laplace, Philadelphia: Only one reason stands in our way of removing the gallbladder, the suppositious one that it is a necessity to functionating of proper digestion. It has been proved that it is not. Therefore why preserve an organ that is not of essential use to the system? I remove all gallbladders, and hesitate only when the necessary time required for proper work might jeopardize the life of the patient. Not that I fear the after-results, but that the doing of this operation in the correct way at the time does not seem possible.

Dr. John H. Jopson, Philadelphia: When I began to remove gallbladders, the mortality of cholecystectomy was higher than cholecystostomy. With the improvement of technic the mortality is no more than in cholecystostomy, and end-results are very much better. I am still taking out gallbladders which I formerly drained. I think when a gallbladder is acutely inflamed and patchy with gangrene, as in some cases of acute pancreatitis, or in occasional cases of infection of the gallbladder, we would better let it alone.

Dr. Harold L. Foss, Danville: There is no question about the value of cholecystectomy, as there are cases in which there is a history of recurrence of stone. I recently performed a cholecystectomy on a patient operated on three times before for gallstones. When the gallbladder was removed, we counted over 500 shotlike millet seeds. That patient had been drained three times before.

Conservative Treatment of Puerperal Sepsis

Dr. E. E. Montgomery, Philadelphia: My experience leads me to condemn the resort to operative interference in cases of infection as being prejudicial to the patient. It is better to keep the patient clean and trust to Nature rather than to interfere surgically. The objection to early surgical interference is that the organs have already passed beyond the reach of surgical measures, and these only break down barriers which Nature has instituted. I should advocate the use of autogenous vaccines prepared from the blood of the patient, and in cases in which these could not be obtained, the employment of prepared serums, even horse serum. Measures that should be instituted are those to promote effective elimination and immunity. I should not hesitate to employ surgical measures, even sacrificial surgery, in those cases in which the organs are destroyed and are simply foci for further extension of disease.

DISCUSSION

Dr. G. E. Shoemaker, Philadelphia: Radical measures, as usually understood, are not required in the management of puerperal sepsis. The maternity infections which come to us are not those patients whom we have ourselves delivered. We are, therefore, without a history which is reliable as to the absence of retained pieces of placenta. Other patients come to us as the result of criminal interference and there we have no history. Other cases have been examined hastily and recognized and unloaded on the hospital. In these cases we must change our attitude as to noninterference. We must never forget that these patients tend to recover of themselves. In regard to an active interference by a cutting operation, I hesitate to do it above the pubis unless absolutely obliged to do so.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

October, LXIV, No. 4

1 *Exophthalmic Goiter. A. J. Ochsner, Chicago.—p. 385.
2 *Surgical Treatment of Goiter. M. F. Porter, Fort Wayne, Ind.—p. 395.
3 *Results of Surgical Treatment of Exophthalmic Goiter. V. C. David, Chicago.—p. 400.
4 Surgical Treatment of Perforated Ulcer of Stomach. A. O. Wilensky, New York.—p. 403.
5 Nine Consecutive Operations for Perforated Gastric and Duodenal Ulcers. J. F. Shea, Bridgeport, Conn.—p. 410.
6 Case of Rupture of Common Bile Duct Associated with Subphrenic Abscess. H. C. Bumpus, Jr., Rochester, Minn.—p. 414.
7 Anomalies of Gallbladder and Bile-Passages; Review of Literature and Report of Double Gallbladder and Floating Gallbladder. A. Schachner, Louisville, Ky.—p. 419.
8 *Interpretation of Functional Renal Tests with Special Reference to Significance of Minimal Excretion of Phthalein and Indigo-carmin. E. Beer, New York.—p. 434.
9 Traumatic Injuries of Kidney and Ureter; Review of Literature and Report of Nine Cases. H. G. Bugbee, New York.—p. 459.
10 *Os Calcis Fracture. F. J. Cotton, Boston.—p. 480.

1. **Exophthalmic Goiter.**—Summarized Ochsner's rules for goiter patients are as follows: Avoid all excitement or irritation, get an abundance of rest, by going to bed early and taking a nap after luncheon. Have an abundance of fresh air at night. Eat and drink nothing that irritates the nervous system. Do not use tobacco. Eat very little meat. If very fond of meat, take a little beef, mutton or breast of chicken or fresh fish once or twice a week or at most three times a week. Drink a great deal of milk or eat things that are prepared with milk, cream and buttermilk are especially good. Avoid any kind of meat broths. Eat an abundance of cooked fruits and cooked vegetables, or very ripe raw fruits, or drink fruit juices prepared out of ripe fruits. Eat eggs, bread, butter, toast, rice and cereals. Drink an abundance of good drinking water, or if this is not available, boil the drinking water for twenty minutes or drink distilled water. Ochsner claims that with the exception of a very small number of cases in which an insufficient amount of the gland had been primarily removed, or in which the remnant which had been left at the primary operation had increased in size, and which have had a recurrence, he has almost invariably found that they had either disregarded the directions given regarding diet and rest and hygiene following their operative treatment, or they had been permitted to return to their homes without definite instructions in this direction. It is, therefore, very important that written or printed directions be given these patients and that they be thoroughly impressed with the importance of using these directions.

2. **Surgical Treatment of Goiter.**—In Porter's opinion it should be the rule to remove all permanent goiters whether they are producing symptoms or not. He says that were this rule followed there would be fewer cases of toxic goiter. There is as much reason for removing so-called simple goiters with a view to preventing them from becoming toxic

as there is for removing or curing by surgical means certain lesions, such as warts, moles, and chronically inflamed areas, to prevent them from becoming malignant.

3. **Surgical Treatment of Exophthalmic Goiter.**—Of 200 successive patients with exophthalmic goiter operated on at the Presbyterian Hospital, Chicago, prior to December, 1914, David says, eleven, or 5.5 per cent., died in the hospital. To ascertain the condition of the patients who had been operated on more than a year previously a series of questions were addressed to them. Sixty-five answers were received. A percentage of 38 were cured and 40 per cent. were greatly benefited. Of thirty-five patients having exophthalmos before operation only thirteen, or 37 per cent., reported themselves relieved from it. The duration of symptoms before operation in the patients cured was sixteen months, in those greatly benefited was twenty-three months, and in those not improved was thirty-three months.

8. **Functional Renal Tests.**—Extrinsic causes (usually obstructive in character), Beer says, may lead to permanent symmetrical renal damage, evidenced by minimal or zero excretion of phthalein and indigocarmin associated usually with high blood urea and high incoagulable nitrogen blood content. Operation in these cases will be of no permanent benefit, and even the slightest (in one case the passing of a cystoscope) may bring on a fatal uremia. Similar extrinsic causes may lead to temporary renal damage evidenced by the same phenomena as Type 1. Operation in these cases, particularly after adequate preliminary treatment, will be rarely followed by uremia. These two wholly different types of cases can be differentiated by removal of the usual causative factor, that is, relief of the obstruction, either by use of indwelling catheter, or regular catheterization, or by preliminary cystostomy under local anesthesia or gas. If the case is of Type 1, no marked change in the renal output will result, whereas if the case is of Type 2, the renal output will regularly improve.

A similar low combined output may be caused reflexly (inhibitive or toxic) by more or less extensive disease of one kidney, while the other kidney is adequate and improves in its function after removal of its diseased mate, or after relief of the pathologic condition in its mate. A low combined output may also be due to bilateral intrinsic causes and improvement in these cases is possible only after operative attack on the kidneys, or the kidney, if single, under an anesthetic which has no injurious effect on the diseased kidney, parenchyma and provided no severe wound infection or other septic, etc., complications which overtax this parenchyma develop.

10. **Os Calcis Fracture.**—Briefly, the method the late Louis Wilson and Cotton worked out together and which has proved very satisfactory clinically is as follows: (1) loosen up the fracture by manipulation; (2) pull the heel down with ice-tongs; (3) free the joint motion between astragalus and calcis; (4) push in the displaced bone under the external malleolus by slowly striking with a big mallet on the outer side of the foot; padding with felt to take the blow; supporting the inner side of the foot on a sand bag. This impacts, and, owing to the fact that the outer plate is firm, the impaction is usually fairly solid; (5) put the foot up in plaster; with the heel-cord slack; avoid direct pressure on the heel.

Archives of Pediatrics, New York

October, XXXIII, No. 10

11 *Case of Lymphosarcoma of Sigmoid. A. L. Goodman, New York.—p. 721.
12 *Clinical Study of Sixty Cases of Postnasal Infections; Six Cases Complicated by Acute Hemorrhagic Nephritis. G. E. Baxter, Chicago.—p. 729.
13 Eosinophilia Occurring in Infants Following Ingestion of Foreign Protein. H. C. Berger, Kansas City, Mo.—p. 742.
14 Infant for Adoption. J. B. Manning, Seattle, Wash.—p. 750.
15 Case of Chondrodystrophy. J. F. Sammis, New York.—p. 755.
16 Sixty-Eight Blood Examinations in Infancy, with Review of Recent Literature. H. M. McClanahan and A. A. Johnson, Omaha.—p. 757.
17 Ruptured Appendix Found at Necropsy in Infant Suffering from Colon Bacillus Infection of Urinary Tract. F. Van der Bogert, Schenectady, N. Y.—p. 772.
18 *Use of Salt Solution by Bowel (Murphy Method) in Infants and Children. E. E. Graham, Philadelphia.—p. 775.

11. **Lymphosarcoma of Sigmoid.**—Goodman reports the case of a girl aged 4 years, who had chronic constipation and bleeding from the rectum, accompanied with extreme pallor and marked weakness, which commenced about three weeks before admission. At the same time the mother noticed a hard lump in the baby's abdomen. The child was in very good health up to four months before its entrance into the hospital. Previous to this time the bowels had been fairly regular. About two weeks before the appearance of the blood, the mother noticed that the child would have severe abdominal cramps before an evacuation of the bowels. During the three weeks previous to her admission, there would be severe straining at stool, but no fecal matter would be expelled, but at times small quantities of pure blood. At one time half a pint of pure blood passed during one of these severe attacks of straining. These attacks became more frequent, and for the three days preceding admission, the child would have two or three movements of pure blood during the day. The mother noticed that the lump in the abdomen would change its position from day to day, and that it had grown larger in size. The child was operated on four days after admission. A tumor of the sigmoid about 6 inches in length, and 3 inches in width, was found with metastatic lymph nodes in the mesentery, also surrounding the intestine. The tumor was removed, the two ends of the intestine, one corresponding to that part of the sigmoid just below the splenic flexure of the colon, the other to the upper part of the rectum, were joined together. Four days later the child died with symptoms of a general asthenia. Diagnosis—lymphosarcoma of the large intestine.

12. **Clinical Study of Postnasal Infections.**—Baxter points out that the occurrence of an acute hemorrhagic nephritis as a complication of what at first thought may seem to be a mild cold in the head, or a simple earache, should teach us the importance of proper care of all simple infections of the upper respiratory tract and the necessity of being constantly alert to the possibility of the development of such a severe complication.

18. **Use of Salt Solution by Bowel.**—Graham's experience with the Murphy method in treating pylorospasm has been very gratifying, and in the case of a 25 days' old infant with severe jaundice, persistent vomiting and diarrhea, the stools being largely composed of mucus, which was black, the employment of this method, as a last resort, was followed by speedy recovery. Graham regards the infusion of normal saline into the bowel by the drop method as a most valuable aid in the treatment of all exhausting diseases of infancy and childhood, and believes that by its stimulating effects threatened collapse can often be averted. In feeding children and infants who cannot retain nourishment given by mouth, a nutrient enema given drop by drop is often better retained and absorbed than when given more rapidly.

Boston Medical and Surgical Journal

October 12, CLXXV, No. 15

19 Were Sailors of Columbus First European Syphilitics? A. F. Downing, Cambridge.—p. 515.
20 Plan of State Department of Health for More Tuberculosis Hospitals. E. R. Kelley, Boston.—p. 524.
21 Relation of Antituberculosis Society to Local Board of Health. J. W. Tapper, Lynn.—p. 526.
22 Visiting Tuberculosis Nurse. M. Van Zile, Beverly.—p. 528.
23 Tuberculosis in Rural Communities. V. Adriance, Williamstown.—p. 530.
24 Some Problems of Trustees of Massachusetts Hospitals for Tuberculous. A. K. Stone, Boston.—p. 533.
25 Value of Program of Work for Antituberculosis Societies. W. H. Lothrop, Newtonville.—p. 535.

October 19, No. 16

26 Surgery of Thyroid. C. A. Porter, Boston.—p. 551.
27 *Alpha-Iodin, Active Constituent in Thyroid; Its Chemical Nature and Function. E. C. Kendall, Rochester, Minn.—p. 557.
28 *Conditions Affecting Secretion of Thyroid. W. B. Cannon, Boston.—p. 562.
29 Clinical Value of Metabolic Studies of Thyroid Cases. W. M. Boothby, Boston.—p. 564.
30 Partial Thyroidectomy with Local Anesthesia, Scopolamin and Morphin. F. H. Lahey, Boston.—p. 566.

31 Treatment of Exophthalmic Goiter by Roentgen Ray. M. Seymour, Boston.—p. 568.
32 Excretion of Hexamethylenamin by Damaged Kidneys. G. G. Smith, Boston.—p. 569.
33 Ileocecal Valve and Chronic Intestinal Invalid. J. Bryant, Boston. —p. 572.

27. **Alpha-Iodin, Active Constituent in Thyroid.**—It appears from Kendall's investigations that the entire activity of the thyroid is manifested by the administration of alpha-iodin, a crystalline compound, alone. There appears to be no other substance in the thyroid secretion which acts directly. This substance, given even in very small amounts, will supplant thyroid activity, relieving the conditions of myxedema and cretinism, and in excess will produce symptoms simulating exophthalmic goiter. It appears to have no direct action on the pulse rate. The extent to which the rate is affected depends not on the administration of the thyroid, but on the simultaneous ingestion of food, and in particular of amino-acids. This effect may be outlined as follows: After the administration of the compound, there is no apparent effect for many hours. There is no increased pulse rate, nor drop in blood pressure. However, if the thyroid hormone and amino-acids are injected simultaneously, the pulse rate is enormously affected, and even death may result, due to the apparently great increase in metabolism going on in the animal. It appears very probable that the thyroid hormone manifests its activity by reacting in some way with amino-acids.

28. **Conditions Affecting Secretion of Thyroid.**—To test the effect of overstimulation in a particular region of the sympathetic system, Cannon about two years ago, fused in the cat the anterior root of the right phrenic nerve with the right cervical sympathetic strand. Thus, after regeneration had occurred, there was delivered to the neurons in the superior cervical ganglion a volley of impulses every time the animal breathed. The operations were performed early in May. In October, four of the six animals were still alive. All had peculiar symptoms. There was marked tachycardia. Though fed like normal animals, they had loose movements of the bowels. They were unusually excitable. The basal metabolism was much elevated. In two animals that died of the disease, the suprarenals were found much increased in weight. One of the animals had definite exophthalmos and respiratory oscillations of the pupil on the operated side.

Since these first observations, the disease has been produced in another animal, and it has been proved that the symptoms—rapid heart, increased excitability, steadily mounting metabolism, with loss of weight—all disappear on the removal of the thyroid on the operated side. The metabolism, which had increased approximately 100 per cent. dropped to within normal limits. Whereas the other animals having the induced disease had died within three months of the first appearance of the symptoms, this animal lived normally for seven months after the operation and was then purposely killed. The thyroid is subject to that division of the nervous system which is brought into action in emotional excitement, and which causes suprarenal secretion. Cannon believes that it is probable, therefore, that the thyroid, like the suprarenal, has, normally, functions which are performed in times of critical emergency and that such an emergency function is an exaggerated form of the routine activity of the gland.

Delaware State Medical Journal, Wilmington

July, VII, No. 8

34 Diagnosis and Treatment of Poliomyelitis in Preparalytic Stage. J. A. Colliver, Los Angeles.—p. 2.
35 Epidemic Cerebrospinal Meningitis; Its Diagnosis and Treatment. B. H. Beeler, Wilmington.—p. 11.

August, No. 9

36 Keratitis; Report of Case. R. B. Hopkins, Milton.—p. 2.
37 What Stomach Symptoms Justify Surgical Intervention. M. B. Tinker, Ithaca, N. Y.—p. 3.
38 Curing Incurable. R. J. Folonie, Chicago.—p. 10.
39 Anthrax. J. Palmer, Jr., Wilmington.—p. 11.

Iowa State Medical Society Journal, Des Moines

October, VI, No. 10

40 Attitude of Public to Physician. G. N. Ryan, Des Moines.—p. 417.
41 Pathology of Bacterial Infections. J. R. Allen, Waterloo.—p. 418.
42 Examination of Spinal Fluid as Diagnostic Procedure. J. S. Weingart, Des Moines.—p. 422.
43 Interrelation of Pelvic and Abdominal Pathology. J. H. Schrup, Dubuque.—p. 425.
44 Technic of Tonsillectomy. E. F. Chase, Rochester, Minn.—p. 429.
45 Infections of Lacrimal Sac and Their Treatment. C. P. Cook, Des Moines.—p. 431.
46 Hernias of Urinary Bladder. A. P. Heineck, Chicago.—p. 434.
47 Industrial Insurance vs. Physician. G. B. Palmer, Fort Dodge.—p. 436.

Journal of Biological Chemistry, Baltimore

October, XXVII, No. 1

48 Study of Certain Dietary Conditions Bearing on Problem of Growth in Rats. C. Funk, New York.—p. 1.
49 *Cottonseed Meal as Incomplete Food. C. A. Wells and P. V. Ewing.—p. 15.
50 Physiologic Relation of Plant Carotinoids to Carotinoids of Cow, Horse, Sheep, Goat, Pig and Hen. L. S. Palmer, Columbia, Mo. —p. 27.
51 *Relation of Unidentified Dietary Factors, Fat-Soluble A, and Water-Soluble B, of Diet to Growth Promoting Properties of Milk. E. V. McCollum, N. Simmonds and W. Pitz, Madison, Wis.—p. 33.
52 *Influence of Ether Anesthesia on Amino-Acids of Blood Serum. E. L. Ross, Chicago.—p. 45.
53 *Studies on Growth. Comparative Value of Lard and Butter Fat in Growth. C. Funk and A. B. Macallum, Toronto, Canada.—p. 51.
54 *Id. Action of Yeast Fractions on Growth of Rats. C. Funk and A. B. Macallum, Toronto, Canada.—p. 63.
55 Reaction Between Amino-Acids and Carbohydrates as Probable Cause of Humin Formation. M. L. Roxas, Madison, Wis.—p. 71.
56 Direct Determination of Urea and Ammonia in Muscle. J. B. Sumner, Ithaca, N. Y.—p. 95.
57 Chymase of Solanum Elaeagnifolium. A. Bodansky, Ithaca, N. Y. —p. 103.
58 Separate Determination of Cholesterol and Cholesterol Esters in Small Amounts of Blood. W. R. Bloor and A. Knudson, Boston. —p. 107.
59 *Isolation of Growth Producing Substance from Sheep Pancreas. W. H. Eddy, New York.—p. 113.
60 *Studies in Creatin Metabolism. Possible Interrelations Between Acidosis and Creatin Elimination. F. P. Underhill, New Haven, Conn.—p. 127.
61 *Id. Influence of Alkali on Creatin Elimination During Inanition. F. P. Underhill, New Haven, Conn.—p. 141.
62 Id. Influence of Alkali on Creatinuria of Phlorhizin Glycosuria. F. P. Underhill and E. J. Baumann, New Haven, Conn.—p. 147.
63 *Id. Relationship of Creatinuria to Carbohydrate Metabolism and Acidosis. F. P. Underhill, and E. J. Baumann, New Haven, Conn.—p. 151.
64 Alterations in Output of Certain Urinary Constituents as Determined by Changes in Character of Diet. F. P. Underhill and L. J. Bogert, New Haven, Conn.—p. 161.
65 Interrelations of Blood Fat and Blood Sugar Content of Dogs Under Influence of Hydrazin. F. P. Underhill and E. J. Baumann, New Haven, Conn.—p. 169.
66 *Nutritive Value of Yeast, Polished Rice and White Bread, as Determined by Experiments on Man. C. Funk, W. G. Lyle and D. McCaskey, New York.—p. 173.
67 Nutritive Properties of Corn. A. G. Hogan, Manhattan, Kan.—p. 193.
68 *Colorimetric Method for Determination of Acetone in Urine. F. A. Csonka, Pittsburgh.—p. 209.
69 Toxicity of Carotin. H. G. Wells and O. F. Hedenburg, Chicago. —p. 213.
70 Clinical Calorimetry. Number of Places of Significant Figures in Data of Metabolism Experiments. F. C. Gephart, E. F. Du Bois and G. Lusk, New York.—p. 217.
71 Permeability of Living Cells to Acids and Alkalies. A. R. Haas, Cambridge, Mass.—p. 225.
72 Acidity of Plant Cells as Shown by Natural Indicators. A. R. Haas, Cambridge, Mass.—p. 233.
73 *Influence of Bile on Autolysis. A. L. Tatum, Philadelphia.—p. 243.
74 *Rate of Urea Excretion. Rate of Excretion of Administered Urea in Young Healthy Adults on Constant Diet. T. Addis and C. K. Watanabe, San Francisco.—p. 249.
75 Volume of Urine in Young Healthy Adults on Constant Diet. T. Addis and C. K. Watanabe, San Francisco.—p. 267.
76 Changes in Cholesterol Content of Blood of Goats, Following Cholesterol Feeding Alone, Roentgen Treatment Alone, and Cholesterol Feeding Combined with Roentgen Treatment and Subsequent Castration. G. Luden, Rochester, Minn.—p. 273.

49. **Cottonseed Meal as Incomplete Food.**—According to Wells and Ewing cottonseed meal is an incomplete food. This is true even when it is fed with sugar and starch to a wide nutritive ratio.

51. **Relation of Unidentified Dietary Factors to Growth.**—The results of nearly 1,000 feeding experiments conducted by

the authors with their rat colony during the last few years all support the working hypothesis explained and supported by experimental evidence in a number of previous papers. This assumes the necessity of two dietary essentials as yet unidentified in the diet for growth or prolonged maintenance; namely, the fat-soluble A of butter fat and certain other foodstuffs, and the water-soluble B which the authors have supplied by means of extracts prepared with water or alcohol from several foodstuffs. Experimental inquiry has not yet revealed the degree of dependence of animals on a supply of these two dietary factors after growth has been completed. The evidence available would seem to point to the necessity of at least one of them, the water-soluble B, throughout life, for extracts which contain it induce relief of polyneuritis, and this may have its incidence at any time during life.

52. **Ether Anesthesia and Amino-Acids.**—Ross says that the amino-acid content of the blood serum of dogs is affected as follows: 1. Not materially changed in half an hour by feeding either carbohydrates or meat. 2. Increased considerably in four hours after feeding a pound of meat to each dog. 3. Not materially decreased by fifteen minutes of ether anesthesia, first, after a week of meat diet, second, after a week of low protein diet, third, half an hour after feeding meat, or fourth, half an hour after feeding carbohydrates and fat. The decrease at most is not above 4.0 per cent. 4. Decreased 4.6 to 9.2 per cent. after an amino-acid rise due to four hours of meat digestion.

53. **Comparative Value of Lard and Butter Fat in Growth.**—The failure of rats to grow on a lard and yeast diet, Funk and Macallum say, is partially due to the development of scorbutic symptoms. These can be relieved to a marked degree by using moist instead of dried yeast and still more so by using moist yeast and butter. Even in the latter case the existing deficiencies are not entirely corrected, since many rats decline on this diet. Rats which fail on lard do not always recover on a diet containing butter. It seems also possible that yeast on account of its high content in purins, and perhaps other constituents, is not an ideal addition in experiments of long duration, even in spite of its marked growth promoting power. The impaired nutritive value of heated casein does not seem to be due to destruction of amino-acids but to destruction of vitamins.

54. **Action of Yeast Fractions on Growth.**—The fractionation of yeast with phosphotungstic acid shows that the growth promoting substance is carried down with the precipitate and a large part of its activity is lost during the fractionation. The instability of this substance when fractionated with silver salts presents greater difficulty than that experienced during the fractionation of the beriberi vitamin. The authors suggest that both these problems can only be solved when more adequate methods are available.

59. **Vitamin in Sheep Pancreas.**—The results of Eddy's rat experiments seem to prove conclusively that the water soluble portion of the alcoholic extract of pancreas contains a substance that is capable of inducing marked increase in growth. This substance is removed from the extract without loss of power by treatment with Lloyd's reagent. It is also precipitated in the phosphotungstic precipitate of the extract. It is not a protein or fatty substance.

60. **Possible Interrelations Between Acidosis and Creatin Elimination.**—The facts enumerated by Underhill confirm the findings of McCollum and Steenbock that creatin may appear in the urine even when adequate carbohydrate is supplied; and they lead the author to the conclusion that creatinuria is not necessarily related to carbohydrate deficiency in the body. It would appear to be associated with a condition of acidosis which may and usually does accompany those states of metabolism in which carbohydrate deficiency is especially noticeable.

61. **Influence of Alkali on Creatin Elimination During Inanition.**—Underhill found that administration of alkali during the earlier days of starvation may greatly diminish or completely abolish the creatinuria of that condition. Later in the period of inanition introduction of alkali may not show as marked an influence on the existing creatinuria. The results of these experiments lend support to the hypothesis that there exists a relationship between acidosis and creatin elimination.

63. **Relationship of Creatinuria to Carbohydrate Metabolism and Acidosis.**—The results presented by Underhill and Baumann make it evident that creatin elimination in the urine may be induced by at least two different sets of conditions: (1) creatin may appear in the urine in states of acidosis in cases in which carbohydrate deficiency is not involved, and (2) creatinuria may be present during carbohydrate deficiency even in the absence of acidosis.

66. **Value of Vitamins in Human Nutrition.**—As a result of nutrition experiments with yeast it is shown that the value of yeast as a protein source is not very great. A large quantity of unutilized yeast passes in the feces and is lost. Yeast, on account of its high purin content, causes a distinct rise of uric acid in the blood, and for this reason cannot be used to the exclusion of all other food. Experiments with vitamin free food, in the form of white rice and white bread, confirm the results of Abderhalden, Fodor and Röse, who found that to obtain a positive nitrogen balance, more white bread is required than whole bread or potatoes. Whether this low value of vitamin free food is due solely to the absence of vitamin, the authors were not able to prove as their experiments were of comparatively short duration.

68. **Determination of Acetone in Urine.**—A colorimetric method for the quantitative determination of acetone in urine is presented by Csonka, based on the red color of the alkaline salt of dioxydibenzene acetone, which was first used by Frommer as a qualitative test for acetone. The method is also recommended for clinical use on account of its simplicity, accuracy and rapidity of estimation.

73. **Influence of Bile on Autolysis.**—Tatum found that bile is a powerful cytolytic agent. This cytolysis is produced by virtue of the co-enzyme or activating action of the constituents of bile on the autolytic enzymes or processes. Whole bile is more powerful though less penetrating than corresponding concentrations of either of the bile salts. The maximum effects of bile or bile salts are many times greater than the effects of the optimum concentration of acids. Sodium glycocholate appears to affect cytoplasmic material more than does sodium taurocholate, though both affect nuclear material about equally.

74. **Rate of Urea Excretion.**—In thirty-nine experiments on young healthy adults Addis and Watanabe found that no evidence of variability in kidney action could be obtained in the work of excreting preformed urea added to a constant diet. It is concluded therefore that the normal kidney under constant conditions is characterized by the possession of a high degree of constancy of function.

Journal of Cutaneous Diseases, Boston

October, XXXIV, No. 10

77 *Syphilis of Nervous System. J. A. Fordyce, New York.—p. 713.
78 Case of Atrophy of Fatty Layer of Skin, Preceded by Ingestion of Fat by Large Phagocytic Cells—Macrophages. T. C. Gilchrist and L. W. Ketron, Baltimore.—p. 728.
79 *Exudative Diathesis and Study of Acetone Bodies in Blood of Nine Cases. M. F. Engman and R. S. Weiss, St. Louis.—p. 739. To be continued.
80 Lichen Planus Accompanied by Bleb Formation. D. W. Montgomery, San Francisco.—p. 748.
81 *Differential Blood Counts in Parasitic Skin Diseases and Their Possible Significance. A. Strickler, Philadelphia.—p. 752.

77. **Syphilis of Nervous System.**—All patients at the end of the first year of their infection, Fordyce says, should be punctured whether or not they have manifestations or positive signs of the disease. If the fluid remains negative to all of the tests, they can be assured with a reasonable amount of certainty that they are not menaced by the possibility of a later development. Furthermore, a positive colloidal gold test with a persistent positive Wassermann, in the high dilutions, points to an impending paresis, whether or not the patient shows mental impairment. In other words, years before the stigmata of degeneration appear, the pathologic process is at work in the central nervous system. When

the clinical symptoms of paresis develop, like memory, speech, hand-writing defects, etc., the disease has already existed for years. This statement also applies to tabes. The results obtained in the treatment of tabes would seem to confirm the hypothesis that this affection is primarily an inflammatory process involving the meninges, rather than a degenerative process, for if the latter assumption were correct benefit from the treatment could not be derived.

79. **Acetone Bodies in Blood.**—Engman and Weiss claim that the exudative diathesis should be recognized as a clinical entity. It is hereditary and congenital and whole families may show evidences of it. The main symptoms are respiratory and dermal (parts exposed to trauma). Eosinophilia is very frequently found. The treatment is essentially protective and dietetic.

81. **Differential Blood Counts in Parasitic Skin Diseases.**—According to Strickler there is an increase in the blood of the small lymphocytes in ringworm of the scalp. The average count for sixty cases was 37.4 per cent. of lymphocytes. In the small lymphocytes 20 per cent. did not show any increase. There is a slightly greater increase in the small lymphocytes in those patients treated by vaccines, than in those patients receiving local treatment only. This difference is, however, small. Pediculosis of the body, unlike scabies and grain itch, does not show any change in the blood picture from that seen in the average normal patient. In the four cases of favus studied, there seemed to be an increase of small lymphocytes, but the cases are too few to permit of any conclusions.

Kansas Medical Society Journal, Topeka

October, XVI, No. 10

82 Newer Anesthetics in Labor. G. C. Mosher, Kansas City, Mo.—p. 281.
83 Stricture of Esophagus; Report of Case. W. A. Wehe, Topeka. —p. 289.
84 Case of Tinea Barbae Clinically Suggestive of Actinomycosis. R. L. Sutton, Kansas City, Mo.—p. 291.
85 Safe Way to Remove Tonsils of Small Children. T. L. Higginbotham, Hutchison.—p. 295.

Maine Medical Association Journal, Portland

October, VII, No. 3

86 Digitalis Therapy. F. S. Meara, New York.—p. 69.

Medical Record, New York

October 14, XC, No. 16

87 Tuberculosis Survey of Alaska Eskimo Village — Using Children Under Fifteen Years of Age as an Index. H. C. Michie, U. S. Army.—p. 663.
88 Present Status of Chronic Multiple Arthritis, with Special Consideration of Infection as Etiologic Factor. G. R. Elliott, New York.—p. 666.
89 Ragweed Pollen in Nasal Secretion of Hay-Fever Cases. W. Scheppegrell, New Orleans.—p. 672.
90 Significance of Increased Duodenal Dilatability. W. H. Barber, New York.—p. 673.
91 Intermaxillary Splint. G. M. Dorrance, Philadelphia.—p. 674.
92 Apparatus for Direct and Continuous Transfusion of Blood. A. Kahn, New York.—p. 675.
93 Recurrent Acrodermatosis of Warm Countries. R. Ruiz-Arnau, San Juan, Porto Rico.—p. 677.
94 Treatment of Wounds. L. Sexton, New Orleans.—p. 680.

October 21, No. 17

95 Management of Poliomyelitis, with View to Minimizing Ultimate Disability. R. W. Lovett, Boston.—p. 705.
96 Roentgen Diagnosis of Tuberculosis of Lungs. H. Hulst, Grand Rapids, Mich.—p. 712.
97 Medical Mind. J. M. Putnam, Buffalo.—p. 718.
98 Treatment of Flat-Foot in Old Patients. S. Epstein, New York. —p. 720.
99 *Cardiac Crises in Tabes Dorsalis; Report of Case with Sudden Death. M. F. Lautman, Hot Springs, Ark.—p. 722.
100 Late Infection Following Corneoscleral Trephine Operation for Glaucoma. C. B. Broder, New York.—p. 723.

99. **Cardiac Crises in Tabes Dorsalis.**—In a man with advanced taboparesis there occurred attacks of pain about the heart, in the nature of cardiac crises. There were no postmortem evidences to explain the sudden death which occurred in one of the paroxysms, which renders quite plausible the assumption that death was due to a cardiac crisis. The valves, as well as the coronary arteries throughout their entire extent, showed no abnormalities. The aorta, with the exception of three small atheromatous, calcified plaques on the posterior wall, just above the ring, was negative. In addition, the capsule of the liver showed a few cicatrices, there was a Meckel's diverticulum, and there were only two lobes in the right as well as the left lung.

Nebraska State Medical Journal, Omaha

September, 1, No. 3

101 Surgical Pathology and Operative Technic of Duodenal and Gastric Ulcer. J. S. Welch, Lincoln.—p. 67.
102 Etiology and Pathology of Gastric and Duodenal Ulcers. A. C. Stokes, Omaha.—p. 72.
103 *Possible Predisposing Factor in Etiology of Duodenal Ulcer. C. A. Roeder, Omaha.—p. 76.
104 Diagnosis of Gastric and Duodenal Ulcer. A. D. Dunn, Omaha. —p. 78.
105 Treatment of Gastric Ulcer. L. Crummer, Omaha.—p. 81.
106 Case of Adenocarcinoma of Lung. G. W. Covey, Lincoln.—p. 82.
107 Operative Treatment of Cancer by Actual Cautery. J. E. Summers. Omaha.—p. 86.
108 Remote Effects Following Oral Infections. L. M. Stearns, Kearney. —p. 90.
109 Smallpox Ulcer of Cornea. J. L. Sutherland, Grand Island.—p. 92.

103. **Etiology of Duodenal Ulcer.**—Traction on the bulb or first portion of the duodenum when the dilated segment or stomach is filled, Roeder says, may have some bearing in the etiology of duodenal ulcer. The first portion of the duodenum or bulb suspends more weight after meals than any other portion of the gastro-intestinal tract at any time, with the possible exception of the area surrounding the cardiac orifice. There is constant traction on this first portion of the duodenum for one or two hours after eating; particularly so in those who cannot afford the luxury of the reclining posture for at least one hour after a hearty meal. During spring and fall the laboring man works hardest and eats most and going to work on a full stomach with considerable traction on the bulb, Roeder says, may account for the seasonal exacerbations so characteristic of this lesion.

New York Medical Journal

October 14, CIV, No. 16

110 Postfebrile Treatment of Anterior Poliomyelitis. D. D. Ashley, New York.—p. 725.
111 Epidemic Poliomyelitis. W. S. Bryant, New York.—p. 727.
112 Intracranial Murmur of Long Duration and Spontaneous Cessation. F. K. Hallock, Cromwell, Conn.—p. 729.
113 Pelvic Inflammation. H. M. Armitage, Chester, Pa.—p. 730.
114 Chronic Renal Infarcts, Nephrectomy; Case Report. N. P. Rathbun, New York.—p. 734.
115 Extra-Uterine Gestation. E. P. Lothrop, Buffalo.—p. 735.
116 Status Lymphaticus. W. L. Culbert, New York.—p. 739.
117 Cystoscopic Rectovesical Transillumination. P. S. Pelouze, Philadelphia.—p. 740.
118 Obstetric Abdominal Hysterotomy; Report of Twelve Cases. A. M. Hellman, New York.—p. 741.

Northwest Medicine, Seattle, Wash.

October, XV, No. 10

119 Physicians' Defense and Defensible Physician. W. Kuykendall, Eugene, Ore.—p. 319.
120 Questions of Interest to the Profession. E. W. Whitney, Salt Lake City.—p. 323.
121 Case of Primary Syphilis of Eye. W. G. Cameron, Tacoma.—p. 328.
122 Window Resection of Larynx for Removal of Intrinsic Malignant Disease. F. Adams, Seattle.—p. 330.
123 Mastoiditis Complicated with Brain Abscess. Operation and Recovery; Report of Case. P. B. Wing, Tacoma.—p. 332.
124 Thyroglossal Tumor (Aberrant Thyroid); Report of Case. W. K. Seelye, Seattle.—p. 334.
125 Plea for Earlier Operation of Strabismus or Squint. E. B. Burwell, Seattle.—p. 335.
126 Ultimate Nervous Results of Acute Angulation and Flexure of Sigmoid and Consequent Fecal Stasis. Eczema Madidans; Report of Eight Cases. W. H. Axtell, Bellingham.—p. 337.

Philippine Journal of Science, Manila

March, XI, No. 2

127 Bacteriologic Examinations of Swimming Pools in Manila. C. E. Gabel, Manila.—p. 63.
128 *Wassermann Reaction with Glycerinated Human Serum. E. H. Ruediger, Manila.—p. 87.

128. **Wassermann Reaction with Glycerinated Human Serum.**—This, Ruediger's second report, deals with serums tested monthly for a period of three months. The serums had not become anticomplementary. There was practically no

difference between the first and second readings. All serums remained clear and free from bacterial growth. A few cubic centimeters of each of these serums remain and Ruediger expects to report on them at intervals of a year.

Vermont Medicine, Rutland

August, I, No. 8

129 Some Fundamental Causes of Disease. W. S. Bainbridge, New York.—p. 217.
130 Rectal Anesthesia and Demonstration of Gwathmey's Method. W. M. Johnson, New York.—p. 224.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Indian Medical Gazette, Calcutta

September, LI, No. 9

1 Reflections on Cataract Extraction. E. A. R. Newman.—p. 321.
2 Eye-Strain. M. Corry and H. Shanker.—p. 324.
3 *Value of Quinoidin in Malaria. E. E. Waters.—p. 335.
4 Cholera Inoculation Carried Out on Northwest Frontier, 1915. M. A. Nicholson.—p. 338.
5 Double Inguinal Hernia. N. K. Basu.—p. 340.
6 Epigastric Hernia in Sepoys. N. W. Mackworth.—p. 340.

3. **Value of Quinoidin in Malaria.**—It appears that in India quinoidin is being used in large quantities in the treatment of malaria. It is not only effective but it is cheap. Waters says that it is a splendid prophylactic. In August, 1914, a spleen census was taken of the boys attending four higher and middle English schools. Of 402 boys, 136 were found to have palpable spleens of various sizes. Quinoidin tablets were issued freely and administered regularly by the school head master from August to January. When the same boys were examined again in February, 1915, enlarged spleens were found in twenty-eight only—a drop from 33 to 7 per cent. A similar examination was made of some 700 children in 1915, and the spleen index fell from 14.4 to 8 per cent.

For ordinary acute malaria and outpatient work 12 to 16 grains daily are generally sufficient, says Waters. More may safely be given, especially in chronic and spleen cases, less is often effectual. It is important that a preliminary purge be administered. With inpatients the first day is usually occupied by necessary blood and urine examinations, the purgative, and so on, giving a simple diaphoretic, if necessary. On the second and subsequent days two 2-grain tablets of quinoidin are given twice daily and this is sufficient in the vast number of cases to bring the temperature down to normal or nearly normal by the third or fourth day—say a total dosage of 36 to 48 grains. In chronic cases with enlarged spleens, or in malignant tertian infections, Waters prefers to combine ammonium picrate, half a grain, and arsenious acid, 1/100 grain. Beginning with 12 daily this can generally be increased up to 24 daily without intestinal or arsenical symptoms. Quinoidin is slightly more lethal to guinea-pigs than quinin. Properly administered, it is at least as effective as quinin, and causes no cinchonism or gastric trouble.

Practitioner, London

October, XCVII, No. 4

7 Alleged Incontinence of Urine and Malingering. J. Collie.—p. 301.
8 Some Medicolegal Points in Connection with Death. W. A. Brend.—p. 312.
9 Surgical Judgment. J. H. Watson.—p. 323.
10 Recent Public Health Work. J. Priestley.—p. 336.
11 Recent Work in Tropical Diseases. R. T. Hewlett.—p. 351.
12 Renal Excreta; An Examination of Some Fallacies and Facts. E. Wooton.—p. 363.
13 *Continuous Counter Irritation as Therapeutic Measure in Rheumatoid Arthritis, Etc. W. J. Midelton.—p. 371.
14 Valvular Disease of Heart in Army Recruits and Soldiers Proposed for Invaliding. S. Wyard.—p. 377.
15 *Sublingual Medication. W. Paulson.—p. 389.
16 Case of Egg Poisoning (Anaphylaxis). R. S. C. Edleston.—p. 391.

13. **Continuous Counter Irritation in Rheumatoid Arthritis.**—Not only are changes in the spinal cord beneficially influenced, but, Midelton says, the whole system improves when continuous counter irritation is properly carried out for a sufficient period in rheumatoid arthritis. Among other improvements he has noted the following in a sufficiently large number of cases to be beyond any possible question of their being mere coincidence: Pain and swelling have gone from joints, and movement has greatly increased. Wasted and contracted muscles have thickened, elongated and become more powerful. Pads and fringes in the interior of joints have so diminished as no longer to cause pain or limitation of movement. Fibrous and semifibrous thickenings of all kinds, such as adhesions, nodules and lipomas have disappeared; in some cases, the nodules have been as hard to the touch as wood. Deformities of arms, legs, toes and fingers have greatly lessened. Eruptions of many kinds on the skin, as well as discolorations have cleared up. "Wooden" facial features have become normal. Sleep, appetite, digestion and action of the bowels have greatly improved, and so have sight, hearing, taste and smell. The mental capacity, too, greatly increases and morbid thoughts of all kinds either diminish or go completely.

Skilfully and carefully carried out, the treatment is without serious risk, and sepsis plays no part in it. The three methods employed by Midelton are: (1) the blister, followed by savin ointment; (2) multiple superficial acupuncture (thousands of punctures are made at each sitting), followed by irritants. Midelton paints over the punctured area a mixture of croton oil, cantharides and almond oil. The mixture is carefully proportioned in order to produce an eruption only and no blisters; (3) the galvanocautery. This is chiefly applied to the back near the spine. Small dots or dashes are made, the number being arbitrary and given according to the needs of each patient.

15. **Sublingual Medication.**—For the absorption of concentrated remedies (unchanged and uncontaminated) directly into the circulation, Paulson regards the sublingual space as the most reliable surface in the whole body. The only preparation necessary is rinsing with water, if the mouth is dry. For the relief of severe pains, such as those of renal or biliary calculi, and on many other occasions, both in military and ordinary practice, the method is said to be of incalculable service.

Bulletin de l'Académie de Médecine, Paris

September 19, LXXVI, No. 37, pp. 203-210

17 *Injury of the Ear from Explosions Nearby. (Les mutilations de l'organe auditif par les détonations; leurs véritables causes; moyens pratiques de les éviter.) Wicart.—p. 204.
18 Typhus in Serbia in 1914 and 1915. (Considérations épidémiologiques et cliniques sur l'épidémie de typhus exanthématique au cours de la guerre actuelle en Serbia.) Petrovitch.—p. 206.

17. **Injury of the Ear from Explosion.**—Wicart insists that the air concussion from an explosion induces as a rule merely transient and curable disturbances in a previously normal ear. Chronic ear trouble or old healed otitis materially aggravates the effects of the air concussion. In many cases the disturbances from the concussion are prolonged or aggravated by some constitutional trouble, syphilis, malaria, autointoxication, etc. Treatment of the constitutional trouble relieves and may cure the ear disturbances, associated with local measures to soothe the swollen mucosa in the nose, pharynx and eustachian tubes, and soften and mobilize the tympanic membrane. He advises to fill the ear with cotton wet with glycerin to prevent contusion of the tympanic membrane, and to wear ear muffs padded with cotton. Swallowing two or three times, with the nostrils pinched together with the fingers, helps to hold the tubes open at the moment of the explosion. Infection comes by way of the tubes or outer ear, and hence he urges systematic hygiene and sterilization of the ear and nasopharynx to keep the ears in good condition in prophylaxis. See also Paris Letter in The Journal, p. 1314.

Lyon Médical

September, CXXV, No. 9, pp. 369-416

19 *Juxtacardiac Gastric Ulcer; Four Cases. Guérin.—p. 369.
20 Diabetes in Old Syphilitic Cured Apparently by Mercurial Treatment. Revillet.—p. 374.

19. **Ulcer of the Stomach Near the Cardia.**—In Guérin's four cases the ulcer was on the upper part of the lesser curvature, involving the posterior rather than the anterior wall

of the stomach. In three cases its removal was not attempted, but in the fourth case the region was easily excised notwithstanding adhesions to the pancreas. The abdominal portion of the esophagus seems to be longer in women than in men, so that juxtacardial ulcers are more accessible. As adhesions are liable to prevent radical measures, it is important to act promptly, but the diagnosis is not an easy matter in these cases. The patient feels merely vague pains between the shoulders at first, and a little pain on swallowing certain kinds of solid or fluid foods. Gradually these symptoms become more pronounced. The interscapular pain becomes continuous, and the patient, to spare himself this discomfort, eats less and less, until the emaciation is extreme. Pain in the epigastrium is rare. Only one of the four had cramps in the stomach an hour after eating. It subsided after regurgitation. There is no vomiting of the esophageal type but there may be occasionally vomiting of the pyloric type. There is constipation and the stools are blackish, with occult blood. The ulcer is hidden behind the costal arch, and radioscopy proved constantly negative in his cases.

Le Nourrisson, Paris

IV, No. 5, pp. 257-320

21 Partitioned Off Meningitis. (Formes cloisonnées et ventriculaires de la méningite cérébro-spinale. Ependymitc meningococcique évoluant en cavité close.) A. B. Marfan.—p. 257.

22 Chemical Study of Woman's Milk and Clinical Deductions. (Lait de femme.) R. Raimondi.—p. 269.

23 Infantile Tuberculosis and Intradermal Tuberculin Treatments. L. Jeanneret.—p. 283.

24 Tetany in Infant nearly Two with Inherited Syphilis, the Parathyroids Apparently Normal. (Spasme de la glotte et convulsions généralisées avec du facial chez un enfant atteint de rachitisme syphilitique. Intégrité microscopique des glandes parathyroïdes.) A. B. Marfan.—p. 291.

25 Acute Lobar Pneumonia in Eighteen Months Infant Simulating Meningitis. Lavergne.—p. 295.

Paris Médical

September 23, VI, No. 39, pp. 257-272

26 *Agar in Antiseptic Dressing of Wounds. (Le pansement antiseptique à l'agar-agar.) M. Loeper and P. Barbarin.—p. 257.

27 *Radiotherapy of Peripheral Tuberculous Glands. E. Albert-Weil. —p. 260.

28 Bone Graft Surgery. (Une méthode nouvelle de greffe osseuse dans la pseudarthrose. Méthode d'Albee de New York.) J. Calvé and M. Galland.—p. 264.

29 Military Status of Tuberculous Soldiers. (Des tuberculeux et de leur situation militaire.) A. Lanzenberg.—p. 268.

26. **Agar for Dressing Wounds.**—Loeper and Barbarin expatiate on the advantages of pads of agar, or agar tied in the center of a square of gauze, to apply to wounds. It is exceptionally compressible and elastic while it absorbs eight times its weight of water, and dries extremely slowly. Its absorbing power is so great that microbes and leukocytes accumulate in it when used as a dressing. It spreads the walls of the wound apart and with the projecting ends of the square of gauze serves as a perfect drain. They have found this very useful to supplement the Carrel-Dakin method of treatment, running the tube down into the sachet, as they call the sugar teat arrangement of agar and gauze. Agar is not a culture medium for germs.

27. **Roentgen Treatment of Tuberculous Glands.**—Weil declares that there are no tuberculous adenopathies which are not suitable for Roentgen-ray treatment. In his experience with fifty cases he has had no failures. He uses large doses, but fractions them, and divides the skin over the region into as many areas as necessary to expose the whole of the gland, giving a total of from 10 to 14 H. units at each portal of entry, filtering through 4 mm. aluminum. This usually takes five or six days. He gives illustrations of a number of cases showing how the adenopathy retrogresses even when of months' standing. He clears out the fistula and suppurating focus first, but the merely inflamed glands, without suppuration, do not require this.

Presse Médicale, Paris

September 21, XXIV, No. 52, pp. 413-420

30 *The Agglutination Test in Typhoid and Paratyphoid, in the Vaccinated and the Nonvaccinated. (L'épreuve de la saturation des agglutinines.) C. Gautier and R.-J. Weissenbach.—p. 413.

31 *Trephining the Lateral Ventricle in Protracted Form of Meningitis. Nevcu-Lemaire, Debeyre and Rouvière.—p. 415.

September 25, No. 53, pp. 421-428

32 *Skull Wounds. (Quelques notes au sujet des plaies pénétrantes du crâne en chirurgie de guerre.) J. Abadie.—p. 421.

33 *Lid Reflex as Test for Deafness. (Note sur l'utilisation du réflexe cochléo-orbiculaire pour la surdité.) F. Gault.—p. 424.

30. **Agglutination in Typhoid and Paratyphoid.**—This article is based on the findings in 226 cases in which the agglutination test was supplemented by testing for saturation of the agglutinins. To avoid error, it is necessary to compare the agglutinating limit for all three bacteria, the typhoid and the paratyphoid A and B. The laboratory findings must be interpreted by the light of the history of the case, stage of the disease and previous vaccination. A single negative response is not decisive. Anomalous findings are explained by mixed infections but even then the serodiagnosis is useful, showing the necessity for supplementary investigation.

31. **Trephining Lateral Ventricle in Meningitis.**—The case reported shows the necessity for relieving the walled-off focus in the ventricle when, after the patient seems to be well on the way to recovery, severe symptoms return with others showing pressure on the brain. The technic for puncture of the lateral ventricle is described in detail; the operation is said to be rapid, easy and seemingly free from danger. Hesitation and abstention are relics of the old exaggerated dread of touching the brain. The earlier the relief is given the better the results. The apparently doomed child was rescued by the trephinopuncture in the frontal portion of the right lateral ventricle. This avoids the superior longitudinal sinus and the anterior branch of the middle meningeal artery. The needle was held slanting downward, inward and backward. It was introduced for about 4 cm. and after 35 c.c. of fluid had escaped, about 15 c.c. of antimeningococcus serum were injected.

32. **Skull Wounds.**—In reviewing his experiences in 127 skull wounds, Abadie mentions that only three of the men required a subsequent operation. His method of early trephining and puncture gives durable results. The number of men with skull wounds reaching the hospital is much larger this year than last. This fact is regarded as testifying to the protection afforded by the metal helmet. Without this more men would have been killed outright. He operates without assistance, except the aid of an automatic retractor, and punctures even the intact dura mater if it is stretched or unduly depressible. Seventeen illustrations accompany the article.

33. **Instructive Reflex in Testing Deafness.**—Gault's experience has convinced him of the functional nature of the trouble in many men apparently irretrievably deafened by a nearby shell explosion. In sifting out these cases he has been impressed with the diagnostic value of excitation of the facial nerve and, especially, of the orbicular muscle of the eyelids. A bicycle horn is blown suddenly 6 feet from the ear while the eyelids are being watched under a magnifying glass. The sudden impression on the auditory nerve elicits a reflex contraction of the orbicularis palpebrarum, impossible to mistake. This cochlea-eyelid reflex thus denotes that the deafness is psychic in nature and hence curable if treated in time and in the proper environment.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 16, XLVI, No. 38, pp. 1185-1216

34 War Injuries of the Visual Apparatus. (Kriegsschädigungen der Sehorgane.) P. Knapp.—p. 1185.

35 The Question of Specialists from the Standpoint of Sickness Insurance. (Zur Spezialistenfrage. Beitrag zur Praxis des schweizerischen Krankenversicherungsgesetzes.) A. Nordmann.—p. 1201.

September 23, No. 39, pp. 1217-1248

36 *Autolysate Treatment of Cancer. (Ueber einige Ergebnisse aus dem Gebiete der Krebsforschung, mit bes. Berücksichtigung der Autolysattherapie.) R. Klinger.—p. 1217.

37 The Campaign against Quackery in Switzerland. (Der Kampf gegen das Kurpfuschertum in der Schweiz.) H. Hunziker.—p. 1230. Translated for Miscellany.

36. **Autolysates in Treatment of Cancer.**—Klinger remarks that the questions of a predisposition to cancer and immunity

have been illuminated to some extent by recent research, especially on mouse tumors. A tendency to be susceptible or to be refractory may be inherited, and experimental cancer research to a large extent is now study of immunity problems. The effort to induce immunity has led to treatment with autolysates, although the phenomena of and bases for the latter differ in many points from immunity processes. The results of Klinger's own research and experience confirm the possibility of influencing the growth of a tumor by injecting certain products of the breaking down of albumin. These autolysates supply the body with ready-made ferments while at the same time exerting a stimulating action on the blood-producing tissues, whipping them up to increased production of the tumor cell-destroying substances. As cancers consist essentially of albuminoid substances, it seems evident that their retrogression and absorption depend on the intensification of certain disintegration processes. No means is known of isolating the different albumin building stones from a mixture of them, but Herzfeld's method of quantitative determination of the bodies reacting to ninhydrin enables us to determine the intensity of the disintegrating power of such a mixture, and to compare different ones with each other. This method provides an objective measure of the "wrecking" efficiency of autolysates used for therapeutic purposes. Autolysates from the various organs of the same animal may have widely differing disintegrating power as is shown by an experiment related.

The process is a chemical one, and the therapeutic results that have been attained with autolysates are encouraging although not brilliant. Quite a number of cases have been reported of complete cures or essential improvement under autolysate treatment of previously inoperable cancers. In Bertrand's case an extensive recurrence of a mammary cancer was completely cured. On suspension of the treatment after several months of the daily injections, the tumor began to grow again. The resumption of growth on suspension of the treatment apparently shows that the cure was not a spontaneous subsidence of the tumor but was actually the work of the treatment. Such brilliant results are exceptional, but even in the only improved cases the inflammatory infiltration may subside and the tumor may cast off necrotic masses, the edges of the ulceration healing over. Cancers bleeding and suppurating profusely may have the bleeding and secretion arrested. The tumor often grows so much smaller that the esophagus or rectum may become permeable once more. Pains caused by the infiltration subside as this retrogresses. In many cases the growth becomes operable after a few weeks of autolysate treatment.

The failures are due to some extent to the use of ineffective extracts. They should have their proteolytic power tested both quantitatively and qualitatively in vitro, and efforts should be made to discover substances which have the strongest proteolytic action on tumor albumin. The action on the tumor is not dependent on any general reaction, and hence solutions should be selected which elicit the fewest by-effects. Klinger regards intravenous injection as the most effectual route. There does not seem to be any danger of anaphylaxis, he says, but sometimes the autolysates seem to lose their power in time. This can be avoided by changing the material. Klinger gives no details of personal clinical experience with the method, but regards it as justifying further trials, associating with it a diet tending to augment the destruction of albumin: restriction to milk and vegetables, copious drinking of diuretic teas, sweat cures, etc. Teilhaber seeks to stimulate and modify the metabolism by sports, massage, change of air, vegetarian diet, etc., with venesection once a year, withdrawing 400 or 500 c.c. of blood. He has had cases in which an inoperable cancer spontaneously retrogressed after an operation accompanied by much loss of blood. Klinger adds that the lesser activity of the metabolism in the elderly is due not so much to reduced assimilation as to sluggish processes throughout. They work less actively and the body is not flushed so thoroughly with its fluids, but more important than all this is the less active functioning of the glands which regulate the metabolism of albumin (thymus, thyroid and sexual glands).

Gazzetta degli Ospedali e delle Cliniche, Milan

September 21, XXXVII, No. 76, pp. 1185-1200

38 Radioscopy of the Liver and Biliary Passages. (Esame radiologico del fegato e delle vie biliari.) M. Pavesi.—p. 1187.

September 24, No. 77, pp. 1201-1216

39 Value of the Electrovibrator in Search for Foreign Bodies. (L'elettro vibratore del Bergonié nella ricerca dei proiettili magnetici.) V. Maragliano.—p. 1201.

40 War Wounds of the Skull. R. Mosti.—p. 1210.

41 The Red Cross and the Military Sanitary Service. E. Villa.—p. 1215.

Policlinico, Rome

September 24, XXIII, No. 39, pp. 1143-1166

42 *Iodoform-Glycerin in Treatment of Tuberculous Pleurisy and Peritonitis. (Il metodo Capparoni nella cura delle pleuriti e peritoniti tubercolari.) C. Antonucci.—p. 1150.

42. **Iodoform-Glycerin in Treatment of Tuberculous Pleurisy and Peritonitis.**—Antonucci has been applying local treatment with a 20 per cent. suspension of iodoform in glycerin and reports satisfactory and even amazing results in some of the twelve cases of pleurisy and seven of peritonitis. All have kept in good health since. The iodoform and the glycerin are sterilized separately; he used from 2 to 4 gm. of the iodoform in 10 to 20 gm. of glycerin restricting the patients to milk at the time. He does not aspirate any effusion that may be present unless compelled by circumstances, and he made only one injection. There was generally a febrile reaction and in some cases albuminuria. One young woman with pains in the abdomen, fever and night sweats for about three months, with ascites, threw off all symptoms after the injection of 4 gm. of iodoform in 20 gm. glycerin. The abdomen seems to be normal and three months afterward the patient was apparently in the best of health, general and local. In one of the peritonitis cases, two injections were given. The fluid was aspirated out in only one case as he does not wish to deprive the body of the antibodies it has been developing. The reabsorption of the fluid acts as a form of autoserotherapy. The outcome was most gratifying in two peritonitis cases given only 2 gm. of iodoform. As the patients recovered they were given a course of heliotherapy or radiotherapy, with tonics, usually arsenic and iodin. He never had any mishaps, but refrains from giving this treatment when heart or kidneys are below par.

Riforma Medica, Naples

XXXII, No. 1, pp. 1-28

43 The Pitch as Element in Stethoscopic Sounds. (Dell rapporto di altezza fra suono inspiratorio ed espiratorio nel respiro vescicolare e nel respiro bronchale fisiologico e patologico.) A. Martiri.—p. 10.

No. 25, pp. 669-696

44 *Bile-Producing Influence of Methyl Salicylate. (Influenza dell' etere metilsalicilico sulla biligenesi.) G. Leone.—p 669.

45 *Pathologic Import of Toe Reflex. (Su di un reflesso particolare e pathologico dell' alluce. Il fenomeno della seconda falange.) P. Boveri.—p. 674.

46 Hypochlorous Acid in Treatment of War Wounds. (Asepsi ed antisepsi in chirurgia di guerra.) N. Giannettasio.—p. 676. Continued.

44. **Influence of Methyl Salicylate on Production of Bile.**—Leone's experimental work on a guinea-pig has apparently established that this drug has the power to increase materially the amounts of bile secreted and of its total solid residue. The bile soon after ingestion or subcutaneous injection of the drug is more fluid, but the osmotic tension and electric conductibility are higher as the total dry residue and ash increase. Six series of experiments at intervals of one or two months were made on the guinea-pig, kept all the time on a constant diet and showing no change in weight. The bile output increased much more, proportionately, after a dose of 1 gm. than after a quarter of this dose.

45. **Toe Reflex.**—Boveri relates that if the patient lies prone, on his stomach, with legs held straight up in the air, feet at right angles to the leg, thus outlining almost a Z, attempts to elicit the Achilles tendon reflex may fail and another reflex may be elicited in its place, the bending of the second phalanx of the big toe. Study of the cases in which this toe reflex occurs shows that it does not occur in the normal or when the Achilles reflex can be elicited. It seems to be restricted to cases of injury of the spinal cord, spinal

nerve roots or sciatic nerve. The men presenting this reflex had been wounded in the spinal roots or sciatic nerve, mostly the latter. The percussion must be applied directly to the Achilles tendon. In cases with complete section of the sciatic nerve this reflex did not occur, and its appearance later was a sign of improvement. It seems to accompany only a partially destructive process. He suggests a theoretical explanation for this reflex, and describes some typical cases in which it occurred.

Semana Medica, Buenos Aires

August 3, XXIII, No. 31, pp. 107-128

47 Climate in Treatment of Tuberculosis in Argentina. (Consideraciones sobre climatoterapia Argentina en la tuberculosis.) P. A. Guerrero.—p. 107.

48 Care of the Newborn of Mothers Still Minors. (La proteccion y asistencia social del recien nacido, hijo de menores, sujetas a la tutela del Ministerio Publico.) U. Fernandez.—p. 111.

49 A Suit for Medical Fees. (Demanda por honorarios medicos. Laudo arbitral.) P. B. Aquino.—p. 114.

Siglo Medico, Madrid

September 16, LXIII, No. 3275, pp. 593-608

50 Hemostatic Action of Emetin. (Sobre la accion hemostatica de las sales solubles de emetina.) F. F. Martinez.—p. 595.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 23, II, No. 13, pp. 1085-1172

51 *Cause of Laxative Action of Whole White Mustard Seed. (Verklaring van de laxeerende werking van witte-mosterdzaad.) E. C. van Leersum.—p. 1085.

52 *Care of Crippled Children. (Zorg voor gebrekkige kinderen.) J. van Assen.—p. 1095.

53 *Tumors from Presence of Spiroptera in Rat Stomachs. (Over worngezwellen in de maag van de rat.) W. F. Wassink.—p. 1108.

54 *Diagnosis of Intestinal Parasites. I. Bak.—p. 1117.

55 *Poisonings in the East Indies. (Vergiftiging in Nederlandsch Indie.) M. D. Horst.—p. 1122.

56 *Case of "Febris Uveo-Parotidea." H. W. Leeksma.—p. 1126.

51. **Mustard Seed as Laxative.**—Van Leersum refers to whole white mustard seed which has long been currently used for a laxative in some countries. He had been investigating its laxative action as a mucilaginous seed when he noted the odor of sulphuretted hydrogen in a vial containing the water in which mustard seed had been placed the day before. The gas bubbles accumulating on the inside of the vial contained more or less sulphuretted hydrogen. Mustard seed is mentioned as a popular laxative by W. Cullen in the eighteenth century. Its efficacy is probably due to this generation of sulphuretted hydrogen and also of carbon dioxid, which stimulate bowel functioning. This explains also the cyanosis in the cases of poisoning from mustard seed. So long as the gas is harmlessly eliminated by the lungs there is no disturbance.

52. **Outlook for Crippled Children.**—Van Assen discusses the condition, treatment and outlook for the seventy-two crippled children in the asylum at Rotterdam. In only nine was the deformity congenital, and in five the result of an accident. The necessity is emphasized for operative and medicomechanical procedures, special arrangements for schooling, and attendants trained in helping cripples. Such a home for crippled children should be located outside of the city. The paralyzed form the main contingent of such cases, and he describes the various orthopedic procedures which he has found most effectual for the different types of deformity. Among the various cases related is one in which epileptic attacks were traced to irritation from the stump after amputation of the upper arm. After excision of the enlarged ends of the severed nerves, the attacks were arrested.

53. **Worm Tumors in the Rat Stomach.**—Wassink has been conducting experimental research on the spiroptera tumors which Fibiger found in the stomach of certain rats, as he reported two years ago (summarized in The Journal, Oct. 3, 1914, p. 1244). Wassink obtained infected cockroaches from Fibiger and succeeded in reproducing the tumors in rats and also in mice. He also found in native rats a parasite very similar to if not identical with that described by Fibiger as the *Spiroptera neoplastica.* The roaches eat the rat droppings and the larvae of the worms get into their muscles. The rats eat the roaches and thus become infested anew. The Holland parasite, however, does not cause production of a large tumor, as does Fibiger's spiroptera from the West Indies. The results of Wassink's research are a complete confirmation of Fibiger's statements, on a large material, over 1,000 Amsterdam rats and 625 taken from ships arriving from the East Indies or South America, besides numbers of roaches from the same localities.

54. **Diagnosis of Intestinal Parasites.**—Bak has been comparing the various methods in vogue for facilitating the discovery of helminth ova in the stools, including Bass' and McNeil's methods. He tabulates the parallel findings with Telemann's and Yaoita's technics, applied to fresh feces and to feces preserved with a 5 per cent. aqueous formaldehyd solution. He says that the Telemann proved simpler and injured the ova less than Yaoita's, while the Bass method takes too much time and alters the ova too much. He applied Telemann's original technic except that he sometimes poured off the ether and filled up with fresh and centrifuged a second time. The various technics all much facilitated the search for ova and encysted parasites. The ten persons examined had all been for a longer or shorter time in the tropics, but were all supposedly healthy. Only one was found free from helminths and only one specimen of stools was examined in this case. One specimen from another person had 145 lamblia cysts and three ankylostoma ova. Bak remarks in conclusion that the improved and facilitated technic for determining the presence of helminths has revealed their unsuspected prevalence in so many persons that we are liable to be led into the error of incriminating them for every morbid condition for which we cannot readily discover any other cause.

55. **Poisonings in the East Indies.**—Horst was at one time physician to the Batavia Petroleum Company and he here relates that poisoning is comparatively frequent among the natives of the East Indies. At nearly every death one hears from some one a hint of foul play. One reason for this, he says, is that many persons have a guilty conscience; another is that the sapping of the vitality by the tropic environment is liable to bring on sudden death in both natives and Europeans. He relates a few cases, including one in which the bursting of an unsuspected liver abscess into the lungs caused symptoms, speedily fatal, resembling those of acute poisoning.

56. **Uveo-Parotid Fever.**—Leeksma adds a fifth to the four cases of this affection on record in accessible literature. Heerfordt called attention to it as a new morbid entity in 1909, swelling of the parotid glands with iridocyclitis, all with a protracted or chronic course for months. In two of his cases there was facial paralysis also on one side. There were no cases of epidemic parotitis in the environment at the time. But in Horst's case there were three cases of mumps in the family developing about a month after the onset of the affection in his patient. It is evident, therefore, he says, that the "febris uveo-parotidea" is merely an atypical form of mumps. That the eye may be affected by the disease is nothing new. Schiess reported a case some time ago of iridocyclitis in actual mumps. Horst calls attention to the fact that in his case the facial paralysis developed on one side after the tumefaction on that side had quite subsided and the other side was swelling. The paralysis therefore could not be ascribed to pressure on the nerve.

Finska Läkaresällskapets Handlingar, Helsingfors

LVIII, No. 8, pp. 1169-1296

57 *Malignant Chorio-Epithelioma. (Till kännedomen om det maligna korionepiteliomet.) O. Engström.—p. 1169.

58 Structure of Connective Tissue. I. (Strukturförhållanden i s. k. myxomatös bindväf.) H. Eklöf.—p. 1203.

59 *Tuberculosis in Sawmill Workers. (En undersökning af tuberkulosens förekomst vid Trävaruaktiebolaget Kemi's sågar.) H. Snellman.—p. 1242.

60 Resection of Congenitally Excessively Large Tongue. (Om den kongenitala makroglossien.) Y. Meurman.—p. 1258.

57. **Malignant Chorio-Epithelioma.**—Engström has previously reported five cases of malignant chorio-epithelioma of the uterus and he here gives the minute details of a sixth

case. There were metastases in the pelvis, liver and left lung, and notwithstanding removal of the uterus and adnexa and part of the pelvic cellular tissue, the woman succumbed four months later. There had been an interval of four years since her last, the fifth, pregnancy. Engström queries whether it is possible for fetal cells to lie latent for four years in the uterus before developing chorio-epithelioma. He cites a number of cases from the literature which apparently confirm the possibility of a long latent period. In McCann's case there was supposed to be an interval of nine years. None of the cases reported, however, stands criticism, so that there is no evidence to date that ectodermal cells can lead a slumbering existence in the uterus or elsewhere in the maternal organism for months or years. Some unsuspected pregnancy, terminating in abortion at such an early stage that it escapes notice, is probably responsible for it.

59. **Tuberculosis Among Sawmill Workers.**—A large sawmill concern in northern Finland commissioned Snellman to investigate conditions in regard to tuberculosis among the employees and their families. He found pulmonary tuberculosis in 3.95 per cent. of the 2,408 persons, and glandular tuberculosis in 2.28 per cent. This total included 1,135 women, and 8.05 per cent. of them presented signs of tuberculosis. The research demonstrated anew the danger from tuberculous older persons in the family. Measles and whooping cough, especially when they occur in the same child, seem to have a predisposing influence for tuberculosis. No decisive influence from dental caries on the incidence of glandular tuberculosis could be detected.

Hygiea, Stockholm

LXXVIII, No. 17, pp. 1281-1392

61 The System and Results of Regular Medical Inspection of Prostitutes at Stockholm. (Till frågan om den sanitära övervakningen av de prostituerade.) U. Müllern-Aspegren.—p. 1281.
62 *Multiple Aneurysms of the Pulmonary Artery with Other Vascular Anomalies in Young Woman. G. D. Wilkens.—p. 1307.
63 Congenital Ocular and Facial Paralysis. (Ett fall av medfödda rörlighetsdefekter inom hjärnnervernas område.) G. Kahlmeter.—p. 1321.

62. **Multiple Aneurysms in the Pulmonary Artery.**—The young woman whose case is described was under observation for six years. She presented a number of uncommon vascular anomalies. Roentgen-ray shadows in the thorax were assumed to be tuberculous foci and necropsy proved that this was the fact for some of them, but others were found to be shadows from distended portions of arteries.

Svenska Läkaresällskapets Handlingar, Stockholm

XLII, No. 3, pp. 647-1480. E. Müller Festskrift. Last indexed May 27, 1916, p. 1752

64 *Torsion and Incarceration of Parovarian Tumor at Seventh Month of Pregnancy. E. Ahlström.—p. 647.
65 *Mercury Stomatitis in Rabbits. (Den experimentella kvicksilverstomatiten hos kaniner.) J. Almkvist.—p. 652.
66 Successful Removal of Otogenous Abscess in Temporal Lobe with Aphasia. N. Arnoldson.—p. 667.
67 Correlation Between Two Variables Determined by Two Superposed Numbered Papers. (Om en ny metod att på grafisk väg borttaga korrelation mellan två variabler.) G. Backman.—p. 673.
68 Physiology of Cell Fission. (Om celldelningens fysiologi.) E. L. Backman.—p. 684.
69 Origin of Congenital Atresia of the Duodenum. H. Berglund.—p. 703.
70 Evolution of the Infraseptal Nasal Gland in Rodents. (Om gnagarnas glandula nasalis infraseptalis och dess utveckling.) I. Broman.—p. 717.
71 Discoverer of Thrush Fungus. (F. T. Berg och prioriteten till torsksvampens upptäckt.) C. Flensburg.—p. 737.
72 *Roentgen-Ray Diagnosis of Bone and Joint Tuberculosis. (Några ord om ben- och ledgångstuberkulosens diagnostik.) G. Forssell.—p. 746.
73 The Descent of the Testicles. (Om könskörtlarnas descensus hos människan.) H. Forssner.—p. 765.
74 Teaching of Anatomy at the University of Lund. (Theatrum anatomicum lundense.) C. M. Fürst.—p. 816.
75 *Congenital Subluxation of the Hip Joint and Its Treatment. P. Haglund.—p. 850.
76 *Microscopic Analysis of the Thymus in Sixteen Cases of Mostly Sudden Death from Internal Causes. (Till vidare belysning av thymusstrukturen vid s. k. thymusdöd.) J. A. Hammar.—p. 867.
77 *Fat Embolism and Diabetic Lipemia. G. Hedren.—p. 933.
78 *Certain Trematodea Infections and Their Importance in the Etiology of Tumors. F. Henschen.—p. 947.
79 Eye Disease in Fishes in Captivity, Probably Traumatic. (Om en ögonåkomma hos hajar och rockor i fångenskap.) S. E. Henschen.—p. 971.
80 Development of the Turtle Lung. (Om sköldpaddslungans utveckling.) C. Hesser.—p. 980.
81 *The Question of Best Treatment of Tracheal Stenosis. G. Holmgren.—p. 1017.
82 Development of Conception of Aphasia. (Historiska notiser i afasiläran.) E. O. Hultgren.—p. 1022.
83 Medicolegal Study of Local Effects of Hanging. (Ett rättsmedicinskt fall: mord eller olyckshandelse, jämte några beräkningar av snarors tryck på halsen vid olika former av hängning.) G. Hultkvist.—p. 1038.
84 Murder or Accidental Throttling in Meshes of Hammock. G. Hultkvist.—p. 1038.
85 Inducing Pneumothorax as Aid in Study of Intrathoracal Tumors; Three Cases. H. C. Jacobæus, E. Lindhagen and E. Key.—p. 1074.
86 Amyloidosis Diagnosed During Life After Puncture of the Spleen. A. Josefson.—p. 1106.
87 Proportionate Size of Different Parts of the Skeleton of Fetuses at Different Stages of Development. (Om storleksförhållandena av vissa skelettdelar från mänskliga foster i olika utveckling.) A. Key-Aberg.—p. 1109.
88 Eventration Through the Diaphragm. A. Lichtenstein.—p. 1116.
89 Shape Assumed by Crystalline Lens During Accommodation. (Till kännedom om linsytornas form vid akkommodation i det mänskliga ögat.) J. W. Nordenson.—p. 1126.
90 Treatment of Stiff Wrist. (Mobilisation av ankyloserade handleder genom resektion och transplantation av bursa præpatellaris.) G. Nyström.—p. 1139.
91 *Toxic Action from Mercury in Treatment of Syphilis. (Några anmärkningar rörande frågan om kvicksilverbehandling mot syfilis — därjämte ett bidrag till den medikamentella kvicksilverförgiftningens klinik.) K. Petren.—p. 1156.
92 The Prehistoric Bones Found in Sussex, 1913. (Om underkäken i Piltdown-fyndet, "Eo-anthropus.") M. Ramström.—p. 1223.
93 The Neuroglia in the Lower Vertebrates. G. Retzius.—p. 1257.
94 Embryonal Arrangement of the Intestines. (Om det normala tarmlägets uppkomst.) T. Rietz.—p. 1273.
95 African Arrow Poison. (Om lulengo.) C. G. Santesson.—p. 1281.
96 White Bile. (Om sammansättningen av den s. k. vita gallan.) J. Sjöqvist.—p. 1293.
97 Variations in Arteries in the Arm. (Till kännedomen om variationerna av armartärerna hos människan.) G. Svensson and P. Wetterdal.—p. 1300.
98 Abdominal Syndromes from Disease of Spinal Roots. (Om radikulära buksyndrom, speciellt motoriska.) G. Söderbergh.—p. 1320.
99 Generalized Myelosis with Tumors in the Skin. J. Tillgren.—p. 1337.
100 Gastric and Duodenal Ulcer from Surgical Standpoint. (Om ulcus chronicum ventriculi et duodeni från kirurgisk synpunkt.) A. Troell.—p. 1343.

64. **Torsion of Parovarian Cyst.**—Ahlström explains the torsion as the result of passage of hard lumps of feces in the rectum, twisting the cyst which had been pushed into the pouch of Douglas by the pregnant uterus.

65. **Mercurial Stomatitis in Rabbits.**—Besides the injury of the mucosa, the mercury and the hydrogen sulphid, infection is necessary before the necrotic stomatitis in rabbits resembles mercurial stomatitis in man.

72. **Diagnosis of Bone and Joint Tuberculosis.**—Forty-nine fine radiograms accompany this article, but Forssell emphasizes that negative Roentgen findings by no means exclude tuberculosis. The chief advantage of Roentgen examination is in cases which are apparently tuberculous but in which some other origin is shown by the rays. A number of instances of this are described, and the special points for differentiation are analyzed as the roentgenograms are compared, especially those showing Köhler's and Schlatter's diseases, dissecting osteochondritis, chronic traumatic arthritis and syphilitic lesions. Future progress in this line will be by minuter persevering study of the roentgenograms in connection with the pathologic anatomic findings and by taking the pictures from more standpoints. Many of the supposed "failures" in Roentgen examination come from our inability to see, and to interpret correctly what we do see.

75. **Congenital Subluxation of the Hip Joint.**—Haglund shows by a number of roentgenograms that congenital subluxation of the hip joint is by no means such a well defined deformity as might be supposed from textbook descriptions. He insists that whenever anything is abnormal in the hip joint it should be given systematic reposition treatment in childhood. Otherwise the mildest form of congenital subluxation may develop into something serious and handicap the patient throughout life. He shows the numerous transi-

tional types between luxation and subluxation and between the latter and normal conditions.

76. **Thymus Not Responsible for Sudden Death.**—This is Hammar's conclusion from the research reported. It confirms in every respect his former statements on the subject. He published two years ago an account of the findings in the thymus in fourteen cases of sudden death from internal causes. The list included one adult; the others were children from 9 days to 6 years old. He has also a report in press on the thymus in twenty-five cases of exophthalmic goiter. The present article gives the microscopic findings and other minute data of the thymus from sixteen children from 3 weeks to 15 months old, his tables and other data filling forty pages. The findings are analyzed and compared with similar data from an equal number of apparently healthy children of about the same ages killed in accidents or dying from other external cause. The thymus in the cases of sudden death from internal causes differed in no respect from the thymus in the healthy children. Not even in the two cases of typical "thymus death" could anything be found to incriminate the thymus. It compared favorably in every respect with the thymus from the accident cases.

77. **Fat Embolism with Diabetic Lipemia.**—Hedren relates that at necropsy of sixty diabetics he found a slight degree of lipemia common, but in three it was very pronounced. Only one of these presented evidences of fat embolism. He reviews the literature on the subject and describes his case in detail. The cadavers with considerable lipemia were those of a boy of 16 and a woman of 24. The kidneys were much degenerated and the pancreas atrophied. It weighed only 29 gm. in the lad (normal 78 gm.), and 31 gm. in the woman (normal 88 gm.). The third case was that of a man of 25 who had had diabetes for two years. He died after a few hours of restlessness and other symptoms suggesting fat embolism in the lungs but there was no coma. Particles of fat were found in the lungs and also in other organs. The possibility of fat embolism with diabetic lipemia is now proved.

78. **Distomum Infection in Connection with Tumors.**—Henschen infected five dogs and three cats with *Opisthorchis felineus*—more generally known as *Distomum felineum*. His research was a continuation of Askanazy's work in this line and was done in his laboratory. Various changes were noted in the walls of the biliary passages and pancreatic duct but nothing to suggest a malignant tumor.

81. **Stenosis of the Trachea.**—Holmgren calls attention to a case in which he dilated the passage by means of a roll of iodoform gauze. The patient was a child who had had diphtheria three years before, and the larynx had become obstructed with a horizontal membrane just below the vocal cords. He had worn a tracheal cannula for some time. The membrane was excised through an incision from the tracheal fistula to the cricoid cartilage. Holmgren had intended dilating the stenosis by the Schmiegelow technic but found that the larynx had atrophied to such an extent that it was impossible to introduce a rubber tube. He had to content himself with introducing a roll of gauze, the silk threads holding it emerging through the tracheal cannula and through the mouth. The threads rendered it easy to replace the roll with a larger one at regular intervals. The roll was about 1.5 cm. long and was changed every two or three days at first and later once a week. The stenosis was thus gradually enlarged until finally a T tube could be introduced, the two arms fitting up and down in the trachea and larynx with the long end projecting through the tracheotomy opening. The larynx gradually recovered its tone and normal size and aspect. The vocal cords were stretched too far apart so he later excised some cicatricial tissue through a laryngofissure, impeding their action, and conditions are still approximately normal, over two years later.

91. **Toxic Action of Mercury in Certain Cases.**—Too large doses in too short a time were evidently responsible for the severe nephritis in three cases reported by Petren. The toxic nature of the kidney trouble was evidenced by the contrast between the normal output of urine and small amount of sediment and the from 4 to 13 per thousand albumin. In both cases the blood pressure was within normal range and the general health but slightly if at all impaired. The nephritis was finally thrown off after about a year. He compares with these cases the clinical symptoms and findings in a case of suicide with mercury. In another case a previously healthy man of 27 was given mercurial treatment once a week for five or six months for recent syphilis, with only two pauses for two weeks. Toward the last, large ulcerating syphilids developed on chest and arms, rebellious to further treatment, until a change was made to salvarsan and potassium iodid when they subsided in a few weeks. Petren further gives the details of three fatal cases of therapeutic mercurial poisoning. The form of mercury used was not known in one of the cases. The symptoms were mainly mercurial tremor, cachexia, mild nephritis and polyneuritis. Cachexia with stomatitis was responsible for the two other deaths. Petren cites further from Swedish literature three cases of fatal colitis following injections of "mercuriol." He expatiates further on the occasional difficulty in distinguishing between symptoms of the syphilis and those for which the mercury is responsible. He is convinced that the polyneuritis was the work of the mercury. The clinical history of six other cases is given in addition to illustrate the difficulties in estimating and treating syphilis causing symptoms on the part of the heart. When there are other signs of syphilis or a positive Wassermann in a patient with symptoms suggesting sclerosis of the coronaries or myocarditis, antisyphilitic treatment should certainly be given a trial.

Ugeskrift for Læger, Copenhagen

September 14, LXXVIII, No. 37, pp. 1571-1608

101 *Ameba Dysentery and Liver Abscess in Denmark. (Et Tilfælde af Amøbe-Dysenteri.) L. Melchior.—p. 1571.
102 *Recurrence of Syphilis Two and Three Years After Abortive Treatment; Two Cases. (To Tilfælde af Recidiv af Syfilis 2¼ og 3 Aar efter Forsøg paa abortive Kur ved Indurationer med negativ Wassermann-Reaktion.) H. Boas.—p. 1579.

101. **Ameba Dysentery in Denmark.**—The necropsy in the case of subacute hemorrhagic enteritis reported revealed ameba dysentery and a solitary abscess in the liver. The necropsy records at Copenhagen for the last nine years list twenty-three cases of blood-borne liver abscess and eleven from gallstone or cancer trouble. The proportion was 1 : 245 necropsies, but there was a single abscess in only three of the cases, and in no instance was ameba dysentery responsible. Melchior gives illustrations of the microscopic findings in his case. The patient was a sailor just returned from South America, and he succumbed in three months after the first symptoms.

102. **Recurrence of Syphilis Two or Three Years After Thorough Abortive Treatment.**—Boas regards the two cases he reports as extremely instructive. The thorough course of one intramuscular and one intravenous injection of salvarsan (0.6 and 0.4 gm.) and fifty inunctions with mercury was commenced at the first sign of trouble—a hard ulcer in the genitals with swelling of glands in the groin on one side. The young men returned for inspection and the Wassermann test once a month during the first year thereafter and on alternate months during the following year. There were no symptoms of the syphilis after the first, and the Wassermann test was constantly negative throughout. After a period of two years and three months in one case and of three years in the second, one young man developed extensive ulcerating papules on the tonsils with syphilids on the trunk and genitals, and the other developed large ulcerating papules on the scalp with spirochetes in the secretion. At this recrudescence of the syphilis there was a faint Wassermann reaction in both.

Reinfection, after all, Boas remarks, is the only scientific proof that the syphilis has been cured, and reinfection in these two cases is out of the question, as he explains. It is discouraging to find that a period of latency lasting for three years after a thorough abortive course of treatment under apparently the most favorable conditions does not afford any certain guarantee that the disease has been cured. He might possibly have warded off the recrudescence if he had kept up intermittent mercurial treatment during the two years following the supposedly successful abortive treatment.

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THE HEALTH EDUCATION OF THE GENERAL PUBLIC *

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The sanitary administrator realizes that there are certain things which the public health authorities must do for the body politic; that there are certain things which the citizenship must do for itself, and that there are certain things which can be done only through the cooperation of the citizenship with the health authorities. In order to accomplish anything in a public health way, it is necessary that the sanitary authorities have the financial and moral support of the citizenship. If the general public is not informed as to the need for personal and public hygiene and sanitation, it is extremely difficult to secure this. These facts have made it increasingly apparent that unless sanitary and hygienic education is brought to the general public the greatest good cannot be attained. As a result we have devoted more and more time to lay public health education, and in many instances this has been carried to a high degree of excellence, but in general it may be said that the work has only just begun, in fact that there is at least thirty years of hard work ahead of us before we will achieve the maximum of results.

Somebody once said that publicity was the handmaiden of sanitation. If this publicity is of the right sort, if it is carried on with a full understanding of mass psychology, it is bound in the end to achieve good results. The chief criticism of the work which has been done in the past is that it has been of too spasmodic a character and the results aimed at were only temporary in their nature. Too much dependence in the past has been placed on the spoken word, and as a result there has been an enormous amount of speech making, too frequently by persons whose zeal exceeded the accuracy of their sanitary information! The spoken word, the mass meeting, has a certain place in public health education, but it should not be forgotten that only those who are really interested in the problem come to hear the lecture. It is easy enough to convince a person who knows that he wants sanitary education. The great problem is to convince the person who does not know that there is a necessity for his being convinced, or who perhaps has made up his mind not to be convinced. In time of grave public danger, as, for example, during a serious epidemic, when everybody wants to know what steps must be taken to stamp out the scourge, the public lecture is an efficient means of rapidly informing a considerable number of people. The good obtained in this way is, in the case of adults, apt to be temporary only, and cannot be relied on as a permanent measure. Even the most convincing speaker is able to convey only a small portion of the lesson in this way and very often it is speedily forgotten by the hearers. There is also the danger that the public, always fickle in such matters, is apt to tire of this continuous stream of speech making and forsake their sanitary leaders altogether. The measure which will bring the greatest good does not lie wholly in the spoken word. What the American people want is more demonstration and less talk in public health work.

Demonstration takes many forms and includes ocular exposition by stereopticon slides and motion picture films. These two methods are very good, particularly in the education of children, but the effects lack permanency to a certain degree. The stereopticon lecture must be accurate. It must be entertaining. The pictures must be good and must each one tell its own story. If the lecturer can so arrange his subject that he makes no reference to the slides whatever, but can have the pictures appear at the time when he is making a given point, the effect will be better. Too many lecturers treat their subject as if they were showing a family album, merely turning the leaves of a lot of disconnected pictures and undertaking to explain what each one is about. The lecture itself should be strong enough to stand without the assistance of the slides and the slides should be good enough to tell their own story without the assistance of the lecture. When these two are carefully dovetailed together there is produced a strong impression on the mind of the audience, an impression which is received both through the ears and through the eyes. This has the advantage that the message in this way reaches the inner consciousness of both ear-minded and eye-minded people.

The stereopticon form of demonstration is relatively cheap. The upkeep is not necessarily high, and when handled by experts brings fairly good results. That there is a demand for this form of public education is shown by the results achieved by the stereopticon loan library of the Public Health Service. This consists of some fifteen thousand slides and is available to any one in the continental United States. Persons desiring to use the library make an application and are loaned an illustrated catalog from which they choose their slides. On the return of the catalog, slides are mailed to them. In the box is a frank for the return of the slides after use. In cases in which it is desired, a lecture is furnished with the slides. The demands on this library are enormous. Not only do sanatoriums and physicians requisition slides, but ministers, Sunday school teachers, social workers, neighborhood organizations, and many individuals who desire to give lectures to small groups of friends. This has been the means in the past year of reaching several million people, and while it is believed that only a small percentage of those who heard the lectures retained a permanent impression, that there was a certain spreading of the gospel of sanitation in this way there is no doubt.

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* Chairman's address, read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Moving picture films have not, on the whole, brought so good results as was expected of them at first. People do not go to a moving picture show to be educated, as a rule. They go for amusement instead, and as a result the moving picture operators throughout the country are more and more shutting out the public health films. The motion picture demonstration has the disadvantage that it reaches people through their eyes only, and the descriptive matter must be written very tersely. This admits of relatively little explanation. The character of the moving picture drama which is most popular would seem to indicate that the motion picture fans are not interested in the saving of life, since invariably there are one or two people killed with every reel. The sanitary scenario, therefore, must be sugar coated; must live up to the traditions of the moving picture stage. This renders the preparation of such playlets extremely difficult, and I am afraid that the cost of production will limit this phase of sanitary education more and more in the future.

It is surprising how much good can be obtained through well-prepared charts. Any one who will study closely the visitors at a public health exhibition will be surprised at the way the public is attracted by a well-made chart. This is not altogether remarkable when it is considered that man is still in the picture writing and reading stage, and the average individual who picks up a new magazine always looks the pictures over first. Charts must be very short and to the point. They must if possible contain a picture or a diagram. They must tell the fact which they are trying to impart in as short and forceful a manner as possible. They must be artistic and the color scheme and arrangement pleasing to the eye.

Well-made models are most excellent, but they are expensive and only those really interested in the subject will take the trouble to come to see them. It is surprising how difficult it is to make a really good model, particularly to make a good model which contains a novel feature. Working models are by far the best, but they are expensive to produce, to operate and to maintain. In every instance the model must be so planned that the person who looks at it cannot receive an impression other than that which it was desired to give. Models which contain a puzzle, which will make people stand in front of them and wonder how they operate, are exceedingly efficient, and I have often wondered why we did not utilize the principles of Mrs. Jarley's wax works more in this connection.

Printer's ink is the great medium of public health education. Intelligent, well-written newspaper articles, prepared after due consideration of the psychology of the average newspaper reader, are of the greatest benefit. It is exceedingly difficult, however, to produce really good newspaper stories which the papers will print and which the public will read. Too much of the public health press agent work of this country is couched in the language of the high school essayist, the point of the story being carefully concealed in the last paragraph. It would be a good idea for the public health curriculum of our universities to afford a course in sanitary newspaper work. Any good newspaper man will tell you that the gist of the story must be in the first few lines and that this must be written in such a way as to tempt the reader to continue through the article. Once his interest has been attracted, he will read through a considerable amount of explanatory matter.

Newspaper articles must be written with an absolute absence of medical terms. They must be good sense. They must be convincing and they must tell a story. It is exceedingly easy to get the newspapers to print news, but it is equally hard to secure the publication of views. Editorial utterances may be read by a certain percentage of the newspaper reading public, but what the average citizen is interested in is found in the news columns. If, however, a single sanitary fact can be crystallized into a single pointed paragraph, much better a single sentence, it will be printed. It has been found that much better results can be obtained when the editor is notified that credit need not be given for the article. After all it is not the health authority or his department that is to be impressed on the public mind, but the single fact which it is desired to teach. Special articles in magazines are of great value. They invariably require illustration, a thing which is not always easy.

The use of printer's ink in the publication of special bulletins is another valuable means of public education, provided the bulletin can be made to reach the citizen. This is not so easy as it sounds. Recently several magazines and newspapers have undertaken to distribute free of cost health bulletins to those of their readers who made application for them. This is an excellent idea. It tells the reader in the first place where he can get a certain bulletin. This is of educational value in itself. And second, it makes him want the bulletin enough to write for it. This insures to a certain extent that the bulletin will not be destroyed until it has been read. In the preparation of these bulletins, it should be borne in mind that what the public wants in them is not glittering generalities, but service. The bulletin must be accurate, readable, well illustrated and well printed. A cheap, shoddy-looking bulletin discounts the effect of the matter which it contains.

The demonstration, however, which is of the greatest value is that which shows to the general public just what can be accomplished by sanitation. The health officer who attacks a certain situation in his town and shows to the people what can be done through the application of scientific principles has produced an effect which is lasting in character. The people of New Orleans, for example, have learned once and for all the lesson of the conquest of yellow fever. The citizen of San Francisco is well informed as to bubonic plague, while the campaign against typhoid in Martinsburg has exerted a permanent effect on community life in that city. What we need is a greater number of demonstrations of this sort. The creation of model counties, the up-building of sanitary towns, the increase in civic pride which comes after sanitary rehabilitation, is such that it is not forgotten speedily. The public health nurse is of the greatest value in this connection. She is the connecting link between the shop and the home, the entering wedge of the haven of good health. Hitherto she has been most used in metropolitan districts, but her field of usefulness in the country will be even greater in the future.

The great sanitary hope of the future, however, lies in the health education of the child of today. It is true that the child can be more easily reached through the spoken word than can the adult; that the effect of stereopticon lectures and motion picture demonstrations is more lasting; that the sanitary and hygienic instruction received in the course of the curriculum will do much to make the child of today the sanitary, clean-lived citizen of tomorrow, but, as with the adult, the child must have an ocular demonstration of cause and effect in the prevention of disease and the up-building of health. This must begin with the kindergarten and extend through the graded school, the high school and the college. The subject must not be thrust to one side, used as a stop-gap to fill in a few idle moments. It must assume a place in the educational scheme equal to that now occupied by the three R's; if this is done, and done well, we will build a nation of strong, health-loving people, whose daily life is governed by a working sanitary conscience.

Throughout this address the use of the word publicity has been scrupulously avoided, because to the average mind the word publicity means newspaper exploitation. In the proper sense of the word publicity is the great aim of the public health education of the general public. We, as the sanitary profession, are much in the position of the manufacturer who has a certain article which he desires to market. He must first produce the article. He must be certain that it is a good article, and having arrived at this conviction he must create the demand for it by making the general public share his belief in its worth. We know what we can do in public health work. The general public does not know how much good can be done them. The task which lies before us is to so educate them that they will realize the good which can and will come from the observance of the laws of health. We must create in them a demand for public and personal hygiene, and if, through every medium, we keep this constantly before their eyes, hygiene and sanitation will become household words and rules of action. We would do well to study the methods which have been used in popularizing manufactured articles and to change the plan just enough so that it may better fit this important work which lies before us.

The American Medical Association has already accomplished much in this field. It must do more. It must further the cause of public health education, not only of the lay public, but of the profession as well. It must be a coordinating center of the volunteer educational efforts in order that the work may have a scientific, wholesome basis. We must harmonize and extend the movement. We must move forward with high ideals as the goal. It is suggested that this section take steps to bring to the attention of the Association the necessity for a public health exhibition in connection with our annual meeting, so that we may thereby leave the definite impress of our visit in the tangible form of better health and cleaner living. Ours is a great work. Its opportunities are as vast as the distribution of the human race; and if we but grasp those which are nearest to us, our lives shall not have been in vain. May the deliberations of this section hearten and inspire us for the task which waits us.

An Early Master.—I repeat then once more: a special germ, proper to each contagion, gives rise to each contagious disease. Epidemic scourges are only engendered or disseminated by their reproductive germs. In all ages, every tongue has spoken it.—Bretonneau, 1855.

THE NONSPECIFIC AND THE SPECIFIC DEFENSE OF THE CHILD AGAINST THE TUBERCLE BACILLUS *

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Soon after birth children begin their contact with infectious bacteria. That they do not succumb to their attacks is due to a certain protective mechanism with which the child is endowed, whereby bacteria are destroyed.

Whether or not a given inoculation will be overcome, and the child go free from infection, or whether the bacteria will gain a footing in the tissues, multiply and produce their specific disease, depends on the efficiency of this natural defense. Sometimes the protection may be insufficient and may fail because of impairment of the defensive mechanism. If we did but realize the universal presence of pathogenic bacteria and the innumerable inoculations which take place in the tiny infant, we would have great respect for this protective mechanism with which the child is endowed.

In the first place, there are few portals of entry for bacteria. The skin offers an almost impenetrable barrier. The main avenues through which inoculation takes place are the nose and mouth, the bacteria entering the body along with air, food and drink. When bacteria enter through either of these portals they come in contact with secretions which possess bactericidal properties, and meet a mucous membrane which is not easily penetrated when healthy. There are also arranged here and there, at points of vantage, masses of lymphoid tissue, the cells of which are so arranged that the bacteria are more or less easily deposited within them. This lymphoid tissue contains the lymphatic elements, which have defensive properties in abundance; in fact, lymphocytes are formed within it. Should bacteria pass through the mucous membranes, or make their way beyond the lymphoid tissue, they are met by what might be termed an internal defense. Here they come in contact with the lymph and various body cells which have defensive properties. The protective elements are found both in the fluids and in the cells. While the leukocytes possess protective properties to the greatest degree, yet other cells have a part in the natural defense.

I desire particularly to call attention to the protective influence of the lymphatic system during these early years. If bacteria pass through the masses of lymphoid tissue, such as those in the throat or vault of the pharynx or those in the intestinal tract; or if they pass through the mucous membranes, they find their course by way of the lymph channels which drain that portion of the mucous membrane or those masses of lymphoid tissue through which the bacteria have passed to the lymphatic glands.

Lymphatic glands are the seat of leukocyte production. They are rich in lymph, consequently afford ideal conditions for destroying the invading bacteria. The importance of the cervical glands in screening out and destroying bacteria can be readily appreciated. Children of the poor, who live under bad hygienic conditions and suffer injury to their mucous membranes; who, because of their method of living, possess lowered resisting powers; and who, further, on account of the bad hygienic conditions which surround them, are subjected to more or less constant inoculations of large quantities of bacteria, suffer almost universally from enlargement of the lymphatic glands which drain the nose and mouth. This enlargement of the lymphatic glands is evidence of frequent and massive inoculations.

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At the same time that we find enlargements of these lymphatic glands we commonly find enlarged tonsils and adenoids present. This enlargement of the lymphoid tissue is to be looked on as a reaction produced by the irritation of the bacteria. When we find an enlarged cervical gland and a corresponding enlarged tonsil, it does not mean that the tonsil is the cause of the enlarged cervical gland; consequently, immediate removal of the tonsil is not necessarily called for. It rather points to the fact that the tonsil was not able to destroy the invading bacteria, and that they have gained entrance in such large numbers that, in spite of its presence and its protective function, they have escaped through the tonsil and found their way to the gland, causing its enlargement. Neither does the enlargement of these cervical glands call for their removal. Very often the institution of better hygienic conditions results in improvement in the physical condition of the patient. In this event the child may overcome the infection and the gland may gradually return to its normal condition.

The importance of these glands is illustrated not only in the cervical group, but in the mediastinal group. The mediastinal group of glands bears the brunt of drainage in infections of the respiratory tract. In acute bronchitis, likewise in the bronchitis which accompanies whooping cough, measles, scarlet fever and smallpox, the bacteria often penetrate the walls of the bronchial mucous membrane and are strained out in the peribronchial and peritracheal lymphatic glands, sometimes producing enlargement to such a degree as to cause severe symptoms.

The enlargement of lymphatic glands in tuberculous infection in the child is well known. The enlargement of the glands of the neck when bacilli pass through the upper air passages, of the mediastinal glands when they pass through the mucous membranes of the bronchi, and of the mesenteric glands when they pass through the intestinal mucous membrane are all examples of infection; but, at the same time, these enlargements of the glands are visible evidence of a protective mechanism. In no tissue of the body are the natural defensive powers greater than in the lymphatic glands. The lymphatic structures are peculiarly active in childhood and gradually degenerate as age comes on. They are not so necessary after specific cellular defense against the various bacteria has been developed. It is significant that nature has so arranged it that the battle between the invading organisms and the child shall be fought in these structures prior to the time that a specific cellular defense has been developed.

I particularly wish to emphasize the importance of these lymphatic structures and this protective mechanism because of the tendency which is all too common today of ruthlessly sacrificing lymphatic structures in the throat and vault of the pharnyx, without giving due consideration to their importance.

I am aware of the fact that tonsils and adenoids must often be removed; but I believe that the tonsillar and adenoid tissue, unless it is producing distinctly harmful effects, should be left in situ until the child has grown sufficiently old to have come in contact with pathogenic bacteria in sufficient numbers to have developed a specific cellular defense against them. After this, the protection offered by the lymphatic structures is still important, but not so essential as during the earlier period of life.

The tonsil is also in great danger today because of the recent discovery of its importance as a focus of infection from which streptococcal metastases spread throughout the body, causing such affections as valvular heart lesions, chorea, and so-called rheumatism.

The teaching has gone forth that if we discover the primary focus of infection in a tonsil, and remove it, this will influence the metastases. I can see no reason for this being true. I can see, however, why the original focus should be removed to prevent further metastases and to relieve toxemia.

It seems quite evident that the lymphoid tissue gradually loses its protective importance. This occurs as the patient develops specific cellular defense against the organisms which are taken into the body; but, until this has occurred, such lymphatic structures as are found in the mouth and upper air passages should be preserved, if possible, in order to carry out their defensive function.

I also realize the manner in which these structures, when enlarged, produce injury to the ear, interfere with nasal drainage and favor infection of the upper air passages. I know that they will, at times, also produce cough and bronchitis; but I am fully convinced that many of the coughs and persistent attacks of bronchitis for which operations on tonsils and adenoids are done are due to enlarged bronchial glands, which are not removable, and to thickening of the bronchial wall, which have resulted from infections of these structures. Persistent colds of the nature of bronchitis call for a more extensive investigation than that of the upper air passages. Not only the tonsils and adenoids should be thought of, but peribronchial thickening and enlargement of the mediastinal glands, as well.

The importance of the lymphatic tissue, as emphasized in the discussion which I have given thus far, applies to bacteria in general, but with special emphasis to infections by the tubercle bacillus.

Tuberculosis is primarily a disease of the lymphatic glands. When the tubercle bacillus passes through the mucous membranes, prior to the time that infection has taken place, it finds itself in the lymph channels and is carried to the lymphatic gland which lies in the course of the lymph stream. There is no specific antagonism between the tissues through which it passes and the bacillus itself. No such specific inflammatory reaction takes places as is noted in later years. To be sure, many bacilli are destroyed by the bactericidal action of the lymph, but some will escape and find their way to the lymphatic glands. Those glands which are so placed in the path of drainage that they receive frequent inoculations of bacilli, now and then, find themselves unable to destroy the number which enter them, and become the seat of infection. Such infections may soon be overcome by the natural defensive properties of the lymph. If they are not, however, the bacilli multiply and produce a larger focus. As a result of this infection, toxic products are thrown out into the lymph stream, and are carried throughout the body. They find themselves, as Vaughan suggests, deposited in the tissues. Here they call on the cells to destroy them. As a result of this demand, a new function is awakened in the cells—that of destroying tubercle bacilli and their products. After the cells have developed this property and taken on themselves a specific antibacillary defense, if bacilli become enmeshed in the tissues an inflammatory reaction occurs between them and the tissue cells, which is entirely different from the phenomena which appear prior to the time that infection has taken place. Prior to the time of infection the leukocytes and the body cells, as well as the plasma and lymph, act on the bacilli and destroy them. After infection, while the body cells and fluids still possess their nonspecific defensive properties, a specific defense is acquired by the fixed cells. Prior to the time of infection, if bacilli pass the mucous membranes and escape the antibacillary action of the lymph elements, they are carried directly to the lymphatic glands; after infection, on the other hand, they are retained in the tissues at the site of entrance and a specific inflammatory reaction is set up. Now the struggle for existence on the part of the tubercle bacillus and for its destruction by the tissue cells is fought out at the point of invasion; consequently, primary tuberculosis and metastatic, or superimposed tuberculosis, are entirely different processes. The protection is different. In one it is entirely nonspecific, depending almost wholly on the lymphatic elements. In the other it is both nonspecific and specific, depending not only on the lymph elements, but probably more on the acquired defensive properties of the fixed cells of the tissues to produce specific proteolytic ferments for the destruction of the bacillus.

In the child tubercle bacilli are often found in tonsils and adenoids. This does not mean that the tonsil and adenoid must be looked on as being sources of danger to the child. On the contrary, we must look on them as being masses of lymphatic tissue placed in these exposed regions where bacilli are apt to penetrate the mucous membranes, so that they may exert their protective influence in the destruction of such micro-organisms. The finding of bacilli in these structures means that they are passing through them and so far have not been destroyed. The finding of bacilli in the lymphatic glands which receive drainage from the tonsil and adenoid tissue shows that the latter have failed in the destruction of the bacilli, and that the micro-organisms have made their way into the deeper structures in spite of the fact that masses of lymphoid tissue have been interposed to destroy them.

The probabilities are that specific cellular defense is more active immediately following infection and during the time that the focus is active than it is some time after the infection has healed. This supposition is in accordance with clinical observation in tuberculosis. After the infection has occurred, except when the inoculation is a very large and very virulent one and the child's vitality is low, the patient is protected, for a time, from the occurrence of metastases. But after years pass by the number of metastases increase; and, by the time the second decade has been reached, we find tuberculosis spreading from these original foci and producing clinical tuberculosis in a large percentage of cases. This metastatic tuberculosis, however, differs greatly from primary tuberculosis. It shows a predilection for tissue other than glandular and assumes a chronic character even in these other structures. If, on the other hand, the bacilli are not retained in the glands of the little child prior to the time that infection has occurred with resultant specific cellular defense, acute tuberculosis will occur. The child at this period shows very little tendency to chronicity or to healing if the infection escapes from the lymphatic glands. It is not until the cells have taken on themselves this specific property of defending the body against the bacillus that we find chronic tuberculosis present. But when this has developed, unless the secondary metastases are caused by too many bacilli, the resultant infection is, as a rule, mild in character. The bacilli do not find the soil congenial for multiplication; consequently, their growth is interfered with, and the disease takes a chronic course.

SUMMARY

1. Immediately following birth the child is protected by a nonspecific cellular and humoral defense.

2. After coming in contact with tubercle bacilli, the fixed cells take on themselves a new property, that of producing specific proteolytic enzymes, whose function it is to destroy tubercle bacilli and their products.

3. The nonspecific defense is carried on largely by the lymphatic system, collections of lymphatic tissue, such as tonsils, adenoids and Peyer's patches being placed here and there where bacteria are likely to gain entrance to the tissues, so that bacteria may be taken up by them and destroyed.

4. When bacilli pass through the mucous membranes or these masses of lymphoid tissue, prior to the time that infection has occurred, they are carried directly to the lymphatic glands, in which they are destroyed or held captive. If they withstand the action of the lymph elements, they form a tuberculous focus.

5. Practically all tuberculosis, prior to the time that specific defense is created, is confined to the lymphatic glands; the exception being when large numbers of bacilli are taken into the body and find their way directly into the blood stream, by which they are scattered through the body, producing generalized tuberculosis.

6. After specific defense has been established, bacilli no longer pass readily through tissues, but are hindered by the fixed cells. A specific inflammatory reaction ensues, and the bacilli are either destroyed, or, if not destroyed, prevented temporarily, or wholly, from spreading.

7. This defensive inflammation results at times in a stimulation of fixed cells and increased fibrosis, producing encapsulation; at other times, necrosis followed by ulceration and the expulsion of the tuberculous mass.

8. The lymphatic structures are extremely important in their protective rôle prior to the time that specific cellular defense has been attained; consequently, tonsils and adenoids should be spared to the small child, unless indications for their removal are absolute.

ABSTRACT OF DISCUSSION

DR. JOHN RITTER, Chicago: I am pleased to see this attempt to stop the promiscuous removal of tonsils. The tonsils proper and the lymphoid tissue all around, in fact, the whole Waldeyer ring, are really infantile organs and bodies, and they disappear about the fifteenth year, or about puberty, when they have fulfilled their purpose. As Dr. Pottenger has told us, this lymph tissue at the entrance stops the bacilli from infecting the body of the child. In the child we have chiefly tuberculosis of the glands but the bacilli usually do not pass very far from the glands of the mouth. When we have tuberculosis passing on into the bronchial glands, then we know that undoubtedly some of those bacilli have passed through the trachea into a bronchus and have pressed onward into the lung proper or into the mediastinal glands. This is the type of tuberculosis peculiar to children. I am emphasizing once more the need for care in diagnosing pulmonary tuberculosis in children. Pulmonary tuberculosis is much more fatal in childhood and much more acute than in the adult. We see very little pulmonary but a great deal of bronchial gland tuberculosis in children. The thing for us to do is to emphasize particularly the guarding of the entrance of the throat and to save the tonsils and to spare this guarding lymphoid tissue as long as we can. When a tonsil is diseased, full of openings and crypts, then bacilli may get in and be held there and cause disease; still they should be treated and taken care of, and should not be removed until absolutely necessary. In a great many cases where the tonsil has been removed, four, five or six months afterward we find active pulmonary tuberculosis. We may cause activation of an old process or the favoring of a latent into an active process by lowering of body resistance.

Dr. John Zahorsky, St. Louis: We must recognize in children a physiologic process of acquiring immunity to all pathogenic germs. The tonsils make the child immune to a great variety of infections. Infections of the nose, throat and glands are very common in young children. After they get to the age of 8 or 9 they are less susceptible—they are able to resist the infection. A very young baby has to go through all sorts of reactions to become immune. The tonsils are the first line of defense. If you remove much of the Waldeyer ring you have a greater susceptibility of the deep structures, particularly the lungs. In the case of a young child suffering from large tonsils and repeated sore throat, if the tonsils are removed, afterward he would have bronchitis and bronchopneumonia rather than tonsillitis. We must conserve Waldeyer's ring. We must learn to treat the tonsil, not remove it. If infected with pus, get the pus out, but do not remove the tonsils if it can be avoided. The young child needs its tonsils. The pediatrists should say whether or not they should be removed.

Dr. J. I. Durand, Seattle: The tonsil is a lymphatic gland which through some developmental fault has been opened to the exterior instead of being covered as all other glands are. The original tonsil must have been submerged. In the present condition the tonsil is wide open, in a position to be infected readily. Every crypt in the tonsil may become a culture tube in which bacteria and toxins are elaborated, to threaten the organism. I do not believe in taking out all tonsils, but it is often difficult to tell when they should be removed and when not. I am inclined to think we err too often in not taking them out. The tonsil is undoubtedly one of the organs of defense, but it seems to me that a perfectly smooth wall of scar tissue is a better defense against infection than a wide open gland such as the tonsil. Again does our clinical experience carry out this idea that the tonsil is put there to be a perpetual source of vaccination and bring immunity in that way. Do we not see less infection in children who have had the tonsils removed? Is it not our experience that the general resistance of the child is increased after removal of the tonsils? If the tonsil is simply a lymphatic furnishing the first wall of defense against infection, why are not the bronchial glands just as good?

Dr. St. George T. Grinnan, Richmond, Va.: In Richmond there are about 40,000 negroes. We have a negro dispensary there, and I do not think I have ever seen more than one or two cases of tonsillitis in young negroes over 6 or 8 years old. There is a large percentage of tuberculosis of the lungs. Some time ago I saw a young negro with a temperature of 104 F. He had extremely extensive tuberculosis of the lungs. There was another child about 3 years of age. I asked the mother if the other child was sick, and she said "No." I took its temperature and it was 104 F. She died first. We have much tonsillitis there among the white people. It is rare to find tuberculosis of the lungs among the younger white children. A large number have glandular tuberculosis, particularly at the angle of the jaw and the cervical glands.

Dr. F. P. Gengenbach, Denver: I would like to ask Dr. Pottenger how much importance he attaches to the persistent enlargement of the anterior cervical glands? I appreciate that we cannot always tell by the appearance of the tonsils whether they should come out, but I do consider the persistent enlargement of the cervical glands of importance. I also want to ask as to the value of removal of the tonsils in cases of tuberculous adenitis.

Dr. C. G. Kerley, New York: Dr. Pottenger is rather lenient with a diseased tonsil. A tonsil that is capable of harboring tubercle bacilli or any other bacteria should to my mind be removed, regardless of the age of the patient. I prefer that tonsils be not removed in very young children if it can be avoided with safety to the patient for the reason that the results of enucleation of the tonsils in the very young have not always been brilliant in my patients. The tonsil performs a function in the development of the throat. I have seen adhesions of the pillars and deformities result when early tonsillectomy had been performed. A point regarding adenoids and the presence of diseased tonsils is frequently overlooked. In diphtheria, measles, scarlet fever and influenza, they furnish a favorable culture field for infection which we always have in the throat. It is the child with adenoids and diseased tonsils who gives us our cases of acute otitis, mastoid diseases and sinus thrombosis, therefore as a prophylactic measure, enucleation of diseased tonsils and adenoids is to be advised regardless of their effects in other ways. I have never seen a case of tuberculous adenitis in a child whose tonsils were properly removed. I refer, of course, to complete removal of the tonsil and capsule.

Dr. F. M. Pottenger, Los Angeles: Dr. Kerley states that when a tonsil has been properly removed he has never seen a case of tuberculous adenitis in the cervical glands which receive drainage from that organ. I look on the infection of a gland where the bacilli have passed through the tonsil as indicating that the bacilli have simply passed through the first line of defense and taken the second trenches. It does not mean that the tonsil is a factor in causing the infection, but that, in spite of the tonsil, bacilli have been able to break through to the glands. I agree with Dr. Kerley absolutely in his attitude toward tonsils which are definitely diseased. They must be removed unless the focus can be removed otherwise. Answering Dr. Gengenbach's question, if I had a patient with persistent enlarged glands which were giving out bacteria into the deep structures and producing metastatic infection, the infection would have to be relieved or the gland removed. The principal defense of the child at birth is in the lymphoid structures which manufacture lymphocytes; but, as he gradually comes in contact with various bacteria, he immunizes himself. He builds up a specific power in his cells to overcome bacteria. The lymphatic structures manufacture leukocytes and are the greatest protective factors during this early period when the specific defense is absent, and we ought not ruthlessly sacrifice them. We ought to give the child this protection as long as necessary. It has been mentioned that the tonsils are open glands, and, from their structure they are apt to be infected, and consequently are sources of danger. What about Peyer's patches? We do not take them out, yet they are open glands. It is possible that these glands are furnished with crypts that they may take in bacteria more readily; because there is no place in the body of the little child where bacteria can be destroyed so readily as in these lymphatic structures. They become infected; but, as a rule, they do not become seriously infected until the time when they are no longer necessary to the defense of the child. Their period of greatest activity is when the child needs it most. After the child has come in contact with the various infectious bacteria and built up his specific defense, the lymphatic tissue becomes less important and atrophies. The point that I wish to emphasize is, if possible, the child should be given advantage of the natural protection furnished by the lymphoid tissue, until specific defense has been attained. If the tonsils and adenoids become infected and become sources of metastatic infection they must be removed. If they make pressure and threaten injury to the ear, or interfere with nasal drainage, it may be necessary to remove them, but they should not be removed in the small child without cause. I would not remove the tonsils in case of tuberculous cervical adenitis. We rarely see tuberculosis of the tonsil, and when we do it is usually an accompaniment of an advanced generalized tuberculosis. When tonsillar tissue shall be removed it is a subject that requires judgment. Each case should be considered by itself; but the rule should be to give the child the benefit of this protection until he is able to build up the specific cellular defense which protects him in later life.

THE USE OF BOILED MILK IN INFANT FEEDING AND ELSEWHERE *

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In our progress upward, whether in religion, in economics or in the science and art of infant feeding, we advance by epochs, and often the gospel of one epoch becomes the heresy of the next, only to become again the gospel in the light of some newer truth. In the first flush of bacteriologic activity, the idea that infantile diarrheas were infectious and that milk carried pathogenic micro-organisms naturally led to sterilization of the baby's milk by heating it. Then scurvy intruded itself, and pasteurization at lower heat, yet high and long enough to destroy pathogenic germs while influencing the milk less, took its place. But pasteurization was still held as only less objectionable, and for the same reasons, than sterilization, and offered serious technical difficulties. There naturally followed a demand for a milk clean and fresh and nearly enough germ free to be safe without heating. By analogy with human milk, too, raw cow's milk seemed obviously preferable and became our standard.

Increased experience with boiled milk, especially by those who had long used raw milk, led to the growing conviction that boiled milk is more easily digested by the dyspeptic infant and hence by the well infant, than is raw milk, that it is not accompanied in any serious measure by the dangers that had been attributed to it and that it is obviously safer from an infectious standpoint than any raw milk could possibly be. It was then shown that raw milk and boiled milk were not identical physiologically, and that this difference probably explained the unequal digestibility of the two milks. And so today, if one may read the times aright by the literature and the practice of an increasing number of pediatrists, we have entered on an epoch in which boiled milk is looked on with favor for both physiologic and bacteriologic reasons. In all of these years Jacobi alone has always used boiled milk.

There has naturally grown up in this country a strange transitional medley of ideas of different men who follow these changes with an unequal pace, much to the amusement and often unconcealed disgust of the nonpediatric physician, who sees in our progress only a change from one idea to another. Our textbooks nearly all favor raw milk, if pure. The literature is increasingly more favorable toward boiled milk. The newspaper and magazine writers, who have become a tremendous factor in popular education, get their inspiration from standard textbooks and dwell on the evils of boiled milk and the dangers of raw milk, and advocate pasteurized milk as a popular measure. Boards of health, city councils and philanthropists keep the same pace, and the poor mother who reads the popular treatises on the baby and the newspaper and magazine articles that seem so authoritative is amazed at the physician who tells her to boil the baby's milk, and especially so if she has already provided herself with certified milk! In European countries, like Germany and France, on the other hand, milk is boiled with hardly a thought of raw milk as a safe infant food.

The ultimate test of any therapeutic measure in infant feeding is the baby himself, the living, clinical, digesting baby, that often laughs at our theories and weeps over our science. The question of whether boiled milk has any overweighing superiority over raw milk, or vice versa, cannot be determined by such didactic considerations as the fact that raw milk teems with bacteria, while boiled milk is relatively sterile; that one is a living, the other a dead food; that one undergoes many changes in the process of heating, while the other undergoes a few less in the process of keeping; that one coagulates in the stomach in large, hard curds, and the other forms fine, soft curds; nor yet by the sum total of all of these considerations. The baby in his own little way decides which is the better of these two poor substitutes for his natural food, and leaves it to us to find the explanation. Empiricism comes first and science follows with an explanation. It is for that reason that, in the science and art of infant feeding, art is long and science short.

With this thought ever in mind, our subject naturally unfolds itself under four heads:

1. Does raw milk offer advantages over boiled milk?
2. Does boiled milk offer advantages over raw milk?
3. Does pasteurization solve the problem?
4. Does certified milk solve the problem?

The obvious argument in favor of raw milk is a priori that human milk is raw. And yet the objection intrudes itself that cow's milk is not human milk, any more than raw corn and oats, the natural food of the older calf, are the natural food of the child. What scientist shall tell us that, per se, cow's milk becomes practically any more unnatural because it is heated, or that heating imparts to it a greater degree of unnaturalness than does prolonged refrigeration, the development of a host of bacteria, the unavoidable chemical change that takes place in kept raw milk, or the addition of barley water or sodium citrate, all of which are so foreign to the baby's natural food, which flows warm and sterile and immediately into its mouth from its mother's breast? The baby alone can tell us which is the more unnatural.

Raw milk again contains ferments, vital principles, vitamins, or what not, the destruction of which is said to injure the milk in some vital particular. And yet here we enter on hazy territory. Are those of one species as vital in another species as in their own, as we know, for example, that the antitoxins and antibodies of milk are specific? Or do they retain their properties under the conditions that are inseparable from an unnatural and nonspecific food in a sufficient degree to offset other advantages that might come from heating the food, for example? Or is there tangible evidence, either experimentally or as shown in the reaction of the baby, that boiling for a short time destroys these properties in a sufficient degree to constitute a noteworthy menace? Those of us who have used raw milk for years, and then milk boiled for from two to five minutes for an equal number of years have been able to make out no difference that could be attributed to an absence of such vital principles. Nor do European clinicians, notably the French and Germans, who use boiled milk almost exclusively, report any unfavorable effects as compared with our own clinicians who use raw milk.

The only seeming exception to this is scurvy, to which ultimately all our discussions along this line revert. Not so much that scurvy is legitimately adduced as an argument against boiled milk, as that it is always mentioned in that connection, and has

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

thereby assumed the rôle of an argument to the superficial reader. The discussion of scurvy has furthermore become so inseparable from the report in 1898 of the committee of the American Pediatric Society, appointed to investigate infantile scurvy in America,[1] that that report has gradually been given an unintended and unwelcome prominence in support of the idea that boiled milk is seriously scorbutic. This report for its comprehensiveness, for its interpretation of difficult data, for its finality up to the present time, and for the fairness and even mildness of its conclusions, to quote Morse,[1] should stand as a model for those who glibly hark back to it as an argument against boiled milk. The final statement of this committee deserves to be quoted in full in this connection, as follows:

> The conclusions to be drawn from this combined study of etiology and treatment seem justifiable only to the following extent:
>
> 1. That the development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child, and that often a change of diet, which at first thought would seem to be unsuitable, may be followed by prompt recovery.
>
> 2. That in spite of this fact regarding individual cases, the combined report of collected cases makes it probable that in these there were certain forms of diet which were particularly prone to be followed by the development of scurvy. First in point of numbers here are to be mentioned the various proprietary foods.
>
> 3. We find that in general the cases reported seem to indicate that the farther a food is removed in character from the natural food of a child, the more likely is its use to be followed by the development of scurvy.

One of the committee of five begged to be excused from subscribing to the report, because of "lack of opportunity to study the report requisite for a subject of so great importance." Another member handed in a minority report containing the clause: "Sterilizing, pasteurizing or cooking of milk food is not per se responsible for the scurvy condition." In the discussion that followed there was considerable opposition, led by Christopher, against publishing any "conclusions" whatever. In the intervening eighteen years we would have honored this report more by pointing out fallacies than by permitting it to be given the rôle of an argument against boiled milk as a noteworthy factor in the production of scurvy. And yet no single decisive addition has been made to it, only added emphasis on certain phases, such as the importance of the individual, the rôle of the canned food, the possibility of an infectious nature, etc., leaving the specific agent, even whether active or passive, yet to be determined.

It is a strange trait of human nature, to which the pediatrician is no exception, that we highly respect our own views and pay little attention to what others equally qualified have found in other lands and with other languages. Reports from France and Germany, where boiled milk is used almost exclusively, seem to indicate that they have less scurvy than we. The incidence of scurvy with us is of course not due to the use of raw milk, nor yet of boiled or of pasteurized milk, but in all probability to the widespread use of certain proprietary foods. This does not affect, however, the reports of French observers like Budin, Variot, Anderodias, and others, who tell us that they have fed thousands of babies for long periods of time on milk boiled not five minutes or less, but even thirty or forty minutes, without producing a single case of scurvy. To say that these reports date back to a time when scurvy was not recognized, as if scurvy could possibly fail to be recognized by any pediatrician who is looking for it, hardly seems justifiable. Thus in 1910 Anderodias[2] made the following statement in favor of sterilized milk, which is significant in this connection, as well as in its strange provincialism: "In the consultations for nurselings in which we feed sterilized milk, as in those of Budin, Variot, and Maygrier, one has yet to see an infant with scurvy, while abroad in England, and especially in America, where laboratory milk is commonly employed, the cases of scurvy are very frequent."

Even if boiling milk does rob it in part of some antiscorbutic property, and it would be unwise to deny that prolonged boiling may, or does, the rarity of scurvy, its magic-like curability, its absolute preventability by the use of small amounts of orange juice, and the fact that it has been cured with the usual rapidity by the use of boiled milk alone[3] would seem to deny to scurvy that commanding position which it has here arrogated to itself. The fact that we use orange juice after the third or fourth month may account for the fact that we have had no scurvy in our own patients fed on boiled milk. This would only serve to emphasize the trivial nature of scurvy if it can be prevented by so simple a dietetic measure, which has always commended itself even without any reference to scurvy.

The possibility of less striking minor conditions analogous to scurvy, such as anemia, or underdevelopment, or rickets, could easily be imagined as resulting from a food denatured by heat. And yet is there one particle of evidence to this effect on which one can really place a finger? Hardly a single textbook, British, American, French or German, even mentions boiled milk in connection with rickets or such allied conditions.

Does boiling, with its formidable array of changes in the milk, such as partial coagulation of lactalbumin, caramelization of some milk sugar, its action on the casein, inhibiting coagulation with rennin, etc., lessen the nutritive value of cow's milk as an infant food? Again we must say that cow's milk is not human milk, in which the loss would be unquestionable, and that the benefits derived from boiling an unnatural food may just as reasonably be greater in one direction, for example, in rendering the curd of cow's milk more nearly like that of mother's milk, than the harm done in another. Again we must appeal to the baby in so empirical a question, and I can give no better summary of its interpretation than to quote the well-known, comprehensive conclusions of Janet E. Lane-Claypon,[4] whatever one may think as to the limitations of such a method of investigating the matter. In the final summary she states that "such small differences as have been found in the nutritive values of raw and of boiled milk have been in favor of boiled milk."

The last, and, among mothers, the almost universal objection to boiled milk is that it is constipating. This objection might well be answered in four words, "Thank God for constipation!" The baby that is fed on cow's milk and is constipated is digesting its food perfectly. The physician is as happy over a formed stool as the mother is sad. The only exception is fat constipation, the *Milch Nähr-schaden* of Czerny, a disturbance due to fat, and this occurs with both boiled and raw milk. To my mind it occurs more regularly with boiled milk than with raw milk, and this seems to me to explain why fat constipation is so much more a vital part of German literature than of ours. Czerny[5] considers it the regular reaction of the infant to too much milk hence *Milch Nähr-schaden* and not *Fett Nähr-schaden,* and his pupil Stolte considers the milder firm Seifen-stühle, and to my mind rightly so, as the desideratum of artificial feeding with cow's milk. With raw milk digestive disturbances are more apt to occur before enough milk can be given to produce a decided soap stool; with boiled milk we can give more milk without producing acute disturbances, and the more serious picture of *Milch Nähr-schaden,* as described by Czerny, can more readily follow if we overstep the baby's tolerance for milk. In our former experiences with high fat and low protein mixtures it was fat diarrhea and not fat constipation that we dreaded.

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[1] The American Pediatric Society's Collective Investigation on Infantile Scurvy in North America, Arch. Pediat. July, 1898, p. 482.

[2] Anderodias, J.: La pratique des maladies des enfants, J. B. Ballière et Fils, Paris, 1910, p. 315.

[3] Brennemann, J.: Boiled vs. Raw Milk, an Experimental Study of Milk Coagulation, Together with Clinical Observations on the Use of Boiled and Raw Milk, The Journal A. M. A., Feb. 22, 1913, p. 575.

[4] Lane-Claypon, Janet E.: Report to the Local Government Board on the Available Data in Regard to the Value of Boiled Milk as a Food for Infants and Young Animals, Darling & Son, Ltd., London, 1912, No. 63, New Series, p. 1.

That boiled milk in proper therapeutic amounts is to an annoying extent more constipating than raw milk I have not been able to satisfy myself. In digestive disturbances with loose stools it is certainly more constipating, or shall I say more easily digested? Or is it not more accurate to say that raw milk is here more laxative, that is, harder to digest, than that boiled milk is more constipating. Even if boiled milk is somewhat constipating, this is so minor an evil as compared with even moderately loose stools, which in the cow's milk fed infant are incompatible with progress, and the condition is so easily rectified by the various measures with which we are familiar, and so naturally corrects itself as the older infant gets a more varied, less milk, diet, that it is hardly worth consideration if there are benefits that more than compensate.

DOES BOILED MILK OFFER ADVANTAGES OVER RAW MILK

The first and most obvious advantage is bacteriologic, a relative freedom from pathogenic microorganisms, which is primarily the object of boiling. The relationship of bacteria to gastro-intestinal disorders is not a closed subject, but it would be a wild flight of the imagination to think that they were not of decided importance, and in ileocolitis we know that we have an infection. Normal raw milk, furthermore, apparently contains certain properties that determine a bacterial growth that is not pathologic, and boiling milk destroys this property, or destroys the normally developing bacteria so that the milk is then subject to decomposition, which raw milk is probably not. Such decomposition might lead to the development of toxic products. Outside of the fact that such a danger is more of theoretical than of practical interest is the evident fact that this danger is avoided by not having the milk boiled until it reaches the consumer, the only measure that commends itself.

We are told, on the other hand, that boiling milk destroys bacteria, but not their toxins, but are these less harmful in raw milk where the bacteria too are permitted to live? Nor does boiling milk carry with it the idea that we shall relax our efforts in favor of clean fresh milk that is relatively free from these bacteria and their toxins. The occurrence of such toxic products in normal milk is again interesting, rather than practically important. Tyrotoxicon was discovered once, and to my knowledge, never again. And is not real buttermilk made from milk that has soured, or spoiled naturally, known to be one of our greatest therapeutic measures in gastro-intestinal disorders?

When we leave the gastro-intestinal tract there is no longer any doubt as to the danger of infection from milk-borne bacteria. Epidemics of scarlet fever, typhoid, streptococcus sore throat, dysentery and other diseases have been reported in great number. These could not occur if the milk was boiled in the home. The possible transmission of tuberculosis through raw milk, with its far-reaching possibilities at least, backed by authority that cannot be disregarded, need only to be mentioned. The very unsettledness of this problem tends toward laxness, whereas its possibilities demand the same precautions as if its maximum danger were established. Heating the milk alone removes this possibility in a manner that even efficient universal tuberculin testing of cattle could not approach.

The second advantage, to my mind, is a physiologic one. Even though we use raw milk as a routine, when the baby has a diarrhea or an indigestion, we boil the milk. Why? Because boiled milk is constipating. Why? Do any of us know of any better reason than because boiled milk is more easily and quickly digested, liquefied, and absorbed than is raw milk? And if it is more easily digested during digestive disturbances, then why not also in health? Then why not feed it as a rule, unless there is some overweighing objection, which we have failed to find?

After having used in succession raw and boiled milk, each almost exclusively for six or seven years, there is no doubt in my mind that babies are, in general, harder to feed on raw milk than on boiled milk, and that the explanation is physiologic, not bacteriologic. The most important symptoms that characterize this difference in digestibility are, in our experience, as I have elaborated elsewhere,[3] diarrhea, or at least loose, slimy, imperfectly digested stools, vomiting, colic and discomfort, and in many cases, the occurrence of hard, bean-like tough casein curds[3] in the stools.

The explanation for this difference in digestibility seems clearly to be in the relative coagulability in the stomach of the casein of raw and of boiled milk. Raw milk has been shown to coagulate rapidly in the stomach in large tough masses.[3] These become increasingly larger and harder for about two hours, then yield gradually to peripheral digestive liquefaction. At the two hour period many of these curds are as large as golf balls, and can be thrown on the floor without being broken. Several times in my series of experiments[3] they could not be returned from the stomach by vomiting, even though one was delivered that was ½ to ¾ inch thick, and was five inches long, extending at right angles at one end for 2½ inches, and for 1½ inches at the other! At the end of five hours there were still curds in the stomach of even greater hardness than before, and as large as almond kernels, closely resembling in every way the hard curds of infant stools. In no single experiment, nearly 100 in all, was there ever an exception to the general facts as here stated. Boiled milk, on the other hand, with equal regularity formed fine, soft fragile porous curds of the consistency and appearance of a good custard finely broken up. These, too, increased in size and density for about two hours, but so much less than those of raw milk that they never appeared larger than very fine gravel. The lesser density, the greater fragility and porosity, the lesser distance to be traveled by peripheral digestion, for curds do not soften and disintegrate en masse during digestion, would lead me to think that the boiled milk curds offer digestive advantages over those of raw milk that are of determining significance. I cannot refrain from again emphasizing, not alone to the pediatrist, but also to the internist, who feeds patients, with gastric and duodenal ulcers, with typhoid fever, pyloric stenosis, or any other condition in which a soft food seems indicated, that raw cow's milk is only in appearance a liquid food. In the stomach itself it becomes one of the most peculiarly insinuatingly, insidiously, increasingly, uniquely solid foods that we can give to a patient, and one that was manifestly intended only for a calf, as has been so well emphasized by Chapin, to prepare the way for its later diet of corn and oats and grass. Boiled milk or milk modified in the many other ways so familiar to the pediatrist is relatively a liquid food.

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[5] Czerny, A.: Des Kindes Ernährung, Ernährungs-störungen, und Ernährungs-therapie, 1909, Franz Deuticke, Leipzig und Berlin.

But as before, the ultimate test is the baby. Does the baby, in spite of the fact that nowhere else is a hard, tough, rubbery mass as large as a walnut or a golf ball considered as easy to digest as the same substance in a softer finer state of divisions; does the baby form an exception and digest equally well the large and hard mass as the fine soft mass? Does it digest a distance of a half inch as quickly as a distance of one-sixteenth of an inch, to say nothing of relative density and porosity? Is it not peculiarly significant in this very connection that Finkelstein[6] warns us, and have we not confirmed it over and over again and watched over it most carefully, that albumin milk must contain only most finely divided, almost invisible curds; that with coarsely granular albumin milk we can safely expect dyspeptic symptoms? Whether it is a question of the relative lengths of the radii through which digestion must travel or of some irritating effect of a foreign body leaves us indifferent.

And is it not also of significance in this connection that nearly all of our therapeutic measures that aim to adapt cow's milk to the baby, no matter what our theoretical purpose may be, have one thing in common, and only one, and that is to make the large, hard curd of cow's milk more like the small soft curd of mother's milk? What other explanation could we find for the fact that for the same condition different physicians will prescribe mother's milk, diluted milk, boiled milk, condensed, powdered or dried milk, pasteurized milk, malt soup, milk that has been precoagulated and finely divided by agitation, a process that prevents recoagulation, as I shall show in a paper soon to be published;[7] precoagulated, either by acids, as in buttermilk, or by rennin, as in pegnin or chymogen milk, or by both, as in albumin milk; milk alkalinized with sodium or potassium salts; milk of magnesia or lime water; citrated milk, so much in favor in England and with some of us; milk diluted with cereal water, so long advocated by Jacobi, and so effective as a curd attenuant; high fat and low protein, or cream mixtures; whey and the split protein; and so on to the end of the list?

The most concrete, discussable evidence of the relative indigestibility of raw and of boiled cow's milk, as interpreted by the baby, is the hard curd of the stools. Babies fed on raw milk will ever and anon, as pointed out independently by Ibrahim[8] and myself,[9] and since amply confirmed by others, show hard, bean-like curds in the stools, which bear no resemblance to ordinary fat curds. Commonly they occur in decidedly undigested, frequent stools, and are then whitish or pale greenish, like the rest of the stool, large and relatively soft, and resemble very minutely the gastric curds of raw milk. If the stool approaches the normal in consistency, and what is of greater importance, in frequency, the curds are smaller, harder and more bean-like, and have now acquired an amber color from their yellowish or brownish environment.

If the milk is introduced beyond the pylorus with a duodenal catheter, as has been done by Hess,[10] the curds no longer appear in the stools of a baby that has produced curds when fed into the stomach. In this way the large gastric curds are avoided. That smaller ones are formed in the intestines which are, however, completely digested, is probable from the fact that normal feces will coagulate milk and that hard curds, indistinguishable from those here under discussion, are formed when raw milk is injected into the rectum of an infant.[3] There seems little question that these hard curds of infant's stools are the gastric curds of raw milk that have not been completely digested. In every case in which I have seen them, experimentally or otherwise, they have, without exception, disappeared when the same milk formula was boiled two to five minutes. With them has disappeared the indigestion, except in those cases that were so severe that the milk, even though boiled, had to be cut down or withdrawn entirely for a short period, because the sugar and fat it contained could not be tolerated under the conditions present and kept up the indigestion.

Two exceptions have been taken to these statements, which in no way detract from their practical significance:

First, it has been claimed that hard curds not infrequently occur in normal stools. This has not been my experience. Almost without exception they occur in dyspeptic stools in direct ratio to the degree of indigestion. Occasionally they occur in a nearly normal stool, when there are three or four stools instead of a normal one or two, in the twenty-four hours, and when they are a little soft and off color. The interpretation of "normal" introduces an individual factor, which here notoriously lacks precision. When they occur in nearly normal stools they represent an unstable state of equilibrium, which is a frequent occurrence in infant feeding; either they disappear, and with them the indigestion, or else the indigestion becomes worse and with it the curds become larger, whiter and more abundant. I believe that isolated curds can and do occur at times in an otherwise normal stool, in those cases in which the normal run of curds are completely digested, but an occasional accidental curd of the first magnitude, a frequent occurrence in both gastric and beaker experimentation,[11] will not have time to be completely digested and passes through, as would a penny. In producing stool curds experimentally,[9] and I have never failed to produce them in any baby in whom I have tried it, by giving him enough raw milk, the stools have always become dyspeptic, and became so in proportion as the curd output was abundant. Occasionally the indigestion became sufficiently severe that the experiment had to be discontinued quickly by boiling the milk, with an invariable disappearance of the curds and of the indigestion. In many babies it would be wholly unjustifiable, experimentally or therapeutically, to change the milk from boiled to raw, and in nearly every case one can foretell with great accuracy the probable result of such a change, both as to curd output and as to indigestion. Never anywhere in infant feeding have I seen an unfavorable digestive effect from changing raw milk to boiled milk.

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[6] Finkelstein, H., and Meyer, L. F.: Ueber Eiweissmilch, Jahrb. f. Kinderh., 1910, xxi, 655, 683.

[7] Brennemann, J.: The Coagulation of Cow's Milk in the Human Stomach (to be published).

[8] Ibrahim, J.: Kaseinklumpen im Kinderstuhl in Zusammenhang mit Rohmilchernährung, Monatschr. f. Kinderh., 1911, x, 55.

[9] Brennemann, J.: A Contribution to Our Knowledge of the Etiology and Nature of Hard Curds in Infants' Stools, Am. Jour. Dis. Child., 1911, i, 341.

[10] Hess, A. F.: The Pathogenesis of Casein Curds in the Stools of Infants, Am. Jour. Dis. Child., 1913, v, 457.

Second, they are said to occur on boiled milk. I have seen a very few times, very small and very few thread-like, rather soft hard curds, as an isolated occurrence in the stool of a dyspeptic infant fed on boiled milk, never as a continued occurrence. The individual factor in what constitutes boiling, as to how, and how long it is done, whether in a double or a single boiler, the actual degree of heat employed, etc., might easily be a deciding factor. There is, furthermore, no reason why in patients with a diarrhea the rapid peristalsis should not sweep through even the finer gastric curds of boiled milk. Only those who have had no extended practical experience along these lines could permit this to detract from the statement that, in essence, the hard curd is a raw milk phenomenon.

Hard curds will occur in the experience of different men in proportion to the amount of casein in their raw milk mixtures. When we used raw, high fat, low protein whey mixtures we saw them only as an occasional curiosity in diarrheal stools. With simple raw milk and water dilutions, I am sure that we would find them frequently with such concentrated mixtures as we now use. Thus Ibraham[8] changed the milk from boiled to raw milk in the regular food of ten cases that had normal stools, and found hard curds in three of them after the change. During the fat-free milk flurry, while we still used raw milk these curds reached their maximum incidence, both because we naturally used more milk in our mixtures and only in dyspeptic infants, and because of all hard curds the fat-free milk curd is the hardest and largest.[7] Now again with the use of boiled milk the hard curd has become a negligible factor in our own cases. We see them only in the cases of others that have been fed raw milk. My own experience has led me to think that hard curds do not presuppose an inherently peculiar gastric juice, but rather that they occur in any baby when digestion for the time being is not perfect; or in any otherwise normally digesting baby that gets more raw milk than it can stand.

Shall we conclude from all this that the casein of cow's milk is hard to digest by the baby as we all once taught so positively? And by "casein" I mean the casein of raw milk, because boiled milk casein is modified casein, just as truly as if we used sodium citrate or barley water. To my mind this question admits of only one answer: positively yes. When milk is boiled or otherwise sufficiently modified, as by the use of sodium citrate, milk of magnesia, or adequate dilution, we too see no clinical picture that we can recognize as casein indigestion. We should therefore no longer speak of the digestibility of milk unless we mean raw milk, but of the digestibility of raw and of boiled milk. For all of these reasons I venture to record my surprise when in a recent symposium in his contribution Holt[12] makes the statement without any qualifications along these lines: "When the question is asked, What are the symptoms of protein indigestion, or intolerance? we are compelled to reply that at present we cannot mention any definite symptom, or group of symptoms, which we can positively attribute to the proteins in the sense that we can attribute other definite symptoms to the fats and to the carbohydrates."

Whether the casein is the active agent in raw milk indigestion is perhaps an open question. Possibly some other constituent of raw milk causes the indigestion, with the resulting nondigestion, rather than an indigestion of the casein curds. It is my own conviction that the casein is as a rule the active agent. The digestive disturbances that follow the eating of corn, grapes, apples, orange pulp, peanuts, etc., are, to say the least, suggestive. And our standard therapeutic advice that food must be thoroughly masticated and finely divided is either of no value or else it is of great significance in this connection. The fact that the indigestion disappears when the milk is boiled can, in our present state of knowledge, be explained only by the fact that the casein is so modified by boiling that it no longer presents any difficulty in digestion. No other constituent, so far as we know, is changed in any manner that could explain this difference in the digestibility of raw and of boiled milk. Whether we have a casein indigestion or nonindigestion of casein does not affect our main contention that raw milk causes digestive disturbances that can be removed by boiling the milk, and that this difference is probably causally connected with the one tangible difference between raw and boiled milk, namely, the nature of the curd formed in the stomach.

In spite of the opinion that the casein is usually the responsible factor in raw milk digestion, and that the hard curds of the stools are the most evident symptom of casein indigestion, it seems to me unwarranted to classify the occurrence of hard curds in the stools alone as "casein indigestion," as is done in some quarters, as if the casein in all the cases actively caused the hard curd, as we know that the fat causes a soap stool or the sugar a fermented stool. In a dyspeptic infant with hard curds in its stools removing the sugar from the raw milk mixture, thereby lessening the frequency of the stools and slowing peristalsis, may cause the hard curds to disappear, that is, a sugar diarrhea may cause a nondigestion of the casein. Furthermore, the same infant that has a "casein indigestion" will digest perfectly the same casein or larger amounts, in the same concentration, if it is modified by boiling or by the use of sodium citrate; that is, the "casein indigestion" should have been called a raw milk casein indigestion, for it no longer is a casein indigestion when the milk is boiled. Again, casein indigestion, to my mind, most commonly manifests itself in discomfort, colic, vomiting, with or without dyspeptic stools, and without the presence of hard curds, that is, we have casein indigestion without "casein indigestion." The occurrence further of an occasional hard curd in a normal, or nearly normal, stool is no more an evidence of "casein indigestion," for reasons given above, than is the presence of a piece of incompletely digested tough beefsteak an evidence of beefsteak indigestion. In both instances an unusually large hard mass of food passed through the intestinal tract before it was completely digested.

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[11] Footnotes 3 and 7.

[12] Holt, L. Emmett: The Digestibility of the Proteins of Milk and Their Rôle in Infant Nutrition, Arch. Pediat., 1916, xxxiii, 13.

In our practical experience we feel that we can safely give much larger amounts of milk and more concentrated solutions when we use boiled milk than when we use raw milk. We feel that we can begin feeding nearly any healthy baby of any age with one-half milk and one-half diluent, and we give straight milk much earlier than formerly. Possibly the simplicity of such ideas is the only thing that commends them, as compared with other methods that lead to the same result, but simplicity is a much longed for factor in infant feeding. We feel, too, that we approach the baby with a greater assurance of immediate success if we boil the milk than if we use it raw. Especially is this true in digestive disorders, and in all institutional work where babies are massed together. That a large percentage of healthy babies will apparently digest equally well raw and boiled milk within therapeutic limits is, of course, evident. We nearly all, however, use some method of modifying the curd of raw cow's milk; whether we dilute the milk or use barley water, or lime or sodium citrate. In our experience boiling commends itself as an excellent casein modifier that at the same time effectually disposes of the bacteriologic problem.

DOES PASTEURIZATION SOLVE THE PROBLEM?

If pasteurization did not offer almost insurmountable technical difficulties in the very homes in which it is most needed, or if commercial pasteurization were reliable, then it might at least solve the bacteriologic problem. The physiologic problem remains unchanged as pasteurized milk is in this respect essentially like raw milk.[3] Commercial pasteurization would still be open to the objection that such milk would have to be kept for at least twenty-four hours, subject to decomposition or other abnormal bacterial activity. The relative activity of antiscorbutic or other allied properties in pasteurized and in boiled milk, the actual idea back of pasteurization, remains to be measured. In our present state of knowledge it can hardly offset the manifest advantages over pasteurization of boiling milk in the home.

DOES CERTIFIED MILK SOLVE THE PROBLEM?

There can be but one opinion on the question of whether a food for infants that is an excellent culture medium, that is furthermore subject to many opportunities for conditions favorable to bacterial multiplication, should be safeguarded by all the means advocated by our milk commissions. Certification cannot, however, be imposed without making the milk so expensive that it is beyond the reach of that vast majority who need it most. That ordinary milk boiled in the home is a safe food for infants in this very social stratum has been abundantly proved by the Infant Welfare Society of Chicago, where such home-boiled milk is used in the large majority of cases with almost incredible results. Bacteriologically, certification alone does not even approximately put certified milk in the same class as boiled milk. It offers the advantages that cannot yet be measured of being biologically active, as compared with boiled milk. Physiologically it is still raw milk, and that is why many of us boil certified milk.

In conclusion I wish to say that I in no way undervalue the very definite disorders that are due to the fats, the sugar and the salts of cow's milk, when used as an infant food. I am inclined, however, to believe that in these latter days we have gone too far astray from the fact that the casein, that is, the casein of raw milk, too, plays an important rôle in the digestive disorders of infancy; that, again, as nearly all of our therapeutic measures attest, we must not pass lightly over the old fact that the outstanding difference in the composition of cow's milk and of human milk is in the relative amount, and hence coagulability, of the casein. And I venture the belief that if milk boiled two to five minutes in the consumer's home was as popular today as is raw or pasteurized milk, babies would suffer less.

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ABSTRACT OF DISCUSSION

Dr. C. G. Grulee, Chicago: The essayist is much in accord with my ideas. I have felt for many years that scurvy had been held up as a scarecrow to keep people from using boiled milk. I do not remember having seen a case of scurvy for the past two years. I use boiled milk and boiled certified milk. The most important statement Dr. Brenneman made was that he had never seen a baby who did not do as well on boiled milk as on raw milk. I question very much if boiled milk is anything like as strong a factor in the production of scurvy as has been declared. This, in my opinion, has been grossly exaggerated. I am in favor of the use of raw milk in some instances.

Dr. Harry Lowenburg, Philadelphia: I have used boiled milk for the last three years. I have even used it in combination with the old-fashioned flour ball, and I can testify to the correctness of the statement that simple boiling will make the curds disappear from the stools in most instances. In some it does not. Then the addition of the pulverized flour ball and, perhaps, a few grains of pancreatin will provide the needed assistance. The only thing about which I might take issue with him is that occasionally scurvy does occur. One almost hesitates to talk of scurvy because the classical symptoms are so clear it seems as though every one should know them. Just the reverse is true. Nearly all the infants are treated for rheumatism and the infantile and parental suffering resulting therefrom is pitiable and lamentable. During the last two years while using boiled milk I saw two cases of scurvy develop. Raw milk, orange juice and mashed potatoes brought about a prompt subsidence of the symptoms. Hence one should be on the lookout for the initial symptoms of this disease and immediately change to raw milk or institute antiscorbutic measures throughout the time the infant is receiving boiled milk. I want to congratulate the doctor on the fact that he has had the courage to state that the coaguable protein of cow's milk is still to be considered as a factor in the development of dyspepsia in infants. The Germans teach us to feed protein in almost incalculable quantities and that all, or nearly all, alimentary disturbances of the suckling depend on relatively high fat and high sugar percentages. While true in many instances, my own experience does not permit me to regard the curd of cow's milk as a negligible etiologic factor in the dyspepsias of infants.

Dr. F. N. Rogers, Manchester, N. H.: I have never noticed any great prejudice toward the use of boiled milk. I have always felt that there was a great deal of difference of opinion as to the way these babies should be treated. I have not taken the initiative in trying new methods of feeding babies. I take the work done before me and follow it out. Results are what we are looking for. I thoroughly believe that boiled milk is preferable and to be desired in a certain class of cases. I prefer certified milk. Such milk, with constant icing until the time it reaches the baby, has always produced good results with otherwise healthy babies. I have had this thought for several years—that perhaps some babies are unable to take raw milk—they may have a peculiar sensitization for albumin in milk, and perhaps that albumin is absorbed. I think there is danger of anchoring ourselves to any one method of infant feeding. I want to report one case. This baby, 3 months old, had been fed on raw milk. He had lost weight. When I saw the baby it had been kept for a week preceding on a mixture of malt food of some kind. Its extremities were cold, its vitality was low; it was undoubtedly in a starved condition. I started in with a raw milk mixture, which did not agree with the baby; then I used boiled milk with an alkali, and the baby did well. I felt that the using of boiled milk as well as evaporated cream was a great help in certain cases.

DR. J. H. HESS, Chicago: There has always been some prejudice about feeding with boiled milk. My own treatment has been improved by the addition of fruit juices and soup. I find that babies seem to want more boiled milk, and so I find myself in constant danger of overfeeding. Some babies can be fed anything, and I suppose this is true as regards quantity also. These babies often stand more by giving a little cod-liver oil. There is very marked improvement on boiled milk with the addition of cod-liver oil. One other point—the question of infection. It is true that in the hospital where babies are fed raw milk you will find one class of intestinal infection. In the hospital where babies are fed on boiled milk you will find much less infection. We have had no gas bacillus infection in our wards in two years. I used to take my vacations in the winter, spring and fall. Since I have been feeding boiled milk I take them in the summer.

DR. L. R. DEBUYS, New Orleans: I used to use raw milk, then pasteurized milk, and now I use boiled milk. But I believe we must first have good milk. I instruct my clinic patients to boil the milk, not for the day, but just before the mixture is made each time, so that if the iceboxes are at fault or if any changes have taken place in the milk, boiling will cause curdling of the milk which will show that it is unfit. Raw milk is more apt to sour and boiled milk to rot. Another point I have long been teaching is that as soon as boiled milk is given so soon must orange juice be included in the daily diet.

DR. J. H. M. KNOX, JR., Baltimore: It would be a great pity if the end-result of this would be that we would take less care to get good milk because of boiling it. We must take just as great care to have pure milk as though we were giving it raw. In Baltimore the milk that is sold in the homes in warm weather contains anywhere from 2,000,000 to 10,000,000 bacteria. If it is not kept on ice it is dangerous unless it is boiled. In some parts of the country there has been an increase in scorbutus following the general use of boiled milk. That is something we should be on the lookout for. If we give orange juice in conjunction with the boiled milk it will obviate this phase.

DR. C. J. HASTINGS, Toronto, Ont.: I would like to emphasize what Dr. Knox said in regard to officers of the bureau of health insisting on having a high grade milk. I am officer of health in Toronto, and there we do not permit any milk to be sold that has not come up to the standard of certified milk, and it must be shown to be clean and free from contamination. All milk that is not up to the standard is required to be pasteurized. Pasteurization plants are inspected regularly. Bacterial count is taken before and after pasteurization; the temperature of the milk at the time of pasteurization, and the period at which it is kept at that temperature is reported. We are having self-registering thermometers put in the plants, of which we carry the keys, and therefore we know whether that milk is being prepared according to requirements. I think the element of danger of scurvy from boiled milk is remote—not to be considered with the possibility of transmission of communicable diseases. Those of us who have made a study of the milk problem are aware that outbreaks and epidemics have been traced directly to raw milk. From 25 to 26 per cent. of tuberculosis in children under 16 years of age is of bovine origin. There is no doubt as to the extreme importance of pasteurization of milk before feeding to children.

DR. C. G. KERLEY, New York: Sweeping statements regarding milk are not particularly wise. Milk has to be used at different seasons of the year by people living under widely different conditions, and, further, milk may vary greatly not only in its nutritional content but as concerns its cleanliness. Whether milk should be used cooked, boiled, pasteurized or raw depends on the conditions just referred to. Personally, I prefer raw milk if I can have it right and if it can be kept under proper conditions of cleanliness and temperature. This, of course, means that a comparatively small part of the human baby family will be able to get raw milk. I believe, however, that for well babies it is the best artificial food that can be given. When safe raw milk cannot be secured then I believe it should be boiled, regardless of who uses it, when or where. Further, I prefer cooked milk or milk that has been subjected to the influences of heat in all difficult feeding cases. Cooked milk is more readily digested in young babies than raw milk and milk cooked with starch furnishes a suitable food for delicate infants. I use this or the evaporated milk also cooked with a starch in a vast majority of my difficult feeders. I believe that cow's milk casein may be an important disturbing factor in the feeding of young infants. Scurvy is practically the only thing we can bring up against cooked milk, and the administration of orange juice will take care of this. All my patients on cooked or evaporated milk are given orange juice.

DR. JOSEPH BRENNEMAN, Chicago: Dr. Kerley said sweeping statements were not a good thing. I do not believe that he referred to me for I have not made any sweeping statements. I think bacteriologically boiled milk is safer. As far as raw milk is concerned, there is a physiologic difference. One is more easily digested than the other. Dr. Kerley said exactly the same thing when he says that he feeds dyspeptic babies boiled milk. I have been extremely conservative in my statements. Some years ago I published an article about the relationship of raw milk to hard curds of infants' stools, and later a paper on the difference between the curds formed in the stomach with raw milk and with boiled milk. I said at this time that I was not offering any suggestion as to whether boiled or raw milk should be used as a routine. I did not want any one to think that just because I found that raw milk caused "hard curds" or made larger curds in the stomach that therefore I advocated the use of boiled milk, as one reviewer said I did. I wanted to observe the clinical difference between raw and boiled milk for years before I committed myself, for the ultimate test is the baby, not the apparent difference in the two milks, physiologically. I have waited six or seven years before expressing myself publicly even as mildly as I have today. I want that impression to remain. I am really not advocating boiled milk today. I simply say there are differences that I have tried to point out, and those differences make me use boiled milk, at the present time, for physiologic as well as bacteriologic reasons.

Bretonneau and Diphtheria.—In 1821, Bretonneau began to study epidemic diphtheria in his locality, and for some thirty-five years or more, after the fashion of Sydenham, he followed the course of this disease, of which he knew more than any other man in his time. He became a sort of specialist in diphtheria, and his great monograph of 1826 is one of the classics of medicine. He introduced the generic term *"diphthérite,"* as including all the diseases variously described as ulcera Syriaca, ulcera Aegyptiaca, synanche trachealis, croup, malignant angina, angina suffocativa, etc., elucidated its pathology at the bedside and in postmortem, insisted on its specific contagious character, differentiated it from the scarlatinal, stridular, buffy, and other anginas, showed the insidious character of the nasal invasion, showed how the false membrane can be simulated in animals by the eschars from strong acids or by the local inflammation produced experimentally by cantharides or similar insects, described the cutaneous and vulvar forms, and on July 1, 1825, performed the first successful tracheotomy in diphtheria, after five failures. His monograph concludes with historical extracts from all the older authors known to him, including Samuel Bard.—"Armand Trousseau: A Master Clinician" by Fielding H. Garrison, M.D.

THE USE OF MALT SOUP EXTRACT IN INFANT FEEDING*

B. RAYMOND HOOBLER, A.M., M.D.
DETROIT

The use of malt soup in the dietary of infants dates back over fifty years to the days of von Liebig, who proposed it as a food for healthy infants who for any reason were deprived of their mother's milk.

About ten years ago A. Keller modified von Liebig's formula in such a manner as to make it a suitable food for infants suffering from intestinal disorders. The original von Liebig's formula has been abandoned because of its difficulty in preparation, and we follow today the method of preparation as outlined by Keller. The various malt soup extracts which are put on the market all carry with them directions for preparing the malt soup according to Keller.

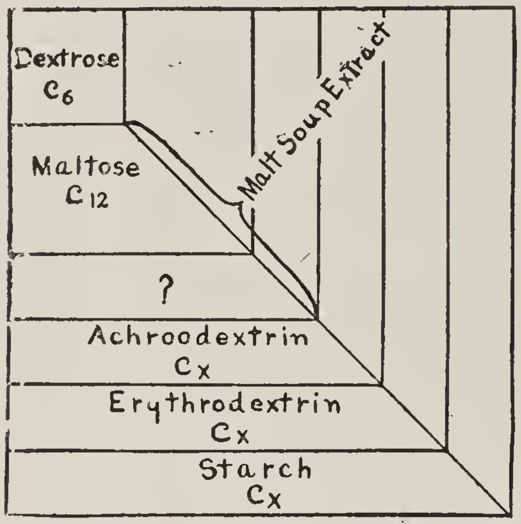

Chart 1.—Starch molecule and its products (after Stolte).

To follow only this one method of preparation limits to too great an extent a food capable of being used in many other ways, and the purpose of this paper is to discuss other methods of using malt soup extract in the nutrition of infants suffering from conditions other than diarrheal diseases for which malt soup was primarily intended. Indeed, if I mistake not, malt soup is more frequently used today for the treatment of constipation in infants than for the cure of "enteritis," for which it was specifically devised. This seems paradoxical, and accounts for the confusion of opinions and for the very disastrous results obtained in certain cases.

It seems to me, therefore, that in order to clear the field of confusion and to save such an excellent food product from being wrongly used, there should be a variety of methods devised for its use, depending on the results one wishes to accomplish. It is evident that any food made up according to one specific invariable rule is certain sooner or later to prove unsatisfactory in many cases.

Following is the formula usually printed on the container of one malt soup extract:

Directions for preparing Malt Soup:

Make two mixtures as follows:

Mixture 1: Take 3½ ounces by weight (or 2½ ounces by measure) of malt soup extract and dissolve in 22 ounces of warm water.

Mixture 2: Take 1¾ ounces by weight (or 2¾ ounces by measure) of wheat flour; mix with 11 ounces of milk and strain through a clean sieve.

Add Mixture 2 to Mixture 1 and boil three minutes, stirring constantly. Cool quickly and pour into clean bottles holding 6 ounces. Plug them tightly with absorbent cotton, or if corks are used they should be absolutely clean and close fitting.

Keep in a cool place.

We have in malt soup a mixture of boiled whole milk, raw wheat starch, malt soup extract, water and an alkali in the form of potassium carbonate. We are asked to use this food designed by Keller for the treatment of enteritis cases in other conditions without varying the formula. It is only natural that there should be many failures; the failures, however, should not be wholly charged to malt soup extract, but should in my opinion be charged to the method of preparation.

It seems to me that von Liebig's original use of malt soup for the nutrition of normal infants, particularly those infants whose weight is at a standstill and whose bowels tend to be constipated, offers a much greater field for the use of this excellent food product. When used in such cases, it has been my custom to vary the Keller formula for the following reasons:

1. Boiled milk to my mind should not be given over long periods of time to children with a tendency to constipation.

2. Raw starch, or any starch cooked from only three to five minutes, should not be given to any infant, as it causes marked indigestion in many cases.

3. I do not think the proportion of one-third whole milk and two-thirds cereal water is the correct proportion in every case in which malt soup extract is indicated.

4. The use of the full quantity (3½ ounces by weight to 1 quart) of malt soup extract is too arbitrary a quantity. This amount will often cause an infant to have too many watery stools, producing marked fall in weight due to water loss.

5. The use of the alkali (potassium carbonate) is to my mind far more indicated in a formula designed for the correction of constipation than for diarrhea, since it has been shown by Dr. Holt that loose stools contain a larger proportion of potassium and sodium than constipated stools; hence in attempting to change a hard formed constipated stool to a soft loose stool, the use of potassium and sodium in the food are indicated. From the fact that in loose stools there is a much lower proportion of calcium than in constipated stools, it would seem on theoretical grounds that when one desired to use malt soup extract in conditions in which there are loose stools, the use of calcium would be more indicated than the alkali potassium or sodium. However, the presence of the alkali potassium is theoretically the proper form of the alkali in conditions in which stools tend toward constipation, and this is confirmed by clinical observation.

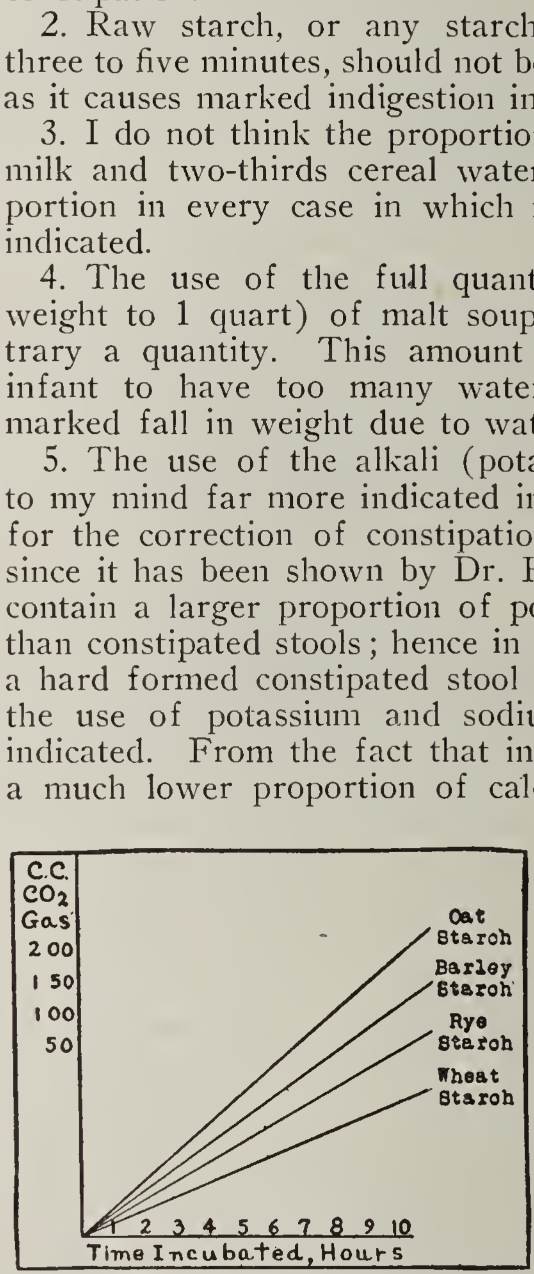

Chart 2.—Gas production from cereal waters (after Klotz).

The method of using the malt soup extract which has been most satisfactory in my experience is one which gives much greater flexibility in the use of the various ingredients than can be obtained in following Keller's formula. This may be accomplished by adding the malt soup extract to a well cooked cereal water, and this mixture added to raw milk in such proportions as one wishes.

To reduce to a rule:

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Make up 1 quart of cereal water, using such quantity and kind of cereal flour as may be indicated. (The cereal water is to be cooked at least one hour in a double boiler.) When sufficiently cooked, and while still hot, add 2 level tablespoonfuls of malt soup extract. Stir until dissolved. Strain.

2. Select the kind of milk which it is desired to feed, and measure off the number of ounces of the milk which are to be fed during the twenty-four hours. (This will vary according to the age, weight and condition of the infant.) Add to the milk as much of the cereal-malt soup extract as is required to make up the quantity to be fed in twenty-four hours. Add to this such amount and kind of sugar as may be indicated.

This formula serves for the first two or three days, and is in the form of a trial formula. If the child retains it and the stools become more frequent and softer, and there is a gain in weight, this formula may be continued. If the child retains it and there is no change in stools or weight, then gradually increase the malt soup extract. With each increase of malt soup extract one should withdraw an equal amount of the added sugar, provided one is near the carbohydrate limit, which of course varies in different children. By using this method of preparation one is at liberty to vary the amount and kind of cereal water used. The use of so much wheat flour cooked for such a short time is in my opinion responsible for many failures in the use of malt soup. The wheat flour was added in the original formula of Keller for its constipating effect, as it was found that when malt soup extract was used alone it was too laxative. In the choice of the cereal flour used in connection with malt soup extract, one should be guided by the effect which it is desired to produce. If a marked laxative effect, then one type; if a constipating effect, then another; if intermediate, then still another group.

TABLE 2.—TYPES OF STOOLS

Kind of Cereal	Yeast	Feces of M. B. Mucus c̄ Curds Gram Positive	Feces of C. C. Mucus c̄ Curds Gram Negative	Feces of M. J. Mucus c̄ Blood Gram Negative	Feces of M. J. after One Week Albumin Milk Treatment Gram Negative		Feces of H. M. Normal Stool Gram Negative Flora		Normal Stool c̄ Pancreatic Ferment Added	
					Gas	Acidity	Gas	Acidity	Gas	Acidity
Dextrinized wheat flour	++	+	+	+	+	10	+	24	+	22
Barley flour	+	++	++	++++	+	16	+++	26	+	24
Oat flour	+++	+	+++	++	+	10	++	18	++	14
Corn flour	++	+++	++	+++	++	8	+++	10	+++	22
Rice flour	++	++	++++	++	+	10	++	16	++	16
Whole wheat flour	+++	+++	++	+++	+++	8	++++	14	++	22
Dextrimaltose	++	+	++++	++	++	6	+	20	++	22
Sucrose	++++	+++	++	++	++++	6	+	12	++	15
Malt soup extract	+++	++	++	++	+	4	+++	24	+++	24

Dr. Stolte, associated with Professor Czerny, explains this difference in the action of the various starches in this manner:

Starch, as it undergoes hydrolysis, releases at each step in the process some of its sugar in the form of dextrose. C_x starch plus hydrolysis equals erythrodextrin plus C_6 sugar. C_x erythrodextrin plus hydrolysis equals achroodextrin plus C_6 sugar. C_x achroodextrin plus hydrolysis equals C_{12} maltose plus C_6 sugar. C_{12} maltose plus hydrolysis equals C_6 sugar plus C_6 sugar. This is represented diagrammatically in Chart 1.

The starch granules of the various cereals do not all hydrolyze with the same rapidity; hence some of them release the C_6 sugar more quickly than others. As soon as the dextrose is released, it is subject to attack by the intestinal flora and undergoes fermentation. The products of this fermentation, acting on the intestinal mucosa, cause an increase in peristalsis. If sugars are released rapidly, then there is active fermentation accompanied by active peristalsis, and this active peristalsis results in increased number of stools. Therefore any cereal that releases its sugars rapidly has a laxative action.

It has been known empirically for many years that oatmeal was a laxative cereal. Klotz has shown that oatmeal yields its sugars more rapidly for fermentation. I have introduced his original chart to which I have added my own observations regarding barley, rye and wheat (Chart 2).

TABLE 1.—FERMENTABILITY

	Acidity after 12 Hours
Malt solution alone	7.7
Malt solution plus wheat flour	7.4
Malt solution plus oatmeal flour	11.5

Klotz also studied the fermentability of malt solution alone and with wheat and oatmeal flour, using the amount of acidity produced as an index of fermentation, with the results indicated in Table 1.

According to these findings, if one desired a markedly laxative mixture, one would use malt soup extract in a cereal water made from oatmeal flour. If one wished a mildly laxative mixture, malt soup extract with a cereal water made from wheat flour would be indicated. This is no doubt perfectly true when the fermentation is carried on by means of yeast, but it does not always follow when we deal with the intestinal flora of individual infants.

I present a few type cases taken from many observations made at the Children's Free Hospital, indicating that not all children handle the various starches in the same manner. It seems probable that the difference is due to the bacterial flora. Details of the observations were as follows: On admission a stool was collected in a sterile oiled silk napkin. A portion was weighed and an emulsion was mixed with sterile distilled water in definite proportions.

The various cereals used in the hospital were made up in 1 per cent. solutions, each cooked for two hours, strained, and 10 c.c. put in sterile fermentation tubes. These tubes were kept in the refrigerator until ready for use. Each tube was inoculated with 1 c.c. of an emulsion of feces in sterile distilled water. At the end of twenty-four hours the amount of gas formed in the tubes was read and the relative amount present indicated by the number of crosses after the different cereals. The acidity was also taken and measured in terms of cubic centimeters of tenth normal sodium hydroxid per hundred c.c. cereal solution. Several cases representing various types of stools are given in Table 2.

It will be observed that no regularity can be noted in the action of the various starches when fermented with the bacteria contained in the feces of individual cases.

In the case of M. J. during an acute diarrhea all the starches were vigorously attacked by the intestinal flora. After having been fed on albumin milk for one week the stools became smooth, yellow and pasty. There was then much less activity on the part of the intestinal flora in attacking the starches.

In two different cases with stools as nearly alike in appearance as one could choose (M. J. and H. M.) there was much more gas and acid produced in one than the other, although nearly identical starches were chosen.

It seems evident, therefore, that the manner in which an infant will handle a starch solution depends in a great measure on its intestinal flora. It may do badly on one kind of starch and well on another. In the light of these researches it would seem that we should choose the type of cereal water given with malt soup extract as carefully as we should choose any other ingredient of an infant's formula, and in general this may only be determined by trial.

SUMMARY

In following the method suggested above, we have a perfectly flexible formula.

1. We may diminish or increase the milk.
2. We may use it boiled, pasteurized or raw, as we choose.
3. We may select the kind of cereal water used, and may increase or diminish its strength at will.
4. We may increase or diminish the amount of malt soup extract used, enabling one to start in with a small quantity and gradually increase it if it agrees.
5. We may add other sugars in amounts sufficient to meet the needs of any case, and withdraw them as malt soup extract is increased.

David Whitney Building.

REST OF THE INDIVIDUAL LUNG BY POSTURE *

GERALD B. WEBB, M.D.,
ALEXIUS M. FORSTER, M.D.
AND
F. M. HOUCK, M.D.
COLORADO SPRINGS, COLO.

Respiration in a normal person takes place upward of 30,000 times in twenty-four hours.

When a tuberculous patient rests on one side at night, the dependent lung is restrained in motion, but the upper lung opens and closes about 12,000 times in ten hours of sleep.

We have noticed a marked tendency for the consumptive to lie on the side of the better lung at night, as the following figures testify. It therefore often happens that the very lung which needs the most rest is getting the most work.

Twenty-eight patients had a greatly involved left lung with an almost normal right lung; of these, 17 slept on the right side, none on the left, eight on either side, and 3 on the back.

Thirty patients had a greatly involved right lung with an almost normal left lung; of these, 13 slept on the left side, 7 on the right, 8 on either side, and 2 on the back.

Twenty-four patients had a slightly involved left lung and an almost or quite normal right lung; of these, 11 slept on the right side, 4 on the left, 6 on either side, and 3 on the back.

Forty-one patients had a slightly involved right lung and an almost or quite normal left lung; of these, 7 slept on the left side, 10 on the right, 15 on either side, and 9 on the back.

Thirty-three patients had about the same amount of tuberculosis in each lung; of these, 4 slept on the left side, 16 on the right, 12 on either side, and 1 on the back.

It would seem that a majority of normal persons sleep on their right sides, yet there are certain factors which may determine otherwise.

A nasal obstruction, the turning the eyes away from the light and other factors may have an influence on the position taken during sleep.

It was pointed out by Walsh[1] that in pulmonary tuberculosis the disease would seem to begin in most patients at the right apex. Later possibly the left apex would show evidence of disease, and the further spread of tubercles would be to the left base. We have ourselves noted that we have had more patients needing pneumothorax with extensive left sided than with extensive right sided tuberculosis.

The life history of the tubercle bacillus demands access to and egress from the host. It would possibly seem rational to imagine that in the tubercle bacillus making the human race meet its needs, the disease would become more widespread in the more exercised lung. The fact that the majority of persons are apt to sleep on their right sides and the fact that a majority of advanced tuberculous lesions are to be found in the left lungs may not prove to be entirely coincidental.

The experiences noted from successful artificial pneumothorax convincingly show the great value of rest of the tuberculous lung.

Rubel[2] has shown in rabbits injected intravenously with bovine tubercle bacilli that in an immobilized lung the tuberculous process becomes a chronic type, whereas in the freely moving lung the disease is of a rapidly progressive type. It would seem rational, therefore, to advise patients to lie on the side of the more diseased lung at night and also to rest in this position as much as possible in the day time. We have noted that in general those patients who have unconsciously done this would seem to present more quiescent lesions.

About fifteen years ago one of us advised this position of sleep and rest to a patient with advanced right sided lesions who today is in excellent general health.

In many patients, on account of the cough produced by such posture, we have allowed rest for a short time on the sound side in order to procure drainage, and then we have trained them very gradually to rest on the side containing the actively diseased lung.

During the past year we have applied this principle in a large number of cases, and in addition have placed under the dependent side a small firm pillow to restrain the motion of this lung to a greater degree. Some patients so treated have been able to remain lying on the side of the diseased lung over twenty hours a day for months at a time with little discomfort. The results have been encouraging, and we feel we

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* Read at the twelfth annual meeting of the National Association for the Study and Prevention of Tuberculosis.

[1] Walsh: Tr. Fifth Annual Meeting, Natl. Assn. Study and Prev. Tuberc.

[2] Rubel, in Fishberg: Pulmonary Tuberculosis.

have observed in certain cases a cessation of fever, a diminution of expectoration, and lessened liability to relapses.

In the normal person there is probably little if any hyperemia of the dependent lung during sleep. In a tuberculous patient, however, a moderate degree of hyperemia is undoubtedly produced by prolonged rest on the affected side. We would seem to have confirmation of this probability in several patients who have found hemorrhages to occur over a period of years whenever they have slept on the side of their diseased lung.

It would seem wise in future to observe all patients with nocturnal or early morning hemorrhages from the point of view of the side on which they have rested at night.

In certain patients with heart lesions the rarity of pulmonary tuberculosis has been thought to be due to a possible back pressure of the blood in the pulmonary circulation.

Fagge[3] found only four cases of pulmonary tuberculosis with mitral stenosis in thirty years' records of postmortems at Guy's Hospital.

In searching the literature in regard to the above mentioned simple procedure little can be found.

Mendelsohn[4] advocated patients with pulmonary tuberculosis lying on the side of the healthy lung so that the discharge assisted by gravity could more easily flow to the bronchus and so be thrown off.

Link[5] in 1902 suggested tuberculous patients resting for a few hours during the day on the side of the tuberculous lung, but from his article it would seem did not thoroughly carry out the suggestion. Link, however, calls attention to the possibility of hyperemia and also of the added rest of the affected lung by adopting such a procedure. Link observed the diminished respiratory murmur of the dependent lung.[6]

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[3] Fagge, in Fishberg: Pulmonary Tuberculosis.

[4] Mendelsohn: Ueber therapie Beeinflussung der Expektorationen durch Heilmittel der Hypurgie, Berl. Klin., 1899.

[5] Link: Lagerung der Kranken bein einseitiger Spitzentuberkulose, Ztschr. f. Tuberk., iii, 480.

[6] The following references may also be consulted:
Rubel: Funktionelle Ruhe der Lungen, etc., Ztschr. f. Tuberkulose, x, 193, 319.
Gerhardt: Die Lage der Kranken als Heilmittel, Ztschr. f. Krankenpflege, 1898, p. 88.
Galliard: Les Pleuresies providentielles, Sem. méd., 1897, p. 214.
Von Leyden: Der Comfoit der Kranken als Heilfaktor, Ztschr. f. Krankenpflege, 1898, xx.
Reusner: Die Expectoration bei allein erhaltener Zwerchfellathmung, St. Petersb. med. Wchnschr., 1898, No. 2.

Charcoal in Local Treatment of Gonorrhea.—An abstract in the *Correspondenz-Blatt* says that Oppenheim and Schlifka of Vienna report excellent results from injection into the urethra, once a day, of a suspension of 5 gm. of animal charcoal in 0.5 liter (quart) of tepid water. Acute gonorrhea, suppurating profusely, with numerous gonococci, was permanently cured by this alone, but the cure could be hastened by combining it with an astringent (1:6,000 potassium permanganate). The procedure proved most promptly effectual in acute posterior urethritis with diffusely purulent turbid urine. They said that this charcoal lavage does not irritate or harm in any way.

TUMORS OF THE THIRD AND FOURTH VENTRICLES *

PETER BASSOE, M.D.
CHICAGO

I. TUMORS OF THE THIRD VENTRICLE

In 1910 T. H. Weisenburg,[1] on the basis of thirty reported cases with necropsy, succeeded in bringing out the salient features of tumors arising within the third ventricle and thus establishing a syndrome which necessarily is ill defined, as the symptoms are either due to pressure on neighboring structures or to secondary hydrocephalus. Among the former symptoms are paralysis of the associated ocular movements, exophthalmos, large pupils with impaired reaction, and ataxia of the cerebellar type. Of the few cases reported later, one by Lewis J. Pollock[2] may be mentioned, as the appearance of the tumor on cross section of the brain closely resembles that of the one to be related here.

Case 1.—*Boy, 14 years old, with rather precocious genital and hairy development suggesting hyperpinealism. Limitation of ocular movements. Papillitis and blindness. Ataxia. Headache; drowsiness; mental dulness. Soft glioma filling third ventricle; secondary hydrocephalus.*

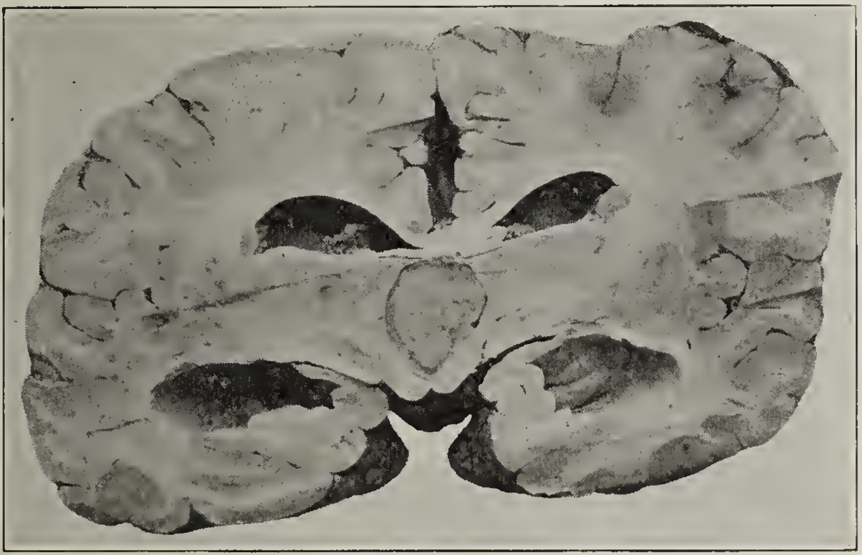

Fig. 1 (Case 1).—Tumor filling third ventricle.

A boy 14 years old was admitted to the surgical service of Dr. Carl B. Davis in the Presbyterian Hospital, Aug. 24, 1915, having been referred to him by Dr. J. C. Bucher of Verona, Ill. The parents and two brothers and sisters are in good health. The patient had previously been healthy and had done well in school. He had been of a solitary and shut-in disposition and had used tobacco to excess for four or five years. Two months before admittance he had daily headache for a week or ten days, then it subsided, and he had not complained of it for a month before coming to the hospital. Two weeks before admittance he suddenly became blind, and a few days later he had an epileptiform attack. From the time of the onset of headache he gradually grew dull mentally.

Examination by the writer on the day of admission: Well developed boy with healthy, ruddy complexion. The head is rather large, the circumference being 58.5 cm. He has a very distinct mustache for his age, also abundant pubic hair. He is dull, drowsy and apathetic and cannot give a reliable account of his previous history. The pupils are equal, wide and do not react to light or in accommodation. When at rest the eyeballs diverge a little. There is apparently no light perception. The movements of the eyeballs, especially the left one, are much limited. The left eye is only moved 15 degrees outward, the right one twice as much. Marked bilateral choked disk with hemorrhages. Corneal reflexes present. He lies on his back with head turned to the left and holds the neck stiff. Any movement of the head, especially to the right, is resisted and seems to cause headache. The gait is very unsteady and he has a tendency to fall backward. Ataxia of the extremities is demonstrated by the finger to nose and heel to knee tests. Examination of sensation is unsatisfactory, but apparently there is some diminution of pain sense on the left side of the face. The facial muscles appear somewhat weak on both sides, and the greatest weakness is found in the shutting of the left eye. The watch is heard in both ears. Knee jerks are absent; left ankle jerk absent, right present. Abdominal and cremasteric reflexes present. Wrist and elbow jerks present. No Babinski sign. The genitalia are very well developed.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Weisenburg, T. H.: Brain, 1910, xxxiii, 236.

[2] Pollock, Lewis J.: Tumor of the Third Ventricle, The Journal A. M. A., June 5, 1915, p. 1903.

Blood examination: Hemoglobin, 82 per cent.; red cells, 6,000,000; white cells, 15,900.

Urine: Normal except for excess of phosphates. The Wassermann test is negative with blood and spinal fluid, and the latter shows no increase in cells or globulin and gives a negative Lange colloidal gold test.

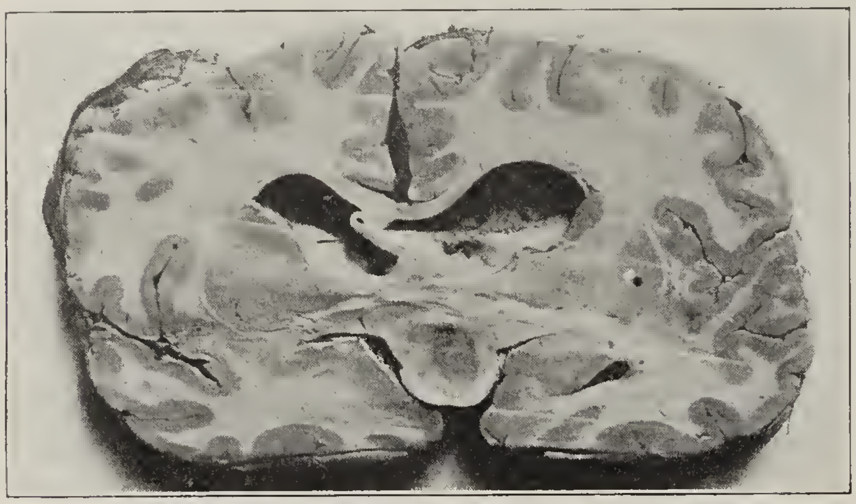
Fig. 2 (Case 1).—Anterior portion of tumor.

August 27, ophthalmoscopic examination by Dr. C. G. Darling shows a swelling of 8 diopters in the right eye and 4 or 5 in the left eye.

August 30: Getting worse mentally; seems disoriented; soils bed; has vomited his breakfast a few times; little headache, always tendency to fall backward.

A diagnosis of brain tumor was made, most likely located in the region of the corpora quadrigemina or pineal body, although the possibility of a cerebellar site could not be excluded. However, only a decompression operation was advised.

August 31: Right subtemporal decompression was made by Dr. Davis. The brain was found to be under unusually high pressure. The temperature, which previously had not exceeded 99 F., rose to 102.4 six hours after the operation, and reached 104.8 before death, which occurred thirty hours after the operation.

Necropsy.—The brain weighs 1,450 gm. The sulci are shallow and the gyri flattened. On the right side is a bulging area corresponding to the recent decompression operation. On the inferior surface there is a marked downward bulging in the region of the pineal body. The latter structure, however, is of normal appearance. After hardening in liquor formaldehydi the brain was cut by means of frontal sections. The bulging referred to is found to be caused by the great distention of the lateral ventricles. A soft, light gray tumor is found to fill the third ventricle (Fig. 1). Posteriorly it lies free in the ventricle, plugging the opening of the aqueduct, and appears to have a slight capsule. Its upper surface bulges into and completely closes the foramina of Monro (Fig. 2). In front of this level the tumor is seen to extend in a downward direction in front of the infundibulum, the anterior end being 9 mm. in front of the anterior border of the optic chiasma. The bulging at the base produced by this forward growth of the tumor begins at about the center of the base of the infundibulum and extends 2.3 cm. forward, or 1.1 cm. in front of the chiasma. The greatest anteroposterior measurement of the tumor in the third ventricle is 4.7 cm. Transversely it measures 1.9 cm. and vertically 2.1 cm. The degree of hydrocephalus may be judged from Figure 3, showing the anterior portion of the lateral ventricles.

Histologic Examination.—This tumor is very edematous, loose in texture, and in most places shows considerable evidence of tissue degeneration. Small hemorrhagic areas are seen. The cells are very variable in size and shape, and only in a few places is there any significant arrangement of them.

Many of the cells have the appearance of astrocytes, and very abundant fine fibers are seen in Van Giesen specimens. Their appearance suggests glia; but the Weigert glia stain failed, probably on account of the tissue degeneration. On the border of the tumor tissue remains of the ependymal layer of cells may be seen, in the form of palisade-like columns (Fig. 4).

II. TUMORS OF THE FOURTH VENTRICLE

Tumors of the fourth ventricle are much more common than those of the third ventricle. They also produce symptoms by inducing hydrocephalus and by exerting pressure on neighboring structures, in this case the cerebellum, pons and medulla. Like all other posterior fossa tumors, they may produce stiffness of the neck and occipital pain; and as increase in cells and globulin as well as in the pressure of the spinal fluid is common, a clinical resemblance to meningitis sometimes exists. This is well shown in our Case 2, while Case 3 presented the picture of cerebellar tumor, and in Cases 4 and 5 mental symptoms predominated. In another case reported by the writer[3] in which, in addition to the fourth ventricle tumor, another ependymal glioma in the frontal lobes was present, mental symptoms entirely dominated the clinical picture. Sudden death is very frequent in these cases.

Case 2.—*Early symptoms suggestive of meningitis. Cloudy spinal fluid with increase in cells, both polymorphonuclear and mononuclear. Papillitis. Duration five and one-half months. Sudden death. Very large tumor in fourth ventricle, breaking through and almost surrounding pons.*

A boy 2½ years old, formerly well, was seen with Dr. H. F. Helmholz at the Evanston Hospital, Feb. 15, 1914. Ten weeks previously he had been taken ill with vomiting which occurred every day. There was slight fever, the temperature occasionally reaching 101 F. The child seemed to suffer from headache. Strabismus and nystagmus had been noted, but there were no convulsions.

Blood examination, February 12: Hemoglobin, 75 per cent.; reds, 5,000,000; white cells, 15,000.

Examination.—Slight bilateral papillitis; no Kernig sign, no rigidity; knee and ankle jerks weak; abdominal reflexes weak, left weaker than right; doubtful left Babinski sign. The child was fairly bright and good natured. On making lumbar puncture the fluid was cloudy and escaped in a stream. There were 363 cells per cubic millimeter, about two thirds of which were polymorphonuclear. No bacteria were found in smears or cultures. As tuberculosis was suspected, a guinea-pig was inoculated but did not develop the disease.

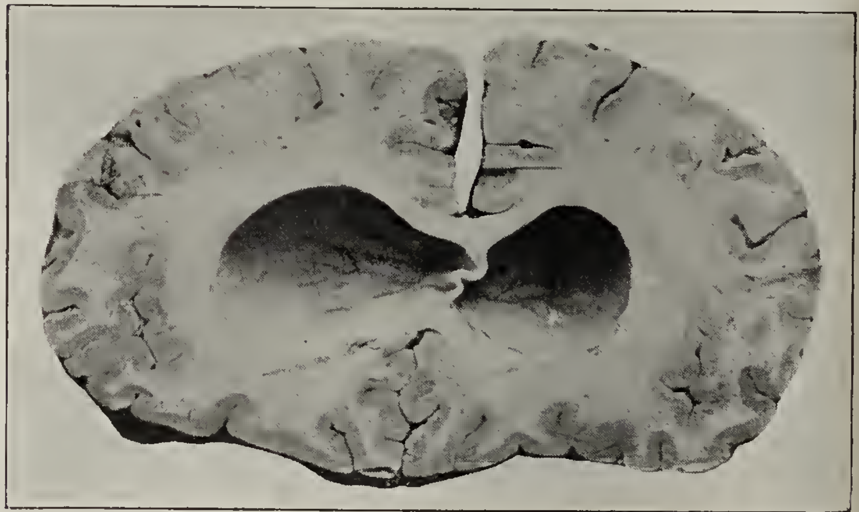
Fig. 3 (Case 1).—Anterior portion of distended lateral ventricles.

For further information regarding this case I am entirely indebted to Dr. Helmholz and to Drs. W. O. Hoffman and

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[3] Bassoe, Peter: Multiple Ependymal Glioma, Arch. Int. Med., September, 1908, p. 194.

A. B. Schwartz, in whose article on the permanganate reduction index of the cerebrospinal fluid[4] this case appears as Case 1. February 17, slight rigidity of the neck appeared with suggestion of the Kernig sign on the left side. There was a distinct Babinski sign on the left side; right plantar reflex normal. February 18, spinal fluid still opalescent but pressure not increased. The patient improved, and on February 24 he could stand up and walk when led by the hand. The headache was less severe, and vomiting had ceased. The spinal fluid was clear and showed a few lymphocytes, but no bacteria. A "weakly positive" Wassermann reaction was obtained with the spinal fluid, and the Lange gold test on this and three subsequent occasions gave a weakly positive reaction of syphilitic type, which may be represented as follows: 0 1 2 2 1 0 0 0 0 0 (maximum reaction would be 5). Mercurial treatment was now commenced and the patient continued to improve. March 2, a weakly positive Wassermann test with the blood was obtained. March 17, he walked well and had gained in weight. Lange test negative in all dilutions. No puncture was then made for a month, and by April 16 the headache had returned and marked ataxia had developed so he could not sit up in bed with the eyes closed. There was some relief after lumbar puncture. The Lange test was negative.

May 9: In spite of repeated lumbar punctures, the symptoms became more severe.

May 25: Frequent vomiting. Unable to sit up without swaying from side to side. Mind clear. Wassermann test with spinal fluid negative.

June 9: Died quite suddenly without any special symptoms having developed.

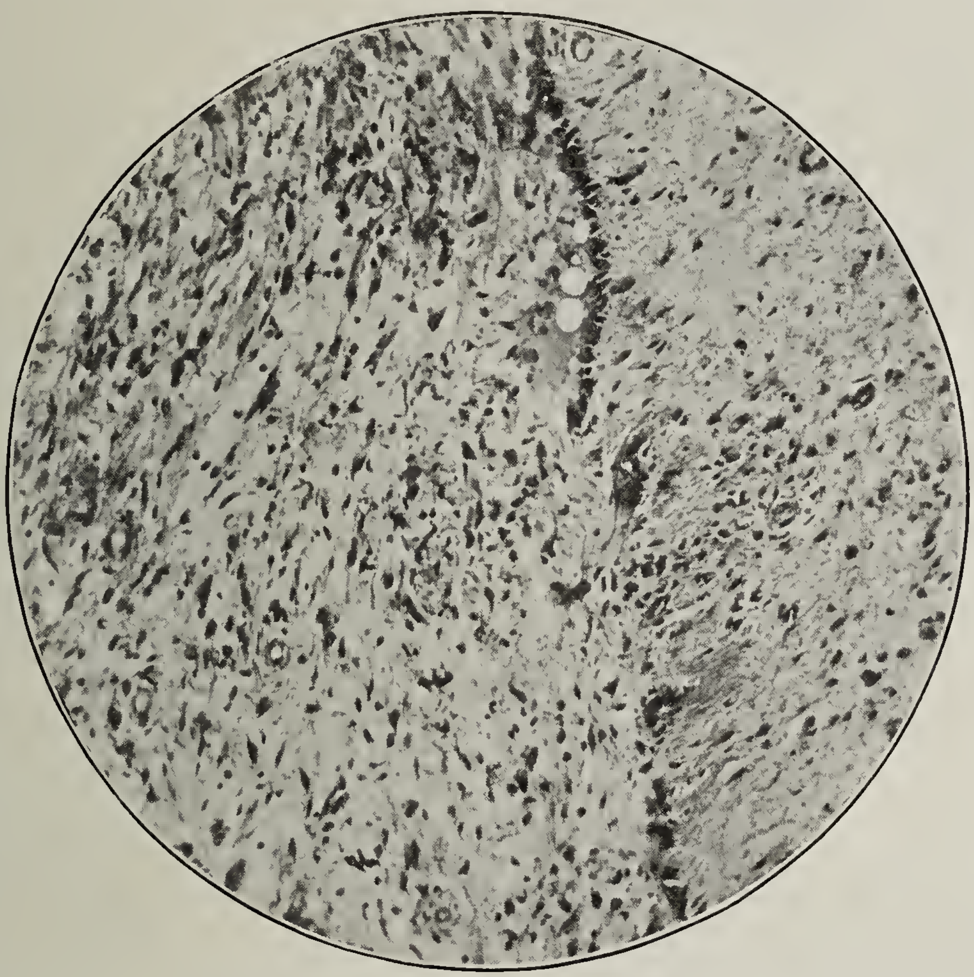

Fig. 4 (Case 1).—Photomicrograph of tumor showing remains of ependymal layer.

Necropsy.—After hardening in liquor formaldehydi the brain weighs 1,385 gm. The gyri are large and flattened, the sulci shallow. The cerebellar lobes at the base are seen to be separated by a light gray tumor mass which extends forward and upward so as to nearly surround the pons, only a space 8 mm. being left uncovered (Fig. 5). The width of the tumor between the cerebellar lobes is 3 cm., and it extends 4 cm. backward from the posterior border of the bulb. Figure 6 shows how the tumor fills and enormously expands the fourth ventricle. Hemorrhagic areas are seen in its substance. The pons and bulb are greatly flattened. The aqueduct is much dilated, the ventricles only moderately so. The tumor deeply indents the cerebellum on both sides, more so on the right, but does not grow into this organ or into the pons or bulb.

Histologic Examination.—The tumor shows characteristic structure of glioma, with typical rosette or fan-shaped arrangement of the cells about the vessels. Fine glia fibers are demonstrable by the Weigert glia stain (Fig. 7).

Case 3.—*Clinical picture of cerebellar tumor. Death on operating table after exposure of dura over cerebellum. Small tumor in upper part of fourth ventricle. Marked hydrocephalus.*

A girl 5½ years old was examined, Oct. 8, 1912, in consultation with Dr. W. R. Parkes of Evanston. The child had been perfectly well up to the age of 4 years, when she had measles. Two or three months later she began to stumble in walking and would usually turn the eyes to one side. She had headache for a month at that time. The legs gradually grew worse. In November, 1911, a neurologist discovered optic neuritis, made a probable diagnosis of cerebellar tumor and advised operation, but his advice was disregarded. After a fall, four days before my examination, she began to vomit and became semistuporous.

Examination.—The head is unusually large, but this is probably not significant, as the six healthy brothers and sisters also have large heads. The patient is dull and drowsy, and does not at all cooperate in the examination. The pupils are equal, of medium width, and react normally. Bilateral papillitis of moderate degree, probably of long standing. No nystagmus; no facial paralysis. Ocular movements probably normal. All tendon reflexes increased. Both legs spastic, bilateral ankle clonus and Babinski sign. The upper abdominal reflexes were equal and normal, the lower doubtful. A diagnosis was made of tumor in the posterior fossa, probably cerebellar, and operation advised. October 15, a suboccipital operation was performed by Dr. Charles E. Kahlke, but the patient died before the dura was opened.

Through the courtesy of Dr. W. Henry Wilson, pathologist to Hahnemann Hospital, I later had an opportunity to examine the brain, which had been hardened in liquor formaldehydi and afterward weighed 820 gm. The upper part of the fourth ventricle is filled by a grayish, smooth, rounded tumor, attached to the floor for a distance of 2 cm. (Fig. 8). Its width is 15 mm., height 7 mm. Its inferior border is 2 cm. above the end of the ventricle. On making longitudinal section it appears as if the tumor at its upper end extends for at least 1 cm. into the pons. The brain shows very marked hydrocephalus (Fig. 9).

Histologic Examination.—The tumor is a glioma, rich in cells.

Longitudinal sections of the pons beneath the tumor show that the latter extends well into the pons substance. The border is diffuse. Pal-Weigert specimens show no persistent nerve fibers in the portion of the tumor growing into the pons.

A section of the upper part of the cervical cord, stained by the Pal-Weigert method, shows the posterior columns and the direct cerebellar tracts to be well preserved and deeply stained in comparison to the rest of the cord. The pyramidal and Gowers' tracts are decidedly degenerated.

Case 4.—*Man of 58 years with symptoms of cardiovascular disease. Mental deterioration, delusions of persecution and delirious episode during last months of his life. Small sessile glioma in floor of fourth ventricle. External and internal hydrocephalus.*

A cab driver 58 years old was admitted to the service of Dr. B. W. Sippy in the Presbyterian Hospital, Oct. 5, 1906. He had been a hard working and temperate man. He had acute articular rheumatism at 17 and at 30 years of age, and syphilis at 48. For several years he had occasionally had sudden momentary sensations that he was going to fall when walking, a sensation of constriction around the chest, and shortness of breath on exertion. There had been a general feeling of weakness for at least three years but no loss in weight, and the appetite had been good. While in the hospital he was suspicious of other patients, even claiming that they had robbed him and tried to murder him. His memory for recent events became greatly impaired. He gradually grew irritable and excitable, and three weeks after admittance became delirious, had involuntary discharges, and had to be restrained. After three days the delirium subsided and he returned to his previous mental state. He also developed a pleuritic effusion in the hospital and at first there were both a systolic and a presystolic murmur at the apex with irregular rhythm, but later the presystolic murmur disappeared and the systolic one became very faint. The eye grounds were examined twice and found to be normal. The blood pressure at first was 190, later 104. The urine frequently contained albumin and hyaline and granular casts. The hospital record is silent as to any symptoms and findings on the part of the nervous system other than those mentioned. The patient died, Feb. 8, 1907.

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[4] Hoffman, W. O., and Schwartz, A. B.: The Permanganate Reduction Index of Cerebrospinal Fluid, Arch. Int. Med., February, 1916, p. 293.

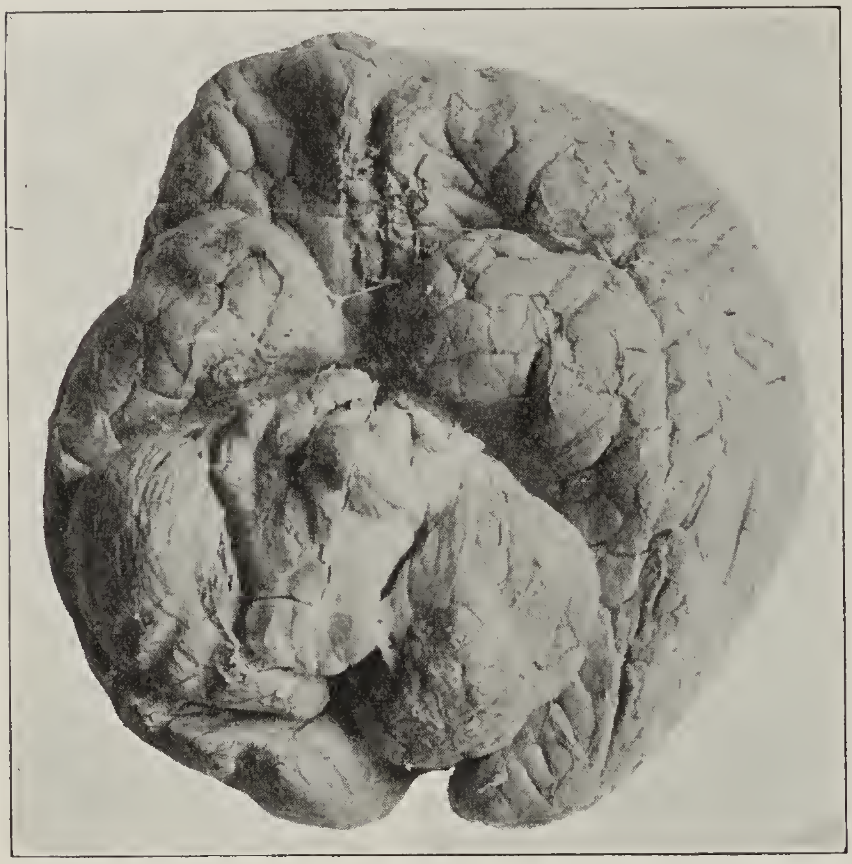

Fig. 5 (Case 2).—Base of brain showing tumor nearly encircling pons.

Necropsy.—At the necropsy the following anatomic diagnosis was recorded: arteriosclerosis; thrombosis of left iliac artery; retrograde thrombus formation in the aorta; edema of lungs, fibrinous pericarditis; hypertrophy of heart; chronic mitral and aortic endocarditis; hypertrophy of prostate and bladder; multiple rectal ulcers; tumor of fourth ventricle; external and internal hydrocephalus; atrophy of brain.

On opening the fourth ventricle a growth was seen attached to its floor and extending into the lumen of the ventricle but not reaching its roof. It was 1.5 cm. long, 1.7 cm. wide, and 18 cm. in height (Fig. 10). The protocol described the brain as "soft and tense to bursting." There was a large amount of subdural fluid, and the pia-arachnoid was very edematous. The ventricles were dilated.

Histologic Examination.—The tumor shows the structure of ependymal glioma, with some areas consisting mostly of fine fibers while in others cells predominate. In the center of the tumor small areas of calcification, as well as hyaline concretions, are seen (Fig. 11).

Case 5.—*Man, aged 38 at death. For several years attacks of headache, dizziness and vomiting. Early relative weakness in left side. Mild mental deterioration and symptoms of cardiac and renal disease. Death from hypostatic pneumonia. Sessile tumor in floor of fourth ventricle.*[5]

A business man, married, 37 years old, was first seen by the writer, Nov. 15, 1912. There was some suspicion of syphilis in the father. No brothers or sisters. No previous illnesses of importance. Venereal disease denied.

Present Illness.—The onset was very gradual. About five years before death (1909) he began having brief attacks of nausea and vertigo, later associated with headache of increasing severity, lasting in the beginning a few hours only, later several days. From about June, 1911, more or less vertigo was experienced every day, worse in the mornings and after heavy meals, and especially when stooping. Vomiting occurred with severe attacks of headache. He began losing flesh in 1910, but when examined by Dr. Portis in November, 1911, he still weighed 195 pounds; one year later, 152 pounds. Dr. Portis found gastric hyperacidity and low blood pressure, (96 to 108). In 1911 he began complaining of clumsiness and lack of control of the movements of the left hand and arm, especially annoying when shaving or driving his automobile. A tendency to drag the left foot and to stagger to the left was also noted at this time. When first seen by Dr. Davis in March, 1912, physical examination was practically negative. The Wassermann test with the blood was made several times, generally negative, once or twice "doubtful." Later in 1912 the weakness in the left side increased and he showed a suspicious overconfidence in his business ability. In October of the same year he became involved in business failure and legal prosecution, and showed apparent rapid increase in mental deterioration which, however, possibly to some extent was simulated.

Examination by the writer, Nov. 15, 1912: Patient carries himself like an old man and talks slowly and feebly. Memory probably somewhat impaired. Decided relative weakness in left arm and leg, latter slightly atrophic. Both knee and ankle jerks brisk, left more so. Pulse 68. No other findings.

Dec. 8, 1912, reexamined. Looks better; has had headache every day, worse when sitting up. Less difference in reflexes on right side and left side, but left leg appears weaker. Blood pressure 100, pulse 64. Wassermann test with blood and spinal fluid negative. The latter shows no increase in cells or globulin. Lange colloidal gold test negative. Ophthalmoscopic examination negative. Attacks of severe headache, with vomiting, recurred frequently. The patient was last seen by me in 1913. Dr. Davis kindly informed me that he was under his continued observation from the fall of 1913 until his death in April, 1914. The weakness and atrophy of the left limbs increased. The eye grounds remained normal, but headache, vomiting and dizziness remained prominent symptoms. Albumin and casts appeared in the urine. Repeated examinations of the spinal fluid showed nothing abnormal. No sensory disturbance developed. A few days before death he developed hypostatic pneumonia which determined the fatal issue.

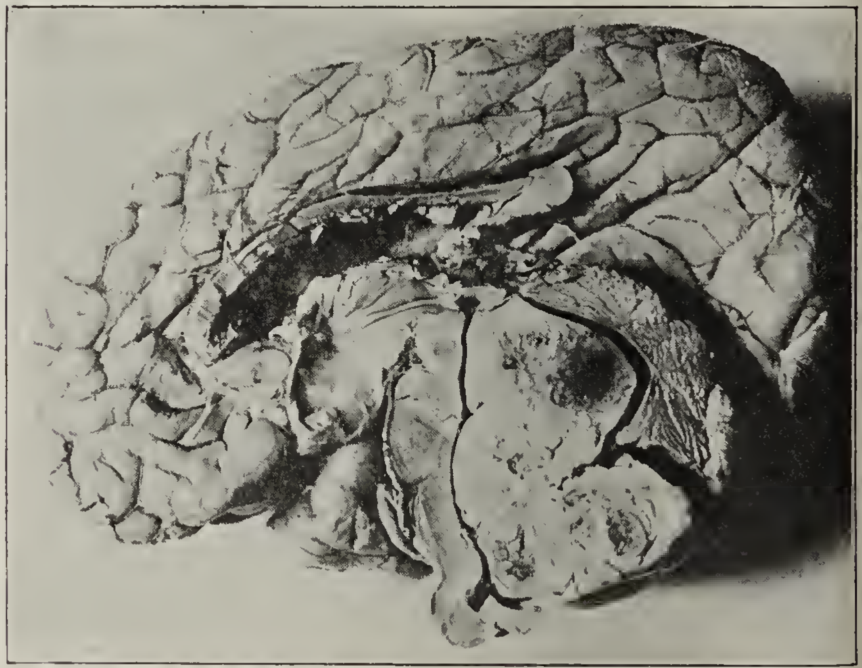

Fig. 6 (Case 2).—Median section of brain showing tumor filling fourth ventricle.

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[5] This patient was only under my observation for a period of a few months. For a large part of the clinical history I am indebted to Drs. Achilles Davis and Milton Portis, and for the necropsy notes and opportunity to examine the brain to Dr. F. Robert Zeit.

Necropsy.—This was held by Dr. F. Robert Zeit, who kindly placed his notes and the gross and microscopic specimens at my disposal. The following anatomic diagnosis was made by Dr. Zeit: Ependymal glioma of fourth ventricle. Internal hydrocephalus. Edema of brain. Chronic parenchymatous nephritis (large, red kidney). Hypertrophy of heart. Brown induration of lungs. Terminal hypostatic pneumonia. Healed tubercle in apex of left lung. Chronic granular gastritis and hemorrhagic acute duodenitis.

The specimen further examined by me consisted of the cerebellum, pons and medulla. The cerebellum had been opened from above so as to expose the fourth ventricle. This is greatly distended, and on the left side it forms a cavity occupying the greater part of the cerebellar hemisphere. To the left of the median line the ventricle is the seat of a sessile, grayish-red growth measuring 3.3 cm. in length, 3.5 cm. transversely, and projecting 8 mm. into the ventricle (Fig. 12). The cavity extends 2 cm. to the left of the tumor margin and has a smooth lining. The cerebellar substance covering the dilated ventricle on the left side is only 3 to 5 mm. in thickness. The under surface of the cerebellum shows marked molding at the edge of the foramen magnum.

The other gross findings are summarized in the anatomic diagnosis. It was particularly noted that nothing suggestive of a syphilitic lesion was found in the body, that there was very little sclerosis of the aorta, and that the vessels at the base of the brain had soft and thin walls. The skull and dura showed no changes. The convolutions of the brain were flattened, and the lateral and third ventricles were considerably dilated. Each kidney weighed 230 gm., and the capsules were adherent. The heart weighed 330 gm.

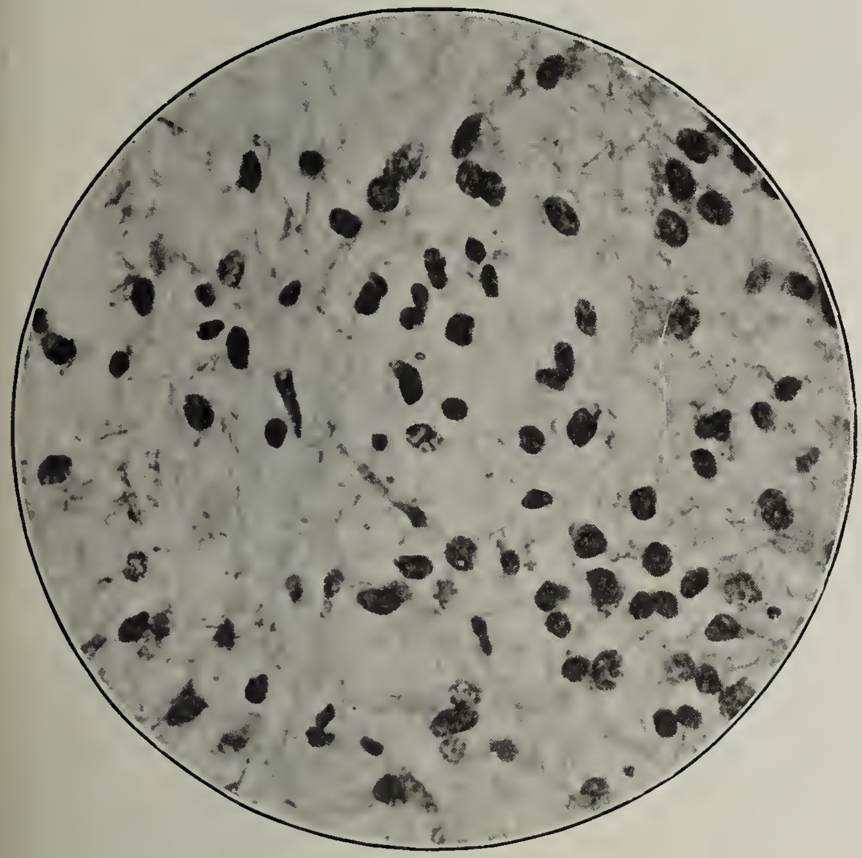

Fig. 7 (Case 2).—Photomicrograph showing glia fibers and cells.

Histologic Examination.—The structure is that of a somewhat degenerated ependymal glioma. Numerous hyaline concretions are seen (Fig. 13), mostly derived from obliterated vessels.

A Pal-Weigert specimen of the bulb shows considerable degeneration of the dorsal portion of the pyramids, adjoining the olives, while their ventral (superficial) portions are well preserved. Still more marked degeneration is found in the raphe and in the interolivary fibers. This portion of the bulb is seen in hematoxylin-eosin and Van Gieson preparations to be thickly set with pale blue, hyaline, round bodies.

Case 6.—*Boy 5 years old. Onset with headache, then adiposity, unsteadiness, papillitis and failing vision. Genitalia said to have become smaller. Later blindness, two convulsive seizures, marked general weakness. Decompressive operation, hyperpyrexia, death. Tumor filling fourth ventricle.*

A boy 5 years old was referred by Dr. Wright C. Williams of Peoria, Feb. 16, 1914. The patient was the sixth of eight children, the others being well. In the summer of 1913 he began to suffer from headache; later he grew fat and the genitals grew smaller. In the beginning of December he was brought to Dr. Williams on account of headache and a tendency to stumble. There was a slight papillitis, especially in the right eye, and vision was considerably reduced. It failed rapidly, and he became completely blind about the first of January. Late in December there were two convulsive seizures three days apart. The Wassermann test was negative with both blood and spinal fluid, and two examinations of the latter for cells were negative. Urine negative.

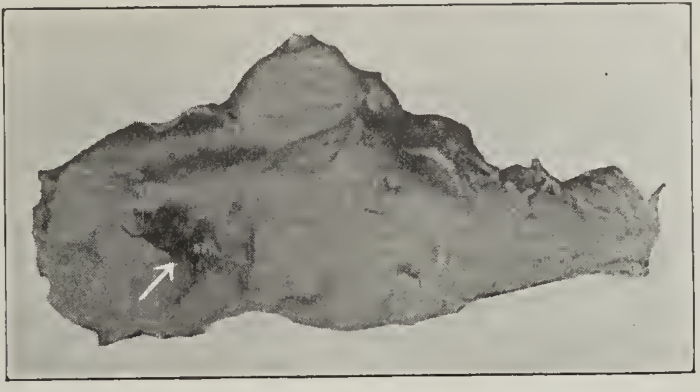

Fig. 8 (Case 3).—Tumor of fourth ventricle.

Examination.—Fat child with flabby musculature. Penis small; both testicles in the scrotum. Patient very weak; cannot walk or sit up unaided or hold the head erect for any length of time. Totally blind. Pupils equal and dilated. Constant rotary nystagmoid movements drawing the eyeballs upward and to the left. The movement to the left is rapid, the return slow. The eyes wink with the beginning of each nystagmoid movement. Dr. E. V. L. Brown made the following note: "Right and left optic nerve atrophy, secondary to marked choked disks; nerve head swollen (right plus 2); scleral and pigment rings not seen; retinae not involved; vessels narrow; pupils react to light only with light directly in front." Hearing normal. Apparently slight paresis of right side of face and right arm. Knee jerks absent; ankle jerks slightly increased, right more so; bilateral Babinski sign. The patient could draw the knees up but could not raise the knees from the bed. Probably no sensory disturbance. Abdominal reflexes not obtained at first, but later weak response was obtained on both sides. Soft, blowing heart murmur at the base. Roentgen-ray examination showed normal sella turcica. Blood examination: reds, 4,940,000; whites, 11,000; hemoglobin, 98. Urine normal.

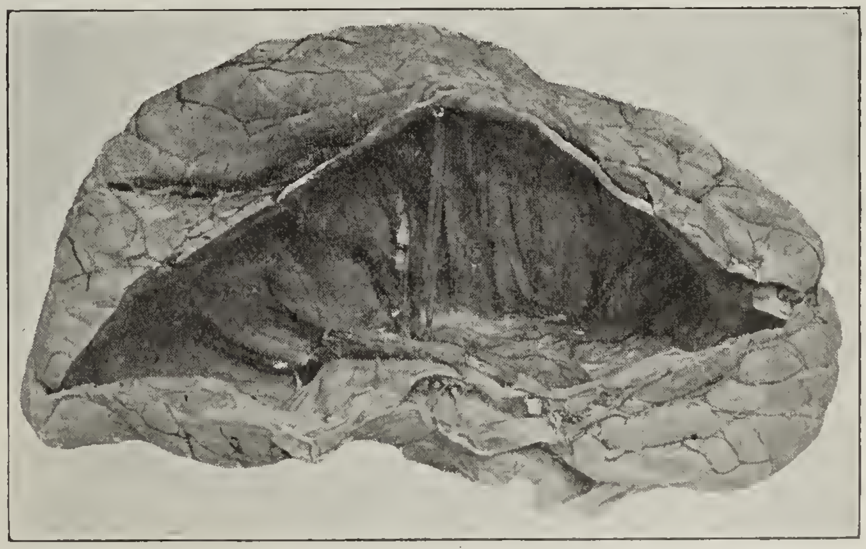

Fig. 9 (Case 3).—Median section of brain showing marked hydrocephalus.

February 25: Right subtemporal decompression made by Dr. Dean Lewis. The brain pressure was very high. Soon afterward the arms and later the entire body twitched continually. The temperature rose to 108.6 F. before death, eighteen hours after the operation.

Necropsy.—The brain weighed 1,170 gm. Marked downward bulging of the third ventricle was noted. The hypophysis was normal. The fourth ventricle was filled by a soft tumor the greatest dimension of which was 5 cm. transversely and 3.8 cm. vertically. The tumor was connected with the pons. Unfortunately, I missed the opportunity to examine the hardened and sectioned brain, and failed to learn to what extent the pons was actually invaded. All of the ventricles were considerably distended. The tumor tissue examined microscopically was said to be made up of masses of darkly staining small round cells and to show considerable necrosis and in places small hemorrhages.

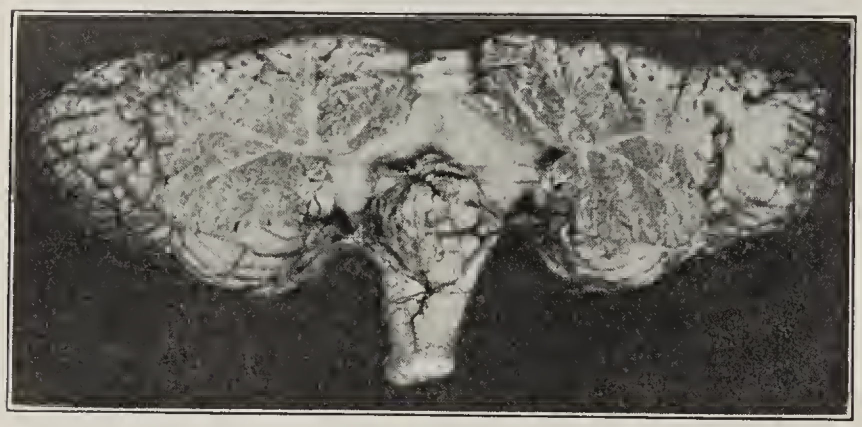

Fig. 10 (Case 4).—Tumor in fourth ventricle.

The histologic diagnosis was small round-cell sarcoma. (I have not had an opportunity to see the specimens, and know from experience that sarcoma and cellular glioma are frequently confused.)

THERAPEUTIC REMARKS

Of these six patients three were operated on, all with disastrous results. In Cases 1 and 6 subtemporal decompression was followed by death in thirty and eighteen hours, respectively. In Case 3 a suboccipital operation resulted in death on the table before the dura was opened. In Case 2 repeated lumbar puncture apparently gave temporary relief at times, but it naturally would more often be found to aggravate the symptoms. Any sudden interference with the intracranial pressure condition appears to be dangerous, and this applies to the three methods used in the present cases. The danger of death from the application of any of the usual cerebral decompressive methods, the practical impossibility of making a clinical diagnosis of intraventricular tumor, and the difficulty of access to these ventricles all conspire to place tumors of the third and fourth ventricles among inoperable brain tumors in the minds of most neurologists and surgeons. However, the writer must agree with Professor Anton[6] of Halle that operative removal of tumors of the fourth ventricle is not theoretically impossible. Some of them arise from the choroid plexus and are not attached to the walls, and others are only attached above, to the cerebellar vermes. It would, therefore, seem possible in such cases to enter the ventricle through the vermes, or below, and possibly remove the tumor, provided the pressure in the posterior fossa was not too high at the time of operation. In order to obtain a favorable pressure condition, Anton recommends operating at a period of relative freedom from headache and other pressure symptoms, and to perform a preliminary callosal puncture or puncture of one of the lateral ventricles. The only practical suggestion to offer is this one, that if symptoms strongly point to posterior fossa tumor and nothing is found in the cerebellar hemispheres, then the surgeon may go a step further and also explore the fourth ventricle, at the same sitting, if a preliminary callosal puncture has been made, or else after an interval of a few days.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Theodore H. Weisenburg, Philadelphia: Years ago I wrote a paper on this subject in which I reviewed the cases of tumor of the third ventricle reported in the literature. I wrote this paper because I had had three cases of tumor of the third ventricle in every one of which diagnosis of tumor of the cerebellum was made. On investigation I found that of the forty cases reported, not a single one had ever been diagnosed properly during life. I then tried to establish a symptom complex. Most cases of tumor of the third ventricle cause cerebellar asynergy; they all have internal hydrocephalus, with a paraparesis of all four limbs with the accompanying increase of reflexes. With this there is nearly always paresis of associated ocular movement upward. This symptom group would seem to be especially indicative of tumor of the third ventricle, and Dr. Bassoe's case would seem to confirm this. I believe that we can make a diagnosis of tumor of the third ventricle in life, for I have been able to do so. Tumors of the fourth ventricle are quite difficult to diagnose. Not in a single case, I believe, has a diagnosis been made in life. In most of these cases the diagnosis has been tumor of the cerebellum. Dr. Mills and I tried to show that there is such a thing as cerebellar localization. In cerebellar localization the trouble has been that there is usually no attempt to make a diagnosis of tumors in the separate parts of the cerebellum. Recently I have had two cases in which from our localization I was enabled to make an exact diagnosis. In one a tumor of the superior portion of the right cerebellum was diagnosed and operated, with removal of the tumor, and the child is now living and perfectly well. In another case, that of a man, we diagnosed tumor of the left lobe of the

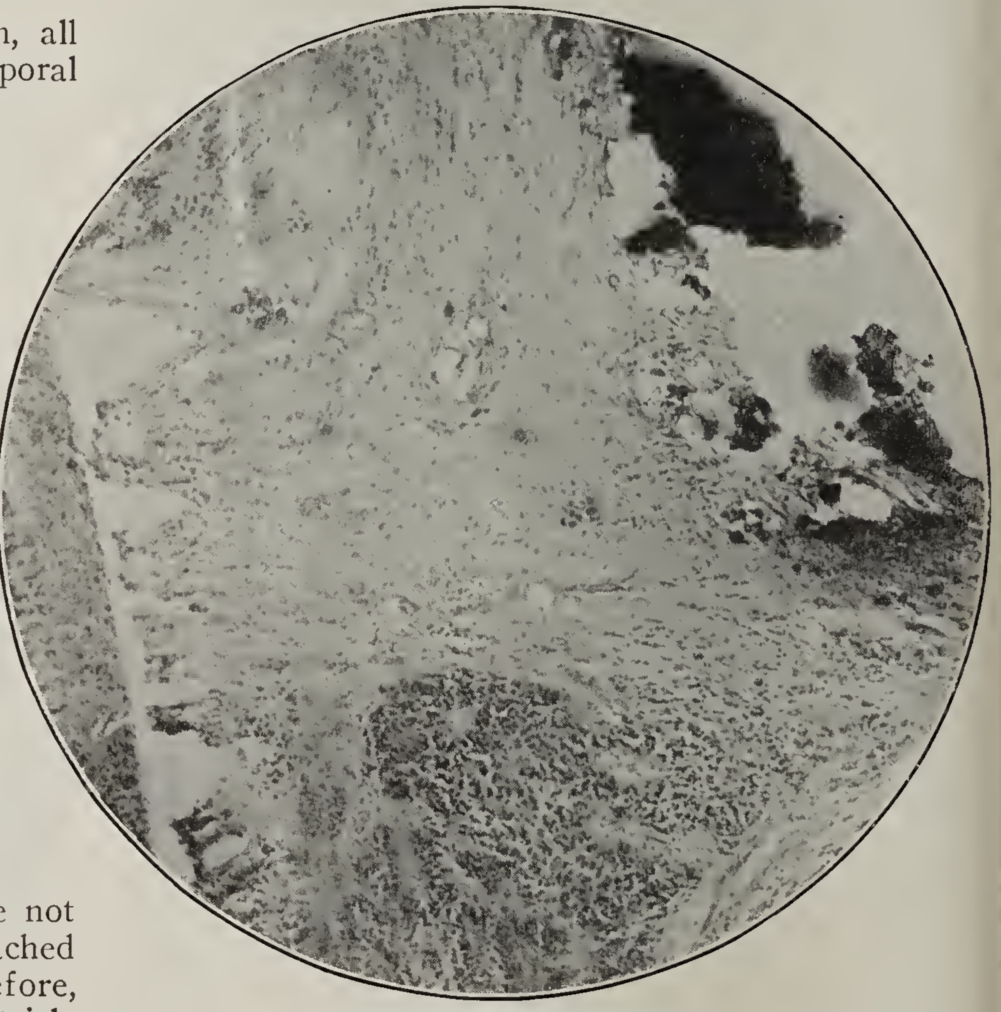

Fig. 11 (Case 4).—Photomicrograph showing deeply stained calcareous masses.

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[6] Anton: Arch. f. Psychiat., 1911, xlviii, 523.

cerebellum, and found and removed the tumor. Localization in the cerebellum should be advanced, that is, we should not be content to make diagnosis of tumor of the cerebellum; but should be able to say that a lesion is located in a certain and definite part of the cerebellum.

Dr. **Tom A. Williams**, Washington, D. C.: In tumors of the third ventricle there is another sign to be found which was not brought out by Dr. Bassoe in his case report, and I do not remember whether it was brought out by Dr. Weisenburg in his original communication. The sign is one that was shown in a case we had in Washington in 1907 which was diagnosed during life and in which we had a postmortem. There were photographs in the case. Diagnosis was made of tumor in the third ventricle or of the corpora quadrigemina, involving both sides, and it was made by reason of several findings: First, because of complete ophthalmoplegia; second, from the eye grounds because of the marked choking of the disk in conjunction with the extreme rapidity of the onset; and, third, on account of the decerebrate attitude of the patient. This attitude is one that was, I believe, first described in connection with physiologic experiments, and consists of the quadrupedal progression reaction, namely: Suppose you scratch the right arm of the subject, there will immediately be, let us say, flexion of the right arm, and at the same time there will occur flexion of the counter leg, along with extension of the contralateral arm and extension of the homolateral leg; that is to say, the attitude and movement of quadrupedal progression. This is due to impulses from the spinal centers when separated from cerebral control. On that ground mainly the diagnosis in this case was made. And photographs show the child's position after stimulation of one area in various attitudes, as described, in that position, which is the position of the dog's progression. Hughlings Jackson published a case showing this attitude. I do not remember whether that was a case of this particular lesion, neither do I know whether a necropsy was obtained. The sign may depend on rapidity of onset, because it is possible that, in the gradual progress of a unilateral tumor slowly invading the third ventricle, gradual adaptation may prevent this particular syndrome or the patient may die before it develops.

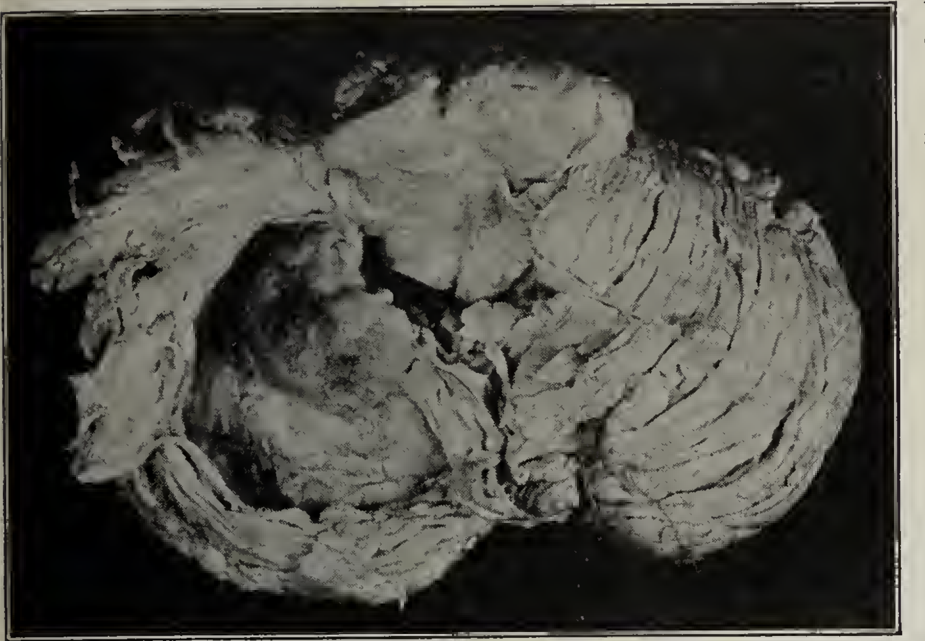

Fig. 12 (Case 5).—Tumor on left side of fourth ventricle.

Dr. **Harold N. Moyer**, Chicago: I saw the fifth case described by Dr. Bassoe on one occasion but the opportunity for examining was none of the best. In this case there was a striking clinical resemblance to paretic dementia. The symptoms would become very pronounced, then subside, and his conduct in the periods of euphoria, which were marked, strongly suggested paresis. He was distinctly paretic on the left side and persistently leaned forward and to the left; he would straighten up, but would soon automatically resume this position. I expressed the opinion that he had a brain tumor but of its location I had no idea. I certainly never suspected that it was a subtentorial growth. Dr. Bassoe says the eyegrounds were normal. At the time I examined him it seemed to me that the left disk was somewhat altered but not significantly so.

Dr. **Lawson G. Lowrey**, Hathorne, Mass.: About a year and a half ago I made a necropsy on a case presenting a tumor presumably arising in the third ventricle and extending from there into the lateral ventricle. For two years the patient had been in Danvers Hospital with a diagnosis of paresis. The symptoms were largely those of paresis, the onset had been rather gradual, the individual was dull, extremely indifferent and had demented very rapidly, with a doubtful blood Wassermann and no satisfactory spinal fluid examination. This tumor, too, was a glioma. So far as any exact examination that had ever been made showed, there were no symptoms that might be referred to a tumor.

Dr. **A. L. Skoog**, Kansas City, Mo.: While these tumors of the third and fourth ventricles are difficult to diagnose, yet frequently you can suspect localization. Probably quite a number of errors have been made on account of not giving sufficient consideration to the chronology of the case. We know that in cases exhibiting these various symptoms, and particularly those referable to the cerebellum and the medullary centers, and also those due to the secondary internal hydrocephalus, there is an onset of the symptoms at different periods. I believe we should lay emphasis on carefully noting just when each symptom begins. In this respect a careful history is, of course, important. There are case histories that are accurate and others that are not.

Dr. **Peter Bassoe**, Chicago: I must repeat what I said at the outset: that the symptoms in these tumors are caused either by pressure or invasion of neighboring organs, or by hydrocephalus. Dr. Skoog says, by a study of a sequence of symptoms we may form some opinion as to where the tumor originated. In the case of the fourth ventricle, if a tumor starts from the choroid plexus, there would necessarily not be symptoms until a certain amount of hydrocephalus was produced. If the tumor starts from the floor you may get symptoms on the part of the cranial nerves, or if it starts from the vermes you may have early localized

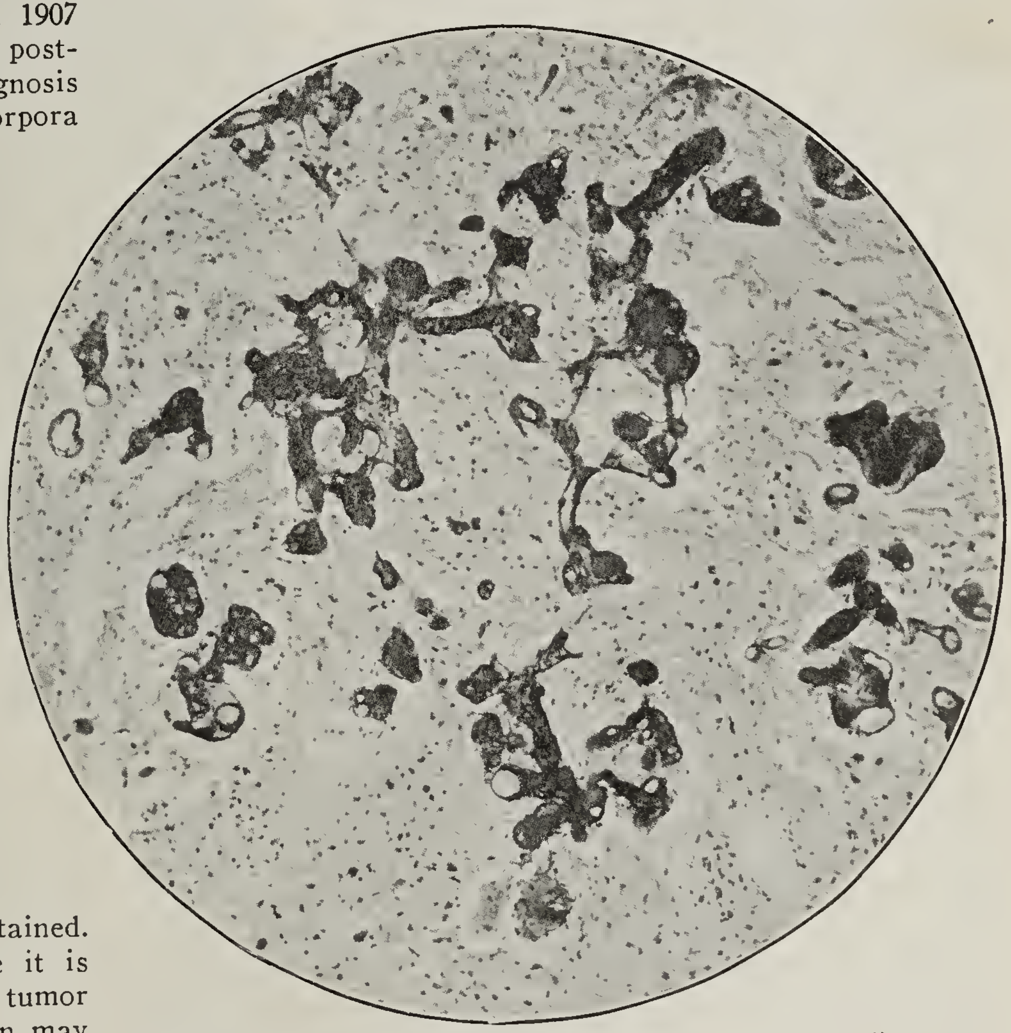

Fig. 13 (Case 5).—Photomicrograph of tumor showing hyaline transformation of vessels.

cerebellar symptoms. In the case of the third ventricle, quite necessarily the symptoms are those of hydrocephalus. We can hardly speak of any focal symptoms there unless the tumor has grown from the ependyma into the brain structure, or has started in some other structure and extended into the ventricle. In my only case of tumor of the third ventricle, the patient had a typical cerebellar ataxia. The very early loss of conjugate movements and early blindness, and the quite precocious development of hair and of the genital organs led us to suspect a tumor in the general vicinity of the pineal gland, or corpora quadrigemina, or in the third ventricle, but we did not venture to say in which of these structures the tumor might have started.

In regard to the diagnosis between tumors of the fourth ventricle and tumors starting in the cerebellum, this is extremely difficult. But if in a case with ordinary cerebellar tumor picture there is marked variation in the subjective feeling of the patient on changing position, together with quite a marked increase in cells and globulin of the spinal fluid, then I would be suspicious of a tumor in the fourth ventricle. In the case of which Dr. Moyer speaks, there was no change in the disks that I could make out, but I did not examine the patient during the last year of his life. I was told by three or four of the men who saw the case that they had never noted any change in the disks, but the patient was not under the observation of any one man during the whole period.

There is one aspect that has not been touched on here, and that is the possibility of any surgical treatment in these cases. In my three operated patients the surgical results were notoriously bad; one died on the table and the other two did not rally. Could we have done any better for those patients? It is only within a year that Professor Anton of Halle has written a paper seriously proposing operative procedure in cases of tumor of the fourth ventricle, providing it arises from the roof or choroid plexus. He says that at least half the tumors arise from the roof. By first doing a callosal puncture or puncture of the lateral ventricle, thus relieving the pressure from above, the suboccipital opening can be made with less shock. He believes it might be possible to go through the vermis, which usually has been gradually thinned out by the pressure, as was the case in some of my cases, or that we might go through the foramen Magendie, and remove the tumor. About ten years ago it was suggested by Henneberg that cysticercus cysts of the fourth ventricle might be removed in that way.

Sickness in Rural Health Districts.—During the summer of 1915 the New York state department of health made an inquiry to determine the amount and nature of sickness usually and fairly constant in rural communities. Five townships and two villages in Albany County were the subject of this survey. The district was considered fairly typical of rural New York. The population of these townships numbered 5,676, and the number included in the records 5,187, or 91.2 per cent. of the total. The number of persons admitting that they were ill was 582, or 11.2 per cent. of the population visited. An examination of 397 schoolchildren in a rural district of New York shows that 51.3 per cent. had defective teeth and 61.5 per cent. enlarged tonsils or adenoids. The total number of cases of illness in six townships and two villages was 1,242, of which 688 were not under the care of a doctor. In this survey the investigators reported that teeth defects were generally present at all ages. This investigation brought out the further fact that while school inspection pointed out the defects of the children, no means was provided for the correction of such defects, and also that most people were willing to pay a moderate price for treatment but could not pay "fancy prices."

THE PROGRESSIVE TORSION SPASM OF CHILDHOOD (DYSTONIA MUSCULORUM DEFORMANS)

A CONSIDERATION OF ITS NATURE AND SYMPTOMATOLOGY [*]

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The subject which I would present for your consideration is that curious form of motor disturbance known as the progressive torsion spasm or dystonia musculorum deformans.

Dec. 17, 1910, Ziehen,[1] at a meeting of the Berlin Psychiatric Society, demonstrated a child 10 years of age with a spasmodic affection of unusual type. Four similar cases had come under his observation, three in members of the same family.[2] In all, the affection had been gradually progressive and was characterized by spasm and hypertonicity of the musculature, with curious twisting and torsion movements of the extremities and trunk. The muscular spasm was considerably increased by active movement and diminished during rest. The gait and station were chiefly affected and there was marked lordosis of the spine. The tendon reflexes were present but difficult to elicit, because of the tension and torsion of the muscles. Sensation and intelligence were not affected, and, in one of the cases, necropsy had revealed no essential lesion. All of the patients were Russian Jews.

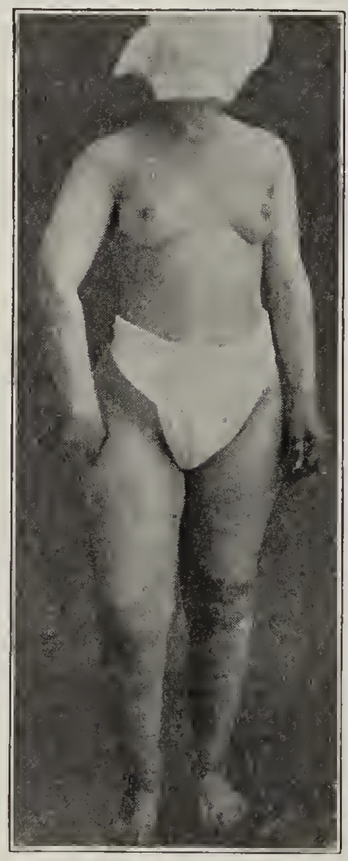

Fig. 1.—Hemiplegic type of progressive torsion spasm showing the attitude in a case of hemidystonia dextra of eight years' duration; subsequently, the left arm and leg showed evidences of involvement.

In discussing the character of the motor disturbance, he stated that while there was a certain general resemblance to the movements of chorea and athetosis, these affections as well as hysteria could be definitely excluded. He regarded the affection as a special type of the degenerative spasmodic neuroses, allied to impulsive tics, and proposed the name "tonic torsion neurosis."

In 1911, Oppenheim[3] followed with a more elaborate description of the disease, which he regarded as organic and not functional in nature, and emphasized the close relationship of the spasm to athetoid movements.

Oppenheim's cases, like those of Ziehen, began in childhood (from the eighth to the fourteenth year). All were either Russian or Polish Jews. The affection began insidiously in one of the extremities, either the leg or the arm; but eventually the muscles of the thigh, pelvis and spinal column were always chiefly affected. There was marked lordosis with clownlike, bizarre movements, and a curious disturbance of the gait which suggested such descriptive terms as the "dromedary gait" or "monkey gait." In some of his cases backward progression was easier than the usual method. He also observed a tendency to clonic and rhythmic movements, mobile spasm and even tremor, somewhat resembling that of paralysis agitans. There was also a certain resemblance to chronic chorea, and still more to athetosis. The tendency to tonic muscular spasms with twisting and torsion movements was, however, the predominant feature.

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[*] From the Neurological Wards of the Montefiore Home and Hospital.

[*] Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[*] Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Ziehen: Tonic Torsions Neurose, Neurol. Centralbl., 1911, xxx, 109; Allg. Ztschr. f. Psychiat., 1911, lxviii, 281.

[2] Schwalbe had previously recorded this group of cases from Ziehen's Clinic as "Eine Eigenthümliche tonische Krampfform mit hysterischen Symptomen," Inaug. Diss., Berlin, 1908.

[3] Oppenheim: Ueber eine eigenartige Krampf Krankheit des Kindlichen und jugendlichen Alters; Dysbasia Lordotica Progressiva, Dystonia Musculorum Deformans, Neurol. Centralbl., 1911, xxx, 1090.

Oppenheim further emphasized the association of hypotonia with hypertonia in these cases. The tendon reflexes often could be elicited only by reinforcement, and other evidences of muscular relaxation and flaccidity were present. This conjunction of hypotonus and hypertonus, the occurrence of clonic and tremor movements, and his view as to the organic nature of the affection represent the chief differences from the original description of Ziehen. He further advanced the theory that the disease is caused by an anatomic lesion in some portion of the central nervous system which controls muscle tonus, bearing in this relation a certain analogy to paralysis agitans and the double athetosis. He suggested "dysbasia lordotica progressiva" or "dystonia musculorum deformans" as better descriptive names for the disease.

In the same year Flatau and Sterling[4] reported similar cases and confirmed the clinical picture as outlined by Ziehen and Oppenheim. In their cases, the early age, insidious onset, gradual progression, the racial tendency and general character of the muscular spasm were all present. As in the original descriptions, the muscles of the face and articulation were not affected, and the torsion spasm was confined to the extremities and trunk. The movements were involuntary, tonic and twisting in character, often producing curious spiral movements of the trunk. They were not rhythmic or harmoniously bending, however, as in athetosis, and a certain monotony and stereotypy were quite evident. In their cases certain of the spasmodic movements were relieved by slight accessory movements in other parts (*Hilfsbewegungen*), suggesting the method of relief occasionally encountered in tic convulsive. Sometimes the movements were quick, like those of chorea, and occasionally were of such amplitude as to suggest the hemiballismus of Kussmaul. Occasional tremor movements suggestive of paralysis agitans were also observed. There were no true associated movements, but frequently irregular and bizarre contractions in other muscle groups accompanied a voluntary act. The tendon reflexes were not exaggerated, but were diminished or absent, and there was no hypotonia.

Like Oppenheim, they regard the affection as organic, and emphasize its close relationship to the double athetosis. It differs, however, in localization, the trunk and proximal segments of the extremities being chiefly affected and in the type of the movements, namely, the twisting, torsion spasm with sudden brusque, clonic movements, and occasional tremors.

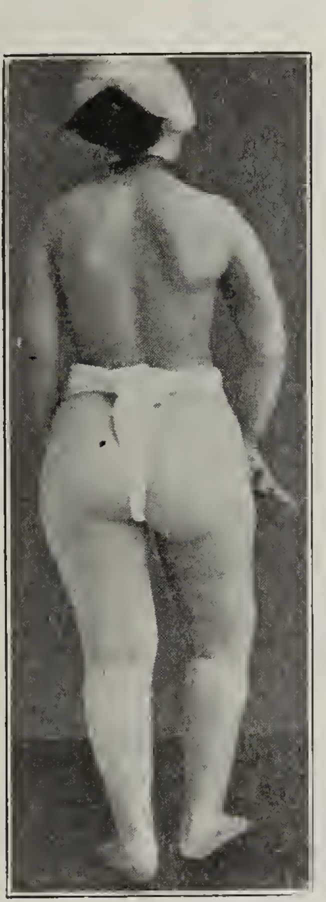

Fig. 2.—Posterior view, hemiplegic type of progressive torsion spasm; hemidystonia of eight years' duration.

They would call the affection "progressive torsion spasm."

In June, 1912, this subject was presented by Fraenkel[5] to the New York Neurological Society, and four cases of the disease were recorded, two of which have at various times been under my observation, and one I presented to the New York Neurological Society, in 1908, as an unusual case of myoclonia.[6]

Fraenkel's study verified the accuracy of the earlier clinical observations, and like Ziehen he relegated the affection to the degenerative neuroses, grouping it with tics and spasmophilias. He suggested "tortipelvis" as a distinctive designation for the affection. An excised fragment of muscular tissue from one of Fraenkel's cases was examined by Harlow Brooks and showed possibly some slight parenchymatous, but no atropic changes. In two of his cases intraspinal injections of magnesium sulphate were given with only temporary abatement of the spasm.

Since these publications, a number of observations have been recorded both in this country and abroad, showing that the disease is by no means a rare one. In this country Spiller,[7] Climenko,[8] Beling,[9] Abrahamson,[10] and Diller[11] have all reported cases which conform very closely to the original clinical picture as drawn by Ziehen, Oppenheim, Flatau and Sterling.

Spiller's case was somewhat unusual in that the patient was not of Jewish blood; two sisters were also afflicted with the disease and all were mentally defective.

I may mention that Bregman,[12] like Flatau and Sterling, failed to find the hypotonicity on which Oppenheim had laid so much stress; he also observed a myotonic reaction in the muscles of the forearm, and at times the spasm was quite painful.

In a very interesting case described by St. Bernstein,[13] the duration of the disease was twenty-five years, and for a number of years the affection had been stationary, having apparently run its course. In this case there was distinct dysarthria, which has not been noted by any other observer. This disturbance of the speech St. Bernstein believed to be a dystonic phenomenon, dependent on hypertonicity and spasm of the muscles of articulation.

As thus far the muscles supplied by the cranial nerves have not been affected in this disease, I think we should accept this observation with some caution and consider the possibility of high involvement of the neck muscles supplied by the upper spinal nerves and its possible secondary effect on articulation.

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[4] Flatau and Sterling: Progressiver Torsions Spasmus bei Kindern, Ztschr. f. d. ges. Neurol. u. Psychiat., 1911, vii, 586.

[5] Fraenkel: Dystonia Musculorum Deformans-Tortipelvis, Jour. Nerv. and Ment. Dis., 1912, xxxix, 361.

[6] Hunt, J. Ramsay: A Case of Myoclonia of the Trunk Muscles, Jour. Nerv. and Ment. Dis., 1908, xxxv, 656.

[7] Spiller: Case of Dystonia Musculorum Deformans, Jour. Nerv. and Ment. Dis., 1913, xl, 529.

[8] Climenko: Case of Dystonia Musculorum Progressiva, Jour. Nerv. and Ment. Dis., 1915, xlii, 167; Med. Rec., New York, 1914, lxxxvi, 1000.

[9] Beling: Case of Dystonia Musculorum Progressiva, Jour. Nerv. and Ment. Dis., 1912, xxxix, 461.

[10] Abrahamson: Case of Dystonia Musculorum Deformans, Jour. Nerv. and Ment. Dis., 1913, xi, 38.

[11] Diller: Dystonia Musculorum Deformans, with Report of a Case, Jour. Nerv. and Ment. Dis., 1916, xliii, 337.

[12] Bregman: Zur Kenntniss der Krampfzustände des jugendlichen Alters, Neurol. Centralbl., 1912, xxxi, 885.

[13] St. Bernstein: Ein Fall von Torsions Krampf, Wien. klin. Wchnschr., 1912, xxv, 1567.

To summarize, the progressive torsion spasm is a disease of childhood first described by Ziehen, and with rare exceptions has been confined to descendants of Russian and Polish Jews. It is essentially a progressive torsion spasm of the trunk and extremities, often associated with hypotonia and sometimes with movements of a more clonic or rhythmic character, suggestive of chorea and athetosis. Tremor movements are occasionally noted. The characteristic feature is the twisting and tractile quality of the spasm with the attendant distortion of the trunk and extremities, and the bizarre disturbances of posture, gait and station. Sensation is intact, and there are no symptoms of pyramidal tract involvement. It is a progressive affection with a limited symptomatology, and may eventually become stationary.

ANALYSIS OF PERSONAL OBSERVATIONS

Symptomatology and Types.—Six cases of this curious disease have come under my personal observation, all of the patients being at various times in the neurologic wards of the Montefiore Home and Hospital, which affords an unusual opportunity for prolonged and systematic observation.

In all the clinical picture corresponded very closely to the descriptions of Ziehen, Oppenheim and Flatau. In all of the cases save one, the affection began in childhood (6, 8, 9, 10 and 11 years, respectively), the exception being a typical case in which the first symptoms appeared at the age of 17 years. The sexes were equally divided, and all the patients, with one exception, were of Jewish origin.

The affection uniformly made its first appearance in one of the lower extremities, in four of the cases an interval of from one to two years elapsing before the opposite limb was involved.

In one case, the distribution in the extremities was hemilateral for a period of nine years (Figs. 1 and 2). In no case was the hand or arm the seat of primary involvement, although the upper extremities were affected in the later stages in three cases.

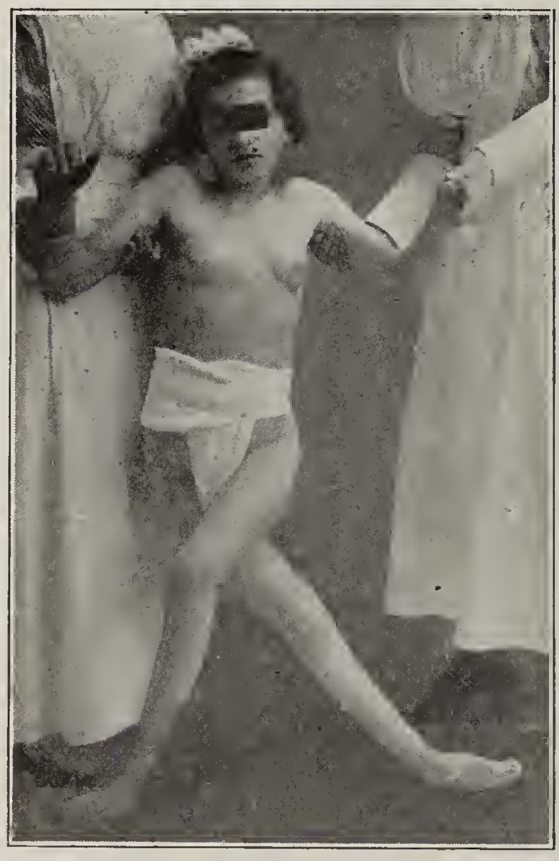

Fig. 3.—Paraplegic type of progressive torsion spasm of six years' duration; the symptoms of dystonia are limited to the lower extremities and lower portion of the trunk.

The lower portion of the trunk and the lower extremities were always most constantly and most severely affected, and a slow but definite progression was noted in all of the cases without exception. The muscles supplied by the cranial nerves were not affected, namely, those subserving the functions of articulation, facial expression and the ocular excursions. In one of the severe cases with high involvement of the neck muscles, there occurred, during an access of the motor paroxysm, slight contractions of the lower portion of the face, which I regarded as purely secondary, the result of a great effort to counteract the spasms.

In one of the cases the motor disability was so severe and so distinctly limited to the lower extremities as to suggest a paraplegic or pseudoparaplegic type (Figs. 3 and 4).

The character of the motor disturbance varied somewhat in the different cases, in this harmonizing with the reports of other observers. The tonic or hypertonic form with slow, torsion, twisting spasms of large muscle groups of the trunk and extremities predominated and was observed in all of the cases. Deforming functional contractures accompanied this type, which could always be overcome by strong passive movements. Especially characteristic in some of the more advanced cases has been a plantar flexion of the foot with extreme flexion of the toes producing a marked incurvation of the plantar surface (the semilunar foot, Fig. 5).

There was also a more active stage, characterized by movements of clonic or rhythmic character, accompanied by great motor agitation and unrest, suggesting somewhat the restlessness of chorea or athetosis. Two of the cases belonged to this type and produced the clownish movements, the bizarre postures and progression which suggested to Oppenheim such descriptive terms as the "dromedary gait" and the "monkey gait." In these cases the face was flushed, there was sweating and tachycardia, and the general motor excitement was at times so extreme as to be most distressing and alarming, requiring at certain periods morphin and scopolamin for relief. In two patients running was better performed than walking, and retrograde progression was also noted. In the other patients, the spasm was more tonic and much less active in character, and in bed or in a chair they rested with considerable comfort. In the late stage of this more tonic form a pseudoparalytic condition supervened, which was not paralysis in the ordinary sense, for some power of movement was retained, but paralytic so far as any voluntary control of the extremities was concerned.

Definite hypotonia was present in four of my cases, and in two it was absent, so that I do not regard this as a constant symptom in all stages of the disease. The tendon reflexes were present in all, although usually elicited with difficulty, and often only after repeated attempts, or during some favorable moment of relaxation. Hypertrophy of certain muscle groups was occasionally observed, as well as slight general wasting in the late stage, but without degenerative electrical changes.

None of the characteristic phenomena of myotonia were demonstrable in any of my cases.

There was no intelligence defect, and all of the patients were of average mental development. There were no hysterical manifestations or stigmata, and in none of the cases was there any tendency to stammering, impulsive speech, fixed ideas or phobias, which are so common in the degenerative motor neuroses. Nor were there noted any of those slight movements (*Hilfsbewegungen*) for the relief of spasm, so often present in cases of torticollis, such as laying the forefinger on the chin.

All of my patients would assume a definite fixed position while sitting or recumbent, which gave them most relief from the spasm. Occasionally, certain voluntary movements of an arm or leg would be made to influence or alleviate the severe spasm, experience showing that such movements had a relaxing effect on the dystonic disturbance. This was not, however, a psychic mechanism, and similar manifestations are occasionally observed in athetosis.

Remissions and Exacerbations.—Generally speaking, the disease was always gradually progressive. Occasionally, a slight improvement or remission was noted in some of the cases, but this was always of comparatively short duration.

A rather sudden progression occurred in one case while under observation (Fig. 6). This was an advanced type with involvement of all four extremities and the trunk. The spasm made its appearance rather suddenly in the neck muscles, which had up to that time been free. This nuchal spasm grew rapidly worse, and the attempt to control it seemed to disorganize the entire motor stability of the patient, and there ensued a period of about six weeks during which the child rolled and tossed in a veritable agony of movement. No position was found that would give relief, and I recall few more distressing spectacles than that of this child with a perfectly clear mind, struggling days and nights in the grip and conflict of these massive involuntary movements. During the few hours of sleep which came on after exhaustion, there was complete repose, but on regaining consciousness the spasms and torsions returned with unabated violence. Morphin and scopolamin were given to alleviate the suffering, and it really looked for a time as if fatal exhaustion would ensue, but the spasms finally grew less violent, it became possible to find a position which gave relief, and eventually the former conditions were resumed — the patient being chair-ridden and in certain postures fairly calm, with only occasional dystonic or torsion spasms. The control of the neck muscles was left permanently impaired, however, so that now no movement of the head is possible without strain and consecutive spasm (Fig. 7).

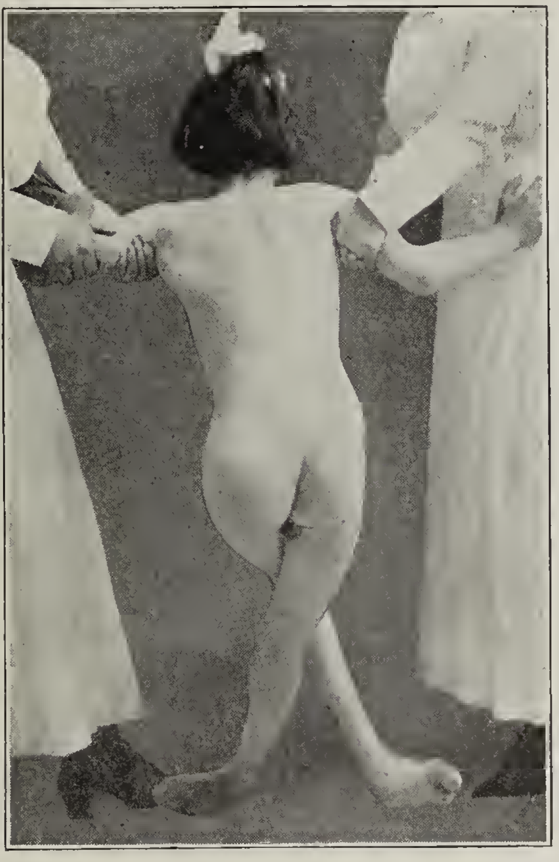
Fig. 4.—Posterior view, paraplegic type of progressive torsion spasm; dystonia paraplegica.

It would seem, in an exacerbation of this kind, as if the further impairment of what remained of this controlling mechanism jeopardized the compensatory stability which had been acquired during the gradual progress of the malady.

The Character of the Movements and the Nature of Torsion Spasm.—The movements varied in quality and character in the different cases and at different stages of the disease. There was always spasm, occasionally tremor, and sometimes movements of a choreiform or athetoid type.

In the early stage when an extremity is first affected, there is a disturbance in the harmony of movement; the foot turns outward or inward in walking, or the leg is thrown abruptly outward. In one case, a fine tremor movement always preceded and accompanied the spasm. Later, the spasm becomes more and more prominent and assumes the characteristic features of twisting and torsion, a variable hypertonia or dystonia in which the various muscle groups contract and relax. When the disease is well advanced, it is my experience that during rest those muscle groups showing spasm are more or less constantly in spasm, while their antagonists are usually relaxed and hypotonic.

The torsion spasm shows, therefore, a certain monotony or stereotypy after it is well advanced, and at rest the only signs may be repeated dorsal flexion of an ankle with an occasional spasmodic flexion movement of the knee or hip.

Any active movement, however, especially the effort to stand or walk, brings on a much wider dissemination of the spasm. The limbs are then drawn into weird postures or thrown out at strange angles, and walking or standing is quite impossible without assistance (Figs. 6 and 7). These are not true associated movements, but are associated dystonic phenomena.

In this stage the great involvement of the trunk muscles and hip girdle is quite apparent, producing lordosis with prominence of the buttocks and lateral distortion of the trunk from spasm of the erector spinal group and abdominal muscles. When the patient attempts to stand in this stage of the disease, there is not the normal postural fixation of the muscles. Instead, the muscles pursue quite independently their respective hypertonic and hypotonic tendencies, and the involuntary nature of the dystonia becomes very evident.

There is in this late stage not only an absence of postural reactions of the normal tonus in standing, but also definite disturbance of the voluntary control of tonus in the affected muscle groups. For example, if the effort is made to carry out a plantar flexion of the foot when the foot is in dorsal spasm, the only response is a further increase of the extensor spasm, the exact reverse of what the voluntary effort is attempting to accomplish. The command is understood, the effort is made, but the antagonist which is in a state of hypertonia receives the impulse and not the agonists. This effort may be repeated over and over again with the same result. If, however, the request is made for a dorsal flexion of the foot, which is already in a state of strong dorsal flexion, instead of there being an increase of the already existing dorsal flexion, there is a sudden movement in a reverse direction, that is, a plantar flexion. In other words, there is an inability to dissociate harmoniously the essential tonus elements of a simple movement, namely, contraction of the agonists and decontraction or relaxation of the antagonists. A similar reversal of normal voluntary movement may also be observed when the foot is in strong plantar flexion, that is, an attempt to extend the foot only increases the already existing plantar flexion, whereas a voluntary effort in the direction of the already existing flexion produces a reverse movement in the opposite direction. This phenomenon I would designate the paradoxical or reverse phenomenon of dystonia, and would emphasize its diagnostic importance in the differentiation from spastic, hysterical and other forms of spasmodic contractures. It is, I believe, a pathognomonic sign, but thus far I have observed it only in advanced cases in the pseudoparalytic stage. It was typically present only in the ankle joint, and in one case in the wrist joint as well.

The difficulty in motion is therefore not only that of overcoming spasm; this we see in spasticity and the rigidity of paralysis agitans; but also a disharmony between the contraction and relaxation of agonistic and antagonistic groups of muscles. Some observers, notably Lewandowsky,[14] regard the essential element in athetosis as an inability to dissociate movements, so that any single voluntary effort is split up into numerous associated movements. In contrast, I would regard the essential disturbance in torsion spasm or dystonia as an inability to dissociate the tonus elements of innervation, which are the underlying factors in every movement. There is in addition the absence of that inhibition or control which is a characteristic of all involuntary movements, such as tremor, chorea and athetosis, and which is an especially important factor in the regulation of the tonus mechanism.

Unusual Clinical Types.—In my series of cases, there were two which presented somewhat unusual features and might simulate other forms of organic disease of the central nervous system. For this reason the clinical histories will be given in more detail.

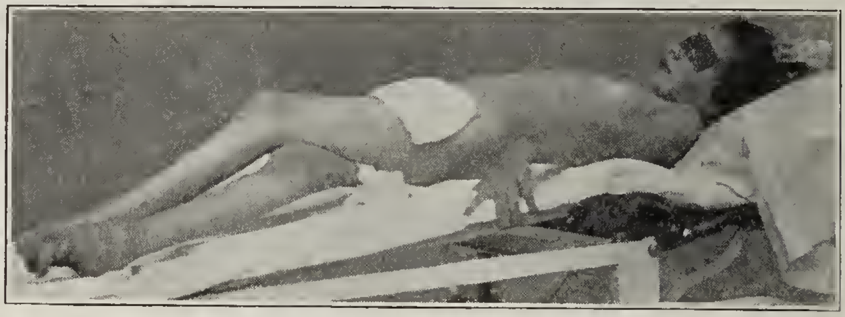

Fig. 5.—Paraplegic type of progressive torsion spasm (recumbent posture). Note the general wasting of the calf muscles, and the semilunar foot.

Case 1.—This was a case of the hemiplegic type of progressive torsion spasm (Figs. 1 and 2).

Case 2.—*Paraplegic type of progressive torsion spasm* (Figs. 3, 4 and 5).—A girl, aged 12 years, of Jewish parentage; gives no family history of any similar disease. The birth was normal and she was breast fed until the fifteenth month. Her early development was normal. She had measles at the age of 3.

Onset.—The first symptoms of torsion spasm appeared at the age of 6 with a dragging of the right foot and a tendency to throw the right leg outward in an aimless manner while walking. A plaster-of-Paris cast was applied for three months without improvement. During the course of the next few months the muscles of the right foot and leg became more drawn and contractured. One year later the left leg was similarly involved. These symptoms have gradually progressed, and since the age of 9 she has been unable to stand or walk. Numerous tenotomies were performed without material benefit.

The face, speech, arms and trunk muscles are not affected.

At this time (ninth year) the child was brought to the Vanderbilt clinic for examination. The lower extremities were then in a state of tonic spasm; the legs were extended; The feet and toes in plantar flexion. Some of the muscle groups of the legs showed momentary hypotonia. The trunk was not affected. The tendon reflexes were elicitable with difficulty. There was no clonus, and the plantar reflex was difficult of interpretation because of the marked plantar spasm of the foot and toes. The Babinski phenomenon, however, was not present. The muscles were in a state of hypertonicity, and there was only moderate torsion spasm. No associated movements were noted. The movements of the arms were normal, and the supinator, biceps and triceps jerks were normal. The abdominal reflexes were active. The movements of the face, mastication, articulation and the ocular excursions were quite normal. The pupils were equal with prompt responses. Intelligence was normal.

This case at this time was regarded as one of dystonia musculorum deformans of unusual type, although the resemblance to a spastic paraplegia with contractures was rather striking. Subsequently, a bilateral subtemporal decompression was performed at the Polyclinic Hospital, presumably for the relief of a supposed cerebral lesion. The child made a good recovery from this operation, which naturally was without effect on the subsequent course of the disease.

Two years later she was admitted to the neurologic wards of the Montefiore Home and Hospital.

Since the previous examination there has been a distinct progression of the spasm upward, with involvement of the hip girdle and lower portion of the back and abdomen. In the recumbent posture there is marked torsion spasm of the muscles of the erector spinae group in the dorsolumbar region on the left side. The corresponding muscle mass on the right side is somewhat relaxed, and there is a constant massive torsion and twisting with variable scoliosis and kyphoscoliosis. The lower portion of the abdominal wall also participates in the spasm.

The right lower extremity is extended and the foot is held in a position of extreme plantar flexion including the toes, producing a conspicuous concavity of the plantar surface (the semilunar foot [Fig. 5]). Some of the muscle groups are hypotonic and others hypertonic and in spasm, which fluctuates in intensity from time to time. Occasionally, the leg will be drawn up in sudden flexion.

The position of the left lower extremity is changed from time to time by slow constant flexion movements of the knee and hip. As on the right side there is an exquisite semilunar deformity of the foot with plantar spasm of the toes.

With the fluctuations in the hypertonicity, a hypotonus of certain muscle groups is quite evident on palpation. Active or passive movements produce a considerable increase in the tonic phenomenon with spasms and distortion of the extremities. There are no tremors, athetoid or choreiform movements, and no true associated movements. Any of the contractures may be overcome by firm traction and pressure, and there is no structural fixation of the joints.

There is some, but very slight power of voluntary control of extremities, so great is the degree of the dystonic disturbance. In the distribution of the involuntary spasms there is a certain monotony and stereotypy, so that it varies in localization but little from day to day. The child is fairly comfortable in the recumbent posture of election, but any change from this position increases the tendency to involuntary spasm and strain. In attempting voluntary movements of the ankle the paradoxical or reverse phenomenon of dystonia is very evident; for example, if the foot is in a state of tonic dorsal extension and the command is given to flex the foot, the result is an increase of the extension spasm. If the command is now given to extend the foot, that is, a voluntary effort in the direction of the involuntary spasm, the reverse movement takes place and vice versa if the foot is in plantar spasm. The same phenomenon may sometimes be demonstrated in movements of the knee, but is especially characteristic and well marked in the ankle.

An attempt to carry out a certain definite movement of an extremity is accompanied by tonus disturbances in other groups of muscles of that extremity, and even on the opposite side.

The child is unable to stand alone, but if supported on either side, the muscles of the legs and hip girdle fail to respond to the postural reflexes, and the variable spasm and relaxation goes on involuntarily and in a perfectly aimless manner. The legs will be suddenly drawn up, or there is performed a series of slow involuntary scratching-like movements with the foot, but there is not the slightest trace of any coordinated effort on the part of the legs to stand or support the trunk. In this position the spinal column is perfectly free and mobile, but its lower portion tends to be drawn by spontaneous contraction into kyphoscoliosis.

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[14] Lewandowsky: Ueber die Athetose double, Deutsch. Ztschr. f. Nervenh., 1905, xxix.

The knee jerks are elicited, but with difficulty, and this is especially true of the Achilles jerks. The plantar reflexes cannot be tested very satisfactorily owing to the marked plantar spasm. There is no Babinski response. The abdominal reflexes are active. The arms, upper portion of the trunk, neck and all muscles supplied by the cranial nerves are normal in every particular. The sensations are normal. The musculature of the lower extremities below the knees is generally atrophic, but this is a secondary atrophy and there are no qualitative changes in the electrical reactions. The pupils are equal and react. The mind is perfectly clear, and intelligence is of normal standard. The optic disks are normal.

The urine, Wassermann test of the blood and the visceral examinations are all negative.

Comment.—This case is of unusual interest because of the paraplegic localization of the dystonic disturbance, the early appearance of the paralytic stage, and during the earlier period the moderate degree of involuntary torsion movements, thus simulating a spastic paraplegic state.

NATURE OF THE DISEASE

In agreement with Oppenheim and most subsequent observers, I regard the progressive torsion spasm as an organic affection of the central nervous system. In favor of this view may be mentioned the gradual progression, the peculiar characteristics of the motor disturbance, its association with tremor, choreiform and athetoid movements, the gradual generalization of the spasm until the entire voluntary musculature is involved, sparing only the muscles supplied by the cranial nerves, and finally the absolute chronicity of the clinical picture.

There is also important negative evidence in the absence of hysterical stigmata and the mental characteristics of the convulsive tic, which usually play so important a rôle in the functional motor neuroses of hysterical or psychogenic origin.

Any attempt to localize the lesion in the present state of our knowledge is purely a matter of conjecture. It is, however, not without interest to theorize in this particular, so that when an opportunity is offered for pathologic investigation, the various theories which have been offered may be confirmed or refuted.

In a recent pathologic study of the juvenile paralysis agitans, I found as the essential lesion an atrophy of the motor cells of the globus pallidus system,[15] that is, not only the large multipolar cells of the globus pallidus proper, but also the large multipolar cells of similar form which are scattered among the smaller ganglion cells of the putamen and caudate nucleus. I therefore regard the juvenile paralysis agitans as a true system disease limited to the efferent motor cells of the globus pallidus mechanism, and consider this to be the essential lesion underlying the paralysis agitans syndrome. In other words, this motor mechanism of the corpus striatum plays an important rôle in the control of the extrapyramidal motor system, through its connection with the red nucleus, the corpus subthalamicum and substantia nigra, an essential element of which is the regulation of tonus. In the corpus striatum of Huntington's chorea, these large motor cells are preserved in both the putamen and caudate nucleus amid the extensive atrophy and disappearance of the smaller ganglion cells. These smaller cells apparently exercise a coordinating and inhibiting influence on the large motor cells of the globus pallidus system, and when this inhibitory function is lost, there results chorea of the Huntington type; the Vogt[16] syndrome and Wilson's[17] syndrome of the corpus striatum representing, according to my conception, different degrees of involvement of these two cellular systems, the one motor the other coordinating and inhibitory.

I would therefore regard the corpus striatum as a subordinate motor mechanism, having as its chief function the control of automatic and associated movements.

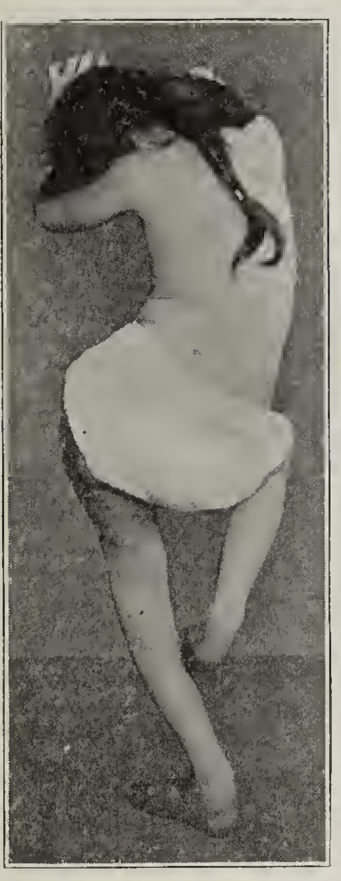

Fig. 6.—Advanced case of progressive torsion spasm; involvement of the trunk, neck muscles and all four extremities. Note the bizarre, clownish attitude and the poorly developed musculature of the lower extremities.

This interpretation of the functions of the corpus striatum is not without interest to the subject under discussion, for many of its symptoms are also encountered in dystonia.

All writers on the subject of the progressive torsion spasm emphasize its close relationship to athetosis and the frequent occurrence of tremor and choreiform movements, so that in any future pathologic investigation the cells and fiber systems of the corpus striatum should receive careful study.

My own conviction is that a lower type of mechanism is at fault, one which is closely associated with the corpus striatum, but which is engaged in the regulation of tonus, especially in its relation to the reciprocal activities of agonistic and antagonistic muscles, for this I believe constitutes one of the essential factors in the motor disturbances of torsion spasm. The preservation of facial expression and articulation is also against a localization in the corpus striatum, for we know from many pathologic studies that the face and articulation are both involved in this localization.

CONCLUSIONS

As a result of this clinical study, the following conclusions may be suggested:

The progressive torsion spasm of childhood (dystonia musculorum progressiva) is a progressive organic affection of the central nervous system.

There is the gradual loss of a mechanism which is engaged in regulating and controlling tonus during the voluntary, automatic and reflex activities of muscles. As a result, there is a disturbance or loss of those reciprocal tonus activities of agonistic and antagonistic muscles which are a part of every complex or synergic movement. This, together with the loss of inhibition, I regard as the chief factors in the production of the motor disorder.

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[15] Hunt, J. Ramsay: Progressive Atrophy of the Globus Pallidus, Tr. Am. Neurol. Assn., May, 1916.

[16] Vogt, Cecile: Syndrome du corps strié, Jour. f. Psychol. u. Neurol., 1911, xviii, 479.

[17] Wilson: Progressive Lenticular Degeneration, Brain, 1912, xxxiv, 295.

It is a definite disease, and, like such affections as paralysis agitans, double athetosis and dyssynergia cerebellaris progressiva,[18] runs a progressive course and then remains stationary, other portions of the nervous system remaining unaffected.

It is closely related to athetosis and yet in its typical form is readily differentiated from this affection. Transition or combined forms probably occur.

It is essentially a disease of childhood, but has appeared as late as the seventeenth year.

The face and muscles of articulation are not affected except in the terminal stage, when there is involvement of the muscles of the neck. Such mild disturbances as have then been noted are probably of secondary origin.

With the characteristic torsion spasm there is usually but not always associated a not inconsiderable degree of hypotonia.

There may be a hemilateral involvement of the extremities which may exist as such for some years. A pseudoparaplegic or paraplegic type may also occur.

The torsion movements continue, but are diminished during rest, and are greatly increased by any muscular activity, especially standing or walking; they cease entirely during sleep. Other disorders of motility, as tremor, chorea or athetosis, are frequently associated.

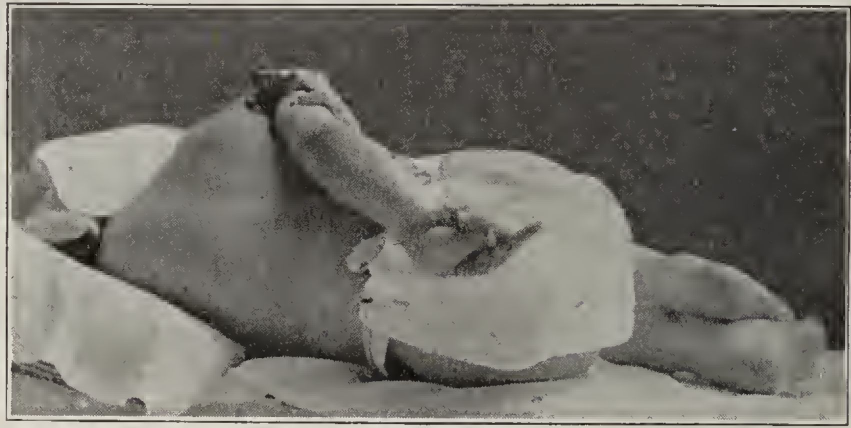

Fig. 7.—Advanced case of progressive torsion spasm in the recumbent posture of election (see Fig. 6).

The trunk and lower extremities are chiefly affected, especially their proximal segments.

In the later stages there is often a well-marked tendency to stereotypy or fixation in the distribution of the spasm, which predominates in certain muscle groups. In this stage, I have observed in the movements of the ankle, and less commonly of the wrist, a curious reversal of the normal manifestations of tonus which may be termed the paradoxical or reverse phenomenon of dystonia. When present it is, I believe, a pathognomonic symptom.

The affection varies considerably in the degree of motor unrest and agitation which is produced. This may occasionally assume sudden and violent proportions requiring strong sedatives and reducing the patient to a dangerous state of exhaustion. It may occasionally constitute an agitated form or stage of the disease.

The affection is progressive and incurable and, with few exceptions, has appeared only in descendants of Russian and Polish Jews.

20 West Fiftieth Street.

ABSTRACT OF DISCUSSION

Dr. Hugh T. Patrick, Chicago: This is a rare opportunity to see a typical example of this interesting malady. But first it might be of some interest and, perhaps, of some value, to state very briefly the error I made on this case about three years ago. This boy, by the way, is not of Polish-Jewish origin. The parents are Hebrews, but both father and mother say that so far as they know none of their antecedents have been of the Russian-Jewish folk. When I first saw this boy in September, 1913, the condition had been progressing for about five months. He was then 7 years of age and the family and personal histories were absolutely negative. His symptoms began with a tonic contraction of the right leg. Then a little later there was added to this tonic contraction occasional jerks which we might call clonic spasm, but which were simply a jerk of the leg. The diagnosis I made was hysteric monoplegia, for the following reasons: The boy held the right leg semiflexed or partly flexed at the knee and hip. He walked in a peculiar way which was strongly indicative of functional disease. Before Ziehen presented this subject, an assistant of his had shown the cases and thought the condition was hysteric. Oppenheim was also inclined to make a diagnosis of hysteria in his first cases. I do not say this to excuse myself, but to put on their guard those who may subsequently see these cases. This boy walked in a very peculiar way, and we know that most of the bizarre, nontypical gaits are very apt to be manifestations of hysteria. He would advance the affected leg, touch the toe to the floor and then hop with the left leg. When I requested the boy to extend the right leg he apparently tried to do so, and then there were these intermittent jerks in the leg and he was unable to extend it. In the act of turning a somersalt the affected leg straightened at the knee in a perfectly normal way.

I believe that at that time the left leg was already beginning to show involvement. When I began to examine it there occurred a slight tonic extension and when requested to move the foot at the ankle the boy was unable to do so. This I also attributed to functional disease. In other respects results of examination were negative. The subsequent history was given me by Dr. Haass, but I ought to say that later the case was seen by Dr. Camp of Ann Arbor, who first made the proper diagnosis. Later a well-known Eastern neurologist considered it a case of Wilson's disease. The especial value in seeing one of these cases is to learn the peculiar type of movement. It is a combination, as Dr. Hunt has indicated, of various types of hyperkinesia. There is something of the choreic, there is something of the tics, there is something of the athetosic. One particular feature in these movements is a sudden, quick movement, even quicker than most of the tics, that occurs occasionally. Most of the movements are rather slow, but occasionally there is this sudden quick jerk, generally extensor. This is a symptom which is so disconnected from all other organic movements that it is particularly valuable in the interpretation of this suppositious dissociation, because there is something there certainly more than dissociation; it is either an excess of impulse, or an absence or a great diminution of inhibition.

Dr. E. W. Haass, Detroit: Dr. Patrick has given a brief preliminary history of this boy whom I saw a little over two years ago, he then having been ill something over a year. When I saw him first he was practically in this condition of helplessness. Diagnosis had already been made by Dr. Camp, who had been observing the patient for about six months before he was brought to me. Previous to this there had been a diagnosis of hysteria and for a short time a diagnosis of beginning pseudohypertrophic paralysis. A piece of the calf was taken for examination by Dr. Camp with a finding of simple atrophy. There is nothing in his family history. His eye reflexes are normal; ocular movements are normal; the deep reflexes, as far as elicited (it is very difficult to get these reflexes), are apparently normal; the superficial reflexes are all present. There are no sensory disturbances whatever; there are no electrical disturbances. He has had a diagnosis of Wilson's disease since Dr. Camp diagnosed the case. But his mentality has not been affected at all. Wilson's disease is a progressive lenticular deterioration plus mental deterioration plus a condition of biliary cirrhosis. The hepatic disturbances, however, have never been determined, except on postmortem. As far as we can ascertain the liver is normal in size and he responds entirely normally to the phenoltetrachlorphthalein test. This spring he was subjected to this test and his liver is able to excrete dye in an entirely normal manner. He is at rest during sleep. His motions are very much exaggerated during excitement, as here at the present time, and he has been in this condition of practical nonprogression now for a year and a half. It began in his right leg and involves this extremity more than the left and, perhaps, his right arm more than his left. The duration of the case is now about three years and three or four months.

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[18] In addition to the references already given, the following will be found of interest:
Bonhoeffer: Torsions Spasmus, Neurol. Centralbl., 1913, xxxii, 137.
Beach: Torsions Krampf, Neurol. Centralbl., 1915, xxxiv, 654.

Dr. A. L. Skoog, Kansas City, Mo.: Are there any restrictions to joint movements in the late stages.

Dr. James Ramsay Hunt, New York: As to the diagnosis of this distressing condition, if one has seen a few cases it is generally pretty easy, certainly so far as the differentiation from hysteria or the spasmodic tics is concerned. But even after I was fairly familiar with this disease, in the dystonia paraplegica I was uncertain as to the diagnosis for a considerable time. The localization in this case was limited to the lower extremities, the involuntary movements were very slight, and it was difficult to distinguish between the torsion spasm and a spastic condition, although there was no clonus and the Babinski reflex was not present. With the extension to the trunk and as the torsion quality of the movements became more evident, all diagnostic doubts were removed.

In none of my cases was there any permanent fixation of the joints. Strong passive movements were always sufficient to overcome any deformity resulting from the spasm. I would also lay great stress on the absence of involvement of the face and muscles of articulation, in excluding the double athetosis. The paradoxical phenomenon of dystonia, when present, I believe to be a pathognomonic symptom of this disease and an important differential sign in excluding other forms of muscular spasms. Thus far I have encountered it only in advanced cases in the paralytic stage; it is then especially characteristic in the ankle and sometimes the wrist joint. Apparently, the affection must reach an advanced stage before a complete reversal of the tonus innervation is possible. It is very significant that we have here a disease which affects principally the muscles of the trunk and extremities. It is not only an inability to dissociate tonus impulses to agonistic and antagonistic muscles, but there is also an absence of the normal inhibition or control. The disturbance apparently results from the loss of a mechanism which is engaged in regulating and distributing tonus impulses to the voluntary muscular system.

Armies as Disease Carriers.—There have been recorded many specific observations of the introduction or distribution of disease in the civil population by the movements of armies or return home of soldiers from a distant war. The diffusion of typhus in Europe by the Napoleonic wars, the introduction of syphilis into Scotland by Cromwell's troops and into Sweden in 1762 by the Swedish troops returning from the Seven Years War, are examples. During Napoleon's Egyptian campaign nearly every soldier out of an army of 32,000 men was affected by trachoma, and the return of these soldiers initiated a spread of the disease through almost all the European armies. The great European epidemic of smallpox of 1871, especially notable in Germany, is believed to be associated with the Franco-Prussian War. Clemow declares, indeed, that there is scarcely a war in ancient or modern times which does not furnish examples of the special distribution of disease.—Military Selection and Race Deterioration by Vernon L. Kellogg.

BACTERIOLOGIC FINDINGS IN CEREBROSPINAL FLUID IN POLIOMYELITIS

A PRELIMINARY REPORT OF THE EXAMINATION OF FIFTY CASES *

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It is the opinion of those familiar with the bacteriology of poliomyelitis that the cerebrospinal fluid, whether obtained by lumbar puncture during life or at necropsy, is sterile. Throughout the literature there appear a number of brief reports on the isolation of diplococci and micrococci from human poliomyelitic cerebrospinal fluid, but these findings have until now been quite generally regarded as contaminations. Indeed, in the reports of the most recent investigations in the bacteriology of this disease, Rosenow[1] says, "A peculiar polymorphous streptococcus has been isolated, often in large numbers, . . . from abscesses in tonsils, . . . from the blood during life in one instance, but *not* from the spinal fluid."

Recently we[2] reported the isolation of a gram-positive micrococcus from the cerebrospinal fluid during life in eight out of nine cases of acute poliomyelitis. These findings have been extended, and the same peculiar gram-positive micro-organism has now been isolated from the spinal fluid in forty-five out of fifty cases studied. It presents both the same cultural and morphologic characteristics as does the micrococcus isolated from the brains and spinal cords in fatal human cases at necropsy.

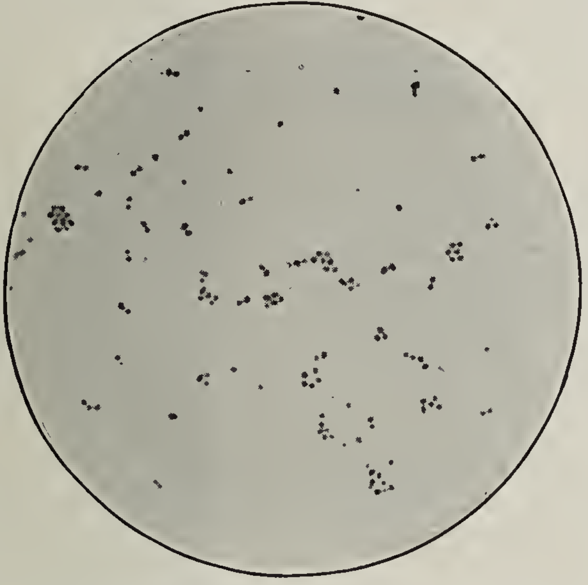
Fig. 1.—The minute form of the micro-organism as it appears in a twenty-four hour ascites dextrose broth culture of human poliomyelitic cerebrospinal fluid.

Moreover, the same organism, when injected into monkeys, young lambs and rabbits either intraperitoneally, intravenously or intracerebrally, has produced flaccid paralyses of the extremities, and in a considerable number of the cases the typical histologic changes in the central nervous system which characterize the disease in man. Paralysis has been readily produced by inoculation of cultures obtained from the human spinal fluid even in the fifth generation. Subcultures two weeks old have produced paralysis of the extremities in the *Macacus rhesus* monkey. The same micro-organism injected has been recovered in pure culture in nearly every instance both from the cerebrospinal fluid and from the central nervous system of the paralyzed animals at necropsy. Furthermore, in special stained microscopic sections of the spinal cord and medulla of these paralyzed animals, this organism is visible in the gray matter, arranged chiefly in pairs but also in short chains.

Inoculations of young lambs, which apparently are especially susceptible to the disease, with a mixture of

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* From the pathologic laboratory of the Cook County Hospital.

* This work has been very materially aided by a special grant made by President Peter Reinberg and the members of the Board of Commissioners of Cook County, Ill.

[1] Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1202.

[2] Nuzum, J. W., and Herzog, Maximilian: Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1205.

many different human cerebrospinal fluids not cultured, have so far given negative results.

From a series of fifty cases of typical epidemic poliomyelitis in the Cook County Hospital, the cerebrospinal fluid was obtained by lumbar puncture during life under sterile conditions. From 1 to 2 c.c. of the spinal fluid was regularly inoculated into a series of four tall tubes containing ascites dextrose broth, ascites broth, human ascitic fluid and ascites broth to which a sterile piece of rabbit's kidney was added. Suitable controls were made in every case, and the tubes were incubated at 35 C. (95 F.). At the end of from twenty-four to thirty-six hours, a diffuse turbidity commonly appeared in all four tubes of the positive cultures. The control tubes remained clear. Smears made at this time usually revealed a minute micro-organism, gram-positive, and arranged in pairs, clumps and short chains. Many were so minute as to be just visible under the oil immersion lens. They corresponded in every morphologic detail to the minute globoid bodies described by Flexner and Noguchi.[3] At the expiration of from forty-eight to seventy-two hours, a fine granular precipitate appeared along the sides of the test tubes, and with the settling of the whitish precipitate to the bottom of the tubes, the diffuse turbidity of the medium partially cleared up. Smears of the cultures made at this time revealed a preponderance of the larger form of the same micrococcus. Subcultures on glucose agar slants grew out rapidly into the larger forms of the organism.

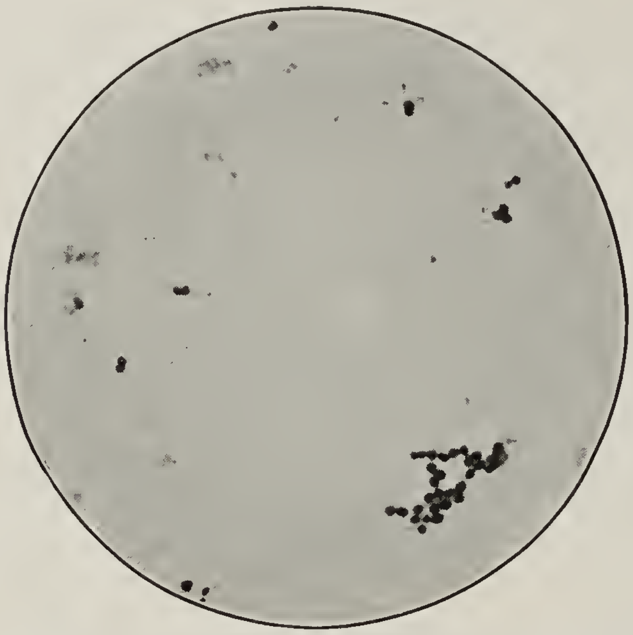

Fig. 2.—Relative size and arrangement of the micrococcus in a seventy-two hour culture of human poliomyelitic cerebrospinal fluid.

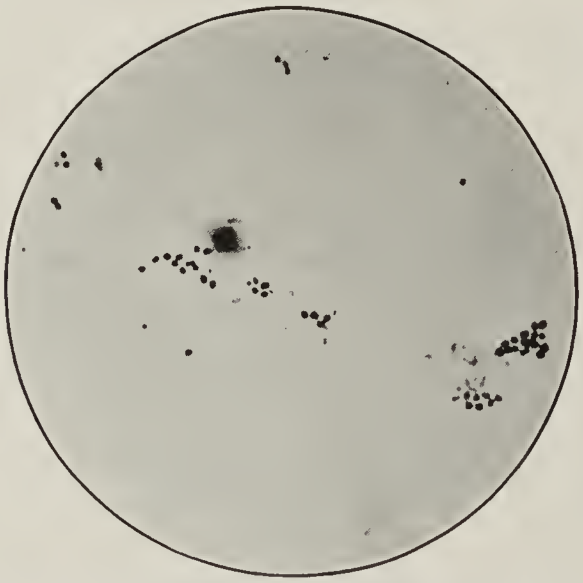

Fig. 3.—Stained smear of the sediment from human cerebrospinal fluid after prolonged centrifugalization. The micro-organism appears in the minute globoid form.

Forty-five of the fifty cases (90 per cent.) presenting the clinical picture of acute poliomyelitis yielded positive cultures with the spinal fluid. In many of these cases lumbar puncture was performed from two to four times, and in each instance the spinal fluid was immediately inoculated into the cultural mediums and a pure culture of the organism was invariably obtained. The same micrococcus was isolated in two cases from the cerebrospinal fluid within twenty-four hours after the onset of the acute fulminating type of the disease, attended in each instance by complete flaccid paralysis of all the extremities and rapid progressive paralysis of the respiratory muscles and death. That the micro-organism is present in the spinal fluid for a considerable period of time after the onset of the paralysis is indicated by the fact that it was isolated in two cases fifty-nine and sixty days after the onset of the paralysis.

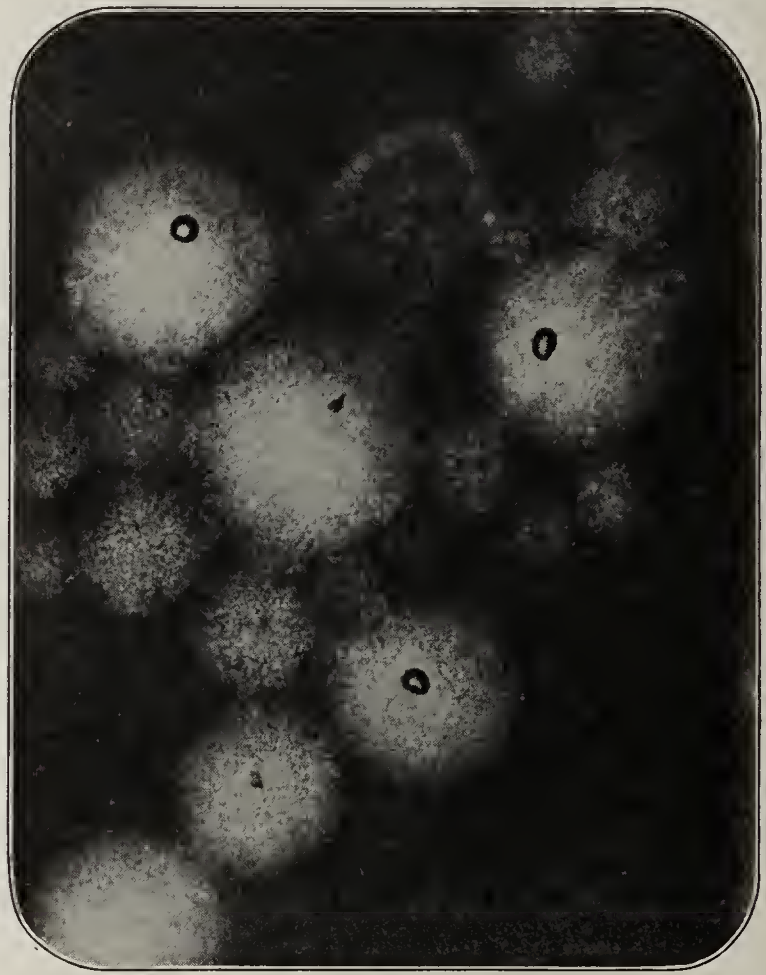

Fig. 4.—Appearance of twenty-four hour colonies on blood agar plates inoculated with 1 c.c. of poliomyelitic cerebrospinal fluid.

Control cultures were made with the cerebrospinal fluid obtained by lumbar puncture from normal individuals and with the spinal fluid of patients afflicted with diseases presenting more or less clinical similarity to infantile paralysis, such as brain tumors, tuberculous meningitis, hemiplegia, cerebral hemorrhage, tabes, tic, hydrocephalus, hysteria, and cerebral diplegia (Little's disease). These spinal fluids, when obtained under sterile conditions, were uniformly sterile. In no case was the peculiar micro-organism characteristic of poliomyelitis obtained.

It is admittedly difficult to diagnose many atypical cases of poliomyelitis; indeed, the diagnosis is usually made after the onset of the paralysis. Accordingly, any routine clinical test would be of inestimable value in these cases. It was hoped that complement fixation tests with the blood serums and the spinal fluids of poliomyelitic patients might prove a valuable aid in diagnosis. Bacterial antigens were prepared from the cultures of the brains and spinal cords at necropsy. With suitable controls, complete hemolysis resulted in a large number of cases tested.

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[3] Flexner, Simon, and Noguchi, Hideyo: Experiments on the Cultivation of the Micro-Organism Causing Epidemic Poliomyelitis, Jour. Exper. Med., 1913, xviii, 461.

That the isolation of the organism from the spinal fluid may ultimately prove a valuable routine procedure in doubtful cases is evidenced by the following brief case histories:

Case 1.—N. K., boy, aged 2½ years, was brought to the hospital by the health department with the clinical diagnosis of acute poliomyelitis. No past history was available except that the child had been vomiting and had had convulsions. He also had a weakness of the right arm.

Examination revealed a paresis of the right arm, and the child could not raise his right arm to his head. There was definite weakness of the right deltoid muscle. The pupils were unequal, the left larger than the right. Choked disk was present in both eyes. The lower limbs were spastic. Knee jerks were absent.

Oct. 11, 1916, spinal puncture was performed and clear fluid obtained under markedly increased pressure, spurting from the needle. Cultures of the spinal fluid were *sterile*.

October 23, second culture of the spinal fluid was *sterile*.

October 25, the child vomited several times, and had repeated convulsions.

October 26, third culture of the spinal fluid was *sterile*.

October 27, the child died.

At necropsy, a huge gliosarcoma of the temperoparietal lobe of the left cerebral hemisphere was found, involving the motor area of the cerebral cortex and approximately half of the entire left cerebral hemisphere of the brain.

Case 2.—M. M., a young white girl, aged 14 years, admitted to the hospital, Oct. 17, 1916, with the clinical diagnosis of anterior poliomyelitis, for the past month had complained of headache, dizziness and vomiting. Previous to admission to the hospital she suddenly developed a paresis of the left forearm and speech disturbances.

October 17, lumbar puncture was performed and clear spinal fluid removed under increased pressure. Cultures of the spinal fluid, together with suitable controls, were all *sterile*.

October 18, the patient became suddenly comatose and died. At necropsy a sarcoma of the brain stem (medulla oblongata) with area of recent hemorrhage within the tumor mass was found.

Disease and War.—At the time of the crusade against the heretics a serious pestilence broke out in Egypt in the army of the crusaders, which had already, on Aug. 12, 1218, suffered from dysentery; it appeared in December during the siege of Damietta, after a heavy and continuous downfall of rain. "The patients," says Wilken, "were suddenly seized with violent pains in the feet and ankles; their gums became swollen, their teeth loose and useless, while their hips and shin bones first turned black and then putrefied. Finally, an easy and peaceful death, like a gentle sleep, put an end to their sufferings. A sixth of the pilgrim army was carried away by this disease, which no medicine could cure." Only a few patients who survived the winter were helped to recovery by the warmth of spring. It was unquestionably a severe form of scurvy. The besieged, too, suffered from the destructive pestilence, and also from Egyptian ophthalmia. We read further in Wilken: "A horrible sight greeted the pilgrims when they took possession of Damietta. Not only the houses, but even the streets were filled with unburied corpses; in the beds dead bodies lay beside helpless and dying invalids, and the infection of the air was intolerable. Of 80,000 inhabitants which the city had had at the beginning of the siege only 3,000 were left, while only 100 of these were healthy." Other reports say that 10,000 inhabitants survived.—Friedrich Prinzing: "Epidemics Resulting from Wars."

THE THERAPEUTIC RESEARCH COMMITTEE

OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION *

TORALD SOLLMANN, M.D.
CLEVELAND

The Council on Pharmacy and Chemistry might well have taken for its motto, "More light." In its endeavor to introduce light into the darker places of medicine, it founded its Committee on Therapeutic Research. It was hoped that the existence of this committee, and the funds placed at its disposal by the Trustees of the American Medical Association, would help to focus the attention of experimental and clinical investigators on some of the urgent but neglected problems of practical therapeutics, and help to bridge the chasm between science and its application.

The results of the work done under the auspices of this committee, during the four years of its existence, appear to demonstrate that this hope was not unfounded. As results are the best explanation and justification of the work of the committee, and the best means of extending its usefulness, I was very glad to comply with the invitation of your chairman to present a summary of these results. I shall arrange these by years.

RESULTS IN 1912

In the first year a good deal of work was naturally devoted to organization. The committee, from the outset, adopted the policy of distributing its funds over a number of institutions which promised to take up the desired problems, rather than to concentrate on one place. Similarly, it has generally followed the policy of making a larger number of relatively small grants to a number of different lines of investigation, rather than to concentrate its funds on a few pieces of work. The underlying idea in this was, that the function of the committee would be to act as a stimulus or ferment.

Investigations were published on the following subjects:

Natural and Synthetic Salicylates.—A superstition had arisen in the medical profession, mainly fostered by interested manufacturers, that the expensive so-called "natural" salicylates were more active and especially safer than "synthetic" salicylates. This matter was investigated experimentally by J. A. Waddell, and the literature was analyzed by Eggleston. Both lines showed conclusively that no basis whatever exists for the asserted difference. It was justifiable, therefore, to proceed with clinical trials, which will be mentioned later.

Duration of Digitalis Action.—The existing uncertainty as to the subject interferes greatly with safe and effective digitalis therapy. On the one hand, toxic phenomena are often elicited by those who undervalue the persistence of digitalis action and its influence on subsequent administrations. On the other hand, excessive fear of cumulative effects has deprived many a patient of the benefits of adequate dosage. The great differences which exist in empiric rules on this subject illustrate sufficiently the want of accurate knowledge. The problem can be solved only by exact experimental and clinical investigation. Observations on the subject were published by R. A. Hatcher and Cary Eggleston.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Intestinal Antiseptics.—While the importance of intestinal putrefaction may sometimes be overestimated, there can be no doubt that it is at least a very serious complicating factor in disease. Its control would be highly desirable. This may be done to some degree by diet and cathartics, but to what degree is open to question. That these measures are not entirely satisfactory and adequate is shown by the great demand for intestinal antiseptics. However, the use of such antiseptics can do nothing but harm unless they are actually efficient. The views of physicians as to the usefulness of these antiseptics vary widely, both clinical and laboratory investigations having led to rather contradictory results. Dr. N. M. Harris therefore took up the investigation of current methods for estimating intestinal putrefaction. This was an indispensable preliminary before any direct work could be undertaken. Unfortunately, the results showed that all of the methods so far used are unreliable; and therefore, the data based on them are without value. In consequence, research energy need no longer be misdirected along these useless lines; but future investigators must concentrate their energies on finding methods adapted to the solution of this preliminary problem. Until this is done, chemical disinfection of the intestinal tract cannot be on a scientific footing.

Iodids on the Circulation.—The extensive use of iodids in circulatory disorders indicates that they have great value; but since the mechanism of their action is not known, their field of usefulness cannot be defined. In many cases, their efficiency cannot be predicted, and since results are slow, their empiric trial, in each patient, is a tedious procedure; sometimes dangerous, directly, and indirectly by delaying other treatment. It would be highly useful, therefore, to gain some insight into the mechanism of their action. Before this could be started, a critical survey of the existing literature was necessary. This was done by Dr. J. A. Capps. It brought out the fact that attempts at explanation have so far been unsuccessful. It also showed that the most promising direction for future investigation is along a different line, namely, by concentrating on the syphilitic factor in circulatory affections.

Organic Iodin Preparations.—Recent years have witnessed the introduction of a considerable number of organic iodin compounds, generally with the claim that they were more efficient than other forms, but less liable to iodism. This prompted an investigation of the pharmacologic and therapeutic value of these compounds, which was undertaken by Dr. F. C. McLean. His work was concerned mainly with the distribution and form of the iodin in different cells. It showed that some of these compounds were rapidly changed into inorganic iodid, and therefore did not differ materially from the latter. Other forms, particularly the fatty compounds, have a somewhat different distribution, so that their actions might show minor differences. Whether or not these differences are therapeutically useful is a subject for further clinical investigation.

RESULTS IN 1913

Clinical Statistics on Salicylate Toxicity.—The salicylate studies, started in 1912, were continued. Dr. Hanzlik made a thorough statistical study of the therapeutic, so-called "toxic dose" of sodium salicylate, and of the conditions which affect this. This furnished a basis for comparison of other data.

To settle finally the question of the comparative effects of natural and synthetic salicylate, the Council undertook a collaborative clinical investigation. In this, samples of natural and synthetic sodium salicylate were sent to different clinicians, the samples being unlabeled, and the collaborators being asked to report whether they could distinguish any difference between the samples, and if not, to report the results objectively. The collected results were tabulated by Dr. A. W. Hewlett. These showed conclusively that the two products were absolutely indistinguishable in their effects, so that there is no longer any reason for preferring the expensive natural to the inexpensive synthetic product.

In connection with this work, Dr. W. S. Hilpert also investigated the purity of commercial sodium salicylate. He found that the cheapest brands complied fully with the pharmacopeial requirements, so that the fear of impurities need not be entertained.

One of the salicyl-esters, salicyl-salicylic acid, was being marketed with the claim of being nontoxic. This claim was investigated by Dr. J. McLachlan. His results showed that this claim, like similar ones made for other products, was unfounded; toxicity and efficiency going practically hand in hand in all salicyl compounds. As a result of this investigation, the claim was withdrawn by the manufacturer.

Interaction of Ferments.—The extensive use of certain digestive elixirs, claiming to contain pepsin and trypsin, prompted a renewed and thorough investigation of the stability of such preparations. This was undertaken by Dr. J. H. Long and W. A. Johnson. Their results showed that much of the older work was unreliable, through the use of faulty methods. It confirmed, however, that trypsin is very much weakened in the presence of acid and pepsin, while the pepsin is not changed in neutral solutions of trypsin. Furthermore, watery solutions of trypsin deteriorate more or less rapidly, even in the absence of pepsin.

Action of Bromids.—Dr. C. W. Green and T. K. Kruse investigated the action of inorganic bromids on the circulation, as a part of an extensive investigation of bromid action. They found that the hearts of warm blooded animals are depressed; but many of the so-called bromid effects are chargeable to the bases with which the bromid has been combined.

Hexamethylenamin.—The undoubted efficiency of this substance as a urinary antiseptic has led to its extensive trial in other conditions, but without any very definite basis. Drs. P. J. Hanzlik and R. J. Collins therefore investigated the conditions under which formaldehyd is liberated. They showed in the first place that hexamethylenamin itself is not at all antiseptic, so that its efficiency depends entirely on the liberation of formaldehyd. Many of the tests formerly employed did not distinguish between the base and the liberated formaldehyd, and therefore led to faulty conclusions. By the use of the phloroglucin test it was shown that the liberation depends entirely on the acidity of the solution, being absent if the solution is even faintly alkaline. This law applies to pathologic fluids as well as to watery solutions.

The distribution of hexamethylenamin was investigated. It was found to be present in all tissues and body fluids in which it was sought; but formaldehyd was liberated only in acid urine, and in the acid gastric content. The liberation in the urine was facilitated by rendering this more acid by monosodium phosphate, and inhibited by the administration of alkalies.

RESULTS IN 1914

Hexamethylenamin Studies.—Dr. P. J. Hanzlik continued this work on various pathologic fluids. The results confirm that the liberation of free formaldehyd obeys strictly the same laws as in physiologic fluids and watery solutions, depending solely on the free acidity.

Mutual Action of Certain Digestive Ferments.—This was further investigated by Dr. J. H. Long and G. W. Muhleman. It included the action of hydrochloric acid and pepsin on amylopsin, and the action of hydrochloric acid and pepsin on trypsin, further confirming the incompatibilities. The investigations showed also that samples of pancreatin, even when dry, deteriorate gradually on the shelf, and are liable to be very low in tryptic as well as in starch digesting power. This throws further doubt on the usefulness of pancreatin preparations.

Studies in Cardiac Stimulants.—The extensive use of such drugs as strychnin and caffein in circulatory collapse made it advisable to subject them to a thorough clinical study by modern methods. The tendency of the literature of recent years has been rather to discredit their efficiency. Two series of investigations were undertaken, one by Dr. W. P. Lucas, the other by Dr. L. H. Newburgh.

Lucas observed the effects particularly on children with endocarditis occurring in the course of rheumatic fever. It was found that for these, the usual doses of strychnin and caffein were of no value. Positive effects were obtained only when much larger doses were employed, and even here the effects were very short. It is also questionable whether these effects would be at all beneficial. The respiratory actions were likewise so small and uncertain as to be negligible.

Newburgh made a study of the blood pressure in pneumonia. He found that, contrary to the ordinary opinion, the vasomotor mechanism is practically intact. Neither strychnin nor caffein in the conventional doses had any stimulating effect on the cardiovascular apparatus.

Both series of investigations agree that the use of strychnin, and the ordinary doses of caffein, in low circulation does not rest on any sound basis. While this must be disappointing to the many physicians who have placed faith in strychnin, it is much better to know that the drug does not deserve confidence, so that other measures may be tried out.

Proteolytic Activity of Pancreas Preparations.—Drs. J. H. Long and A. W. Barton made a comparative investigation on methods. They found that the commonly used methods give rather different results, varying for different preparations. The paper should lead to more rational usage in stating the strength of trypsin products.

Organic Iodin Preparations.—This subject is further discussed by Dr. F. C. McLean. He concludes that all of these preparations owe their activity to the iodin after its separation from the molecule. The rate of this liberation has some influence on their therapeutic usefulness. For instance, if a slow but prolonged effect is desired, the iodin compounds of fats and fatty acids would have some advantage; they would have no advantage when a high concentration of iodid in the tissues is desirable. The iodized proteins break up so readily that their systemic actions would not be different from inorganic iodid; they may cause less local gastric irritation.

Caffein in Myocardial Insufficiency.—In marked contrast to the inefficiency of this drug in circulatory collapse and infectious diseases are the results obtained by Dr. L. Taylor in myocardial insufficiency with retained body fluid. Full doses of the drug caused a distinct increase of urine output, with improvement in the circulatory condition. Caffein itself in these doses, however, produces distressing nervous and gastric symptoms. This can be largely avoided by the use of theobromin sodium salicylate, which is clinically superior in every respect.

Literature of Salicylates.—Information concerning the various actions of these important drugs is widely scattered through the journals, so that it is very difficult for one who intends to take up any special feature of this subject to obtain a comprehensive idea of what has been done. To make this literature more accessible, Dr. P. J. Hanzlik prepared a critical synopsis of practically the entire salicylate literature.

RESULTS IN 1915

American Liquid Petrolatums.—A collective investigation was made of their availability in comparison with the imported. The investigation, which was collated by Dr. W. A. Bastedo, settled quite conclusively this much disputed question, showing that all pure American oils are therapeutically equivalent to the imported brands.

Synergism of Opium Alkaloids.—A lengthy and comprehensive investigation has been conducted by Dr. D. I. Macht, on the one hand to settle the question of the differences between opium and morphin, and on the other hand to aid in deciding how far the claims for various proprietary products are justified. This investigation is not entirely complete. So far it has shown that the minor opium alkaloids do play a distinct rôle, which may be advantageous, but that the older claims for the proprietary preparations require considerable revision.

Synergism of Morphin and Scopolamin.—This has been investigated by Dr. H. G. Barbour, with special reference to the use of these alkaloids in obstetrics. This showed that no direct action is exerted on the uterine muscle, so that this factor at least need not be further considered. A search is being made for other substances that could be combined with morphin.

The Clinical Actions of Veratrum.—This drug had rather passed out of use; but since it produces very distinct actions, it is quite possible that it may have an important therapeutic field. Its therapeutic uses can be decided only by extensive and exact investigations, which are now being conducted by Dr. R. J. Collins.

Physiologic Activity of Combined Hydrochloric Acid.—The relative activity of free and loosely combined hydrochloric acid has important therapeutic bearings. This formed the subject of an investigation by Dr. J. H. Long.

Stability of Digitalis Infusions.—Many physicians still believe that the infusion is the most active preparation of this drug, but are deterred from its employment by the fear of rapid deterioration. This need no longer be entertained, for Drs. R. A. Hatcher and Cary Eggleston have demonstrated that the infusion does not lose in activity under ordinary conditions, during a considerable time.

Toxicity of Chloroform.—Various accidents of anesthesia suggested differences in the toxicity of the different samples of chloroform, perhaps according to their origin. Experiments by Dr. W. Hale indicate, as far as they go, that this suspicion is not justified.

RESULTS IN 1916

In the first three months of the year, the following papers have been published:

Fate of Hypophosphites.—The use of hypophosphites is an illustration of the survival of the application of a theory, after the theory itself has entirely disappeared. The history and literature of the subject are reviewed by Dr. W. M. Marriott. This shows that there has never been any real evidence of their usefulness, any apparent benefits being undoubtedly attributable to the measures with which they are always associated. It is high time, therefore, that they should be discarded from scientific medicine.

Epinephrin in Pituitary Extracts.—W. C. Crawford has demonstrated the presence of epinephrin or a similar substance, accounting partly for the depressor effect of these extracts.

Uric Acid Solvents.—Dr. H. D. Haskins has investigated the influence of the administration of various substances on the solubility of uric acid in the urine. As might be expected, he found that the alkalinity of the urine was the most powerful factor. While the particular alkali made minor quantitative differences, sodium bicarbonate did all that could be accomplished by any alkali. The literature of urate solvents was further reviewed by Dr. P. J. Hanzlik.

Strontium Salicylate. — Interested manufacturers have long claimed a superiority of strontium over other salts. These claims were partly supported by rather loose statements in the textbooks, but had no very good foundation. The question was tested on the salicylates by Dr. M. A. Blankenhorn. The results showed that the claimed superiority is entirely fallacious, there being no difference between strontium and sodium salicylate.

A number of other problems are under way, some nearly ready for publication. Still more, of course, are to be solved. The committee will be glad to give suggestions to any one who wishes to cooperate in this wide and extremely useful field.

ABSTRACT OF DISCUSSION

Dr. F. E. Stewart, Philadelphia: The producers of bacterial vaccines met in New York last Monday and extended the date of expiration for their products from one year to one and one-half years. I have no criticism to make on this, and presume it is all right, but I would suggest that the Council take up for investigation the keeping powers of bacterial vaccines. I am frequently asked for information on this subject, but I do not know of any satisfactory experimental data warranting an opinion. An investigation of this kind would be of much value to all concerned, including the producers, the medical profession, and the public.

Mr. Frederick I. Lackenbach, San Francisco: It is this phase of the Council's work which has always appealed to me most strongly, namely, the constructive work. In editing the reports of the Council in the *California State Journal of Medicine* I have generally put these matters first—this constructive work—and frequently omitted the work of the Council pertaining to obscure proprietary preparations, since these frequently were only of passing or local interest and not read by our physicians. Physicians in many instances never have heard of these proprietary medicines which were to take up valuable space in our journal. Only matters were discussed which might be of general interest to physicians. It is of interest to every physician, for example, to know that the hypophosphites are of no appreciable value. I have taken this matter up with Dr. Puckner in my correspondence. It is this constructive work of the Council that has given it the recognition that it has at home and abroad. I for one would rather see more constructive work done by the Council and less of the critical work on proprietary preparations.

Dr. I. J. Moyer, Pittsburgh: This paper agrees with my experience with the drugs and corresponds closely with my clinical experience and I wish to go further in the investigation of some of the drugs, especially caffein. We know that in failure of compensation it is of great value. There is just one point in regard to the abolition of the hypophosphites. In tuberculosis or just preceding the onset of this disease there is a large amount of waste of the phosphates and calcium and calcium phosphate and this renders the person more susceptible to the disease. If we can supplant this and supply the calcium salts it will support the organism and replace the loss of the calcium salt and it seems to me that it is worthy of trial and investigation.

Dr. O. T. Osborne, New Haven, Conn.: I do not know of any proof that calcium hypophosphite becomes anything else in the body than calcium hypophosphite. I agree that the body needs calcium in this condition, but it must get it in some other way. As to Mr. Lackenbach, I take decided issue with him. I believe constructive work is valuable, but destructive work is equally as valuable in the drug line. We are still in the realms of superstition and if we do not wash off from our books the obsolete drugs and preparations the same as we have these hypophosphites, then we do not accomplish very much with the larger medical fraternity. The investigations of the actions and limitations of the active drugs is bound to go on, but I believe there is a larger field for the work of the Council in showing that many of the proprietaries are mixtures of more or less useless drugs. If one goes through these mixtures with a red pencil he will find that it is a minute portion of an iodid, for instance, or a small amount of salicylic acid, that is doing the work and the rest is nonsense. I believe the only official way to show this fact is through the American Medical Association.

Dr. Torald Sollmann, Cleveland: There are many preparations that the Council considers it a waste of time to take up; at the same time it aims to cover the entire field of advertised proprietaries so that the physician can find the opinion of the Council on them. This is the reason for a great deal of this condemnatory work.

THE TREATMENT BY RADIUM OF CARCINOMA OF THE PROSTATE AND BLADDER

PRELIMINARY REPORT *

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In October, 1915, at the Memorial Hospital, we began treatment by radium of cases of carcinoma of the prostate and bladder. At this early date obviously no final results of our treatment can be predicted. In certain cases, however, our primary results have been good. This, together with the fact that the technic of the application of the radium, particularly in prostate carcinomas, is new, encourages us to give this report.

Problems presented by bladder and prostate carcinomas are so entirely different that they will be considered separately.

CARCINOMA OF THE BLADDER

The cases considered in this paper are not papillomas which may have undergone at one place or another carcinomatous degeneration, but rather flat sessile tumors, sometimes cauliflower, sometimes hard, sometimes multiple, generally sloughy in part. The cystoscopic picture or the rectal feel may suggest an indurated base. Microscopically they show carcinoma. Fulguration does not particularly affect this tumor.

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* From the Service of the Memorial Hospital.

* Read before the American Association of Genito-Urinary Surgeons, Washington, D. C., May 9, 1916.

Technic of Using Radium.—There are a number of different facts connected with these tumors which have determined our method of treatment.

1. These patients often have a great deal of pain both connected with and between urinations. We have tried not to increase their pain and discomfort; in other words, if we do not succeed in curing, we can at least say that we have not made them materially worse. We have not been altogether successful in this. The extent of the carcinoma, the presence of urinary retention, the involvement of the prostatic urethra, and other factors, seem to make it more or less impossible to determine accurately the amount of pain a patient will have from radium treatment.

2. In the first case in which we used radium, the bladder was opened suprapubically and the radium attached by hooks to the tumor. It took this man nearly three months to get out of the hospital. He had sloughs in his suprapubic wound for a long time and his physical condition at present is the worst of any of the patients treated. For this reason I have at least temporarily given up this method.

3. I believe that the problem of destroying carcinoma of the bladder by radium is, in most cases, largely one of accuracy in applying the radium to the growth. This has been the experience of those who have used radium treatment in uterine carcinoma. Therefore we have not used irradiation by means of rectal tubes or suprapubic application, but have tried to place the radium on the growth in the bladder. I have tried to use the radium in such quantities and over such periods of time that undue sloughing and burning of the normal portion of the bladder will not result.

The method which I use at present is as follows:

From 100 to 200 millicuries of radium screened with 0.6 mm. of silver and 1.5 mm. of rubber are put up so as to form a capsule about 1 inch long and one-eighth inch in diameter; to this is attached a long stout double linen thread. A direct cystoscope is introduced into the bladder, the capsule put through its sheath and the cystoscope withdrawn, leaving the radium in the bladder. The linen thread attached to the tube runs through the urethra and appears at the meatus. In women one may reintroduce a small cystoscope and see if the radium lies on the tumor. The patient remains in bed during the application. This perhaps is a crude and inaccurate way of applying the radium. On the other hand, a large majority of bladder carcinomas are in the base, and the tube of radium cannot be very far from a carcinoma in this position; certainly much nearer than a rectal or suprapubic tube would be. If the carcinoma is located on one side of the bladder, the patient is told to turn slightly toward that side while the radium is applied. The patients generally have been able to urinate without trouble during the application. Some have held their urine until the end of the irradiation, at most eight hours, and then urinated or were catheterized after the radium was removed. The urine possibly to some extent screens the vault of the bladder (all of my patients to date have had carcinoma of the base) and also lifts the bladder mucous membrane of the vault away from the radium. Whatever may be the reason, the normal bladder mucous membrane seems very resistant to radium burns when the radium is used in this way.

Duration of Radium Burns.—There is much variation in the effect of any given dose of radium. The radium does not, as a rule, change the appearance of the tumor; that is, a red cauliflower tumor generally remains red after the radium burn, but it appears to be softer, and fulguration of the tumor has a much greater effect than before the irradiation. On the other hand, sloughing sometimes occurs and persists even for a number of months. My rule is not to reapply radium until a patient has entirely recovered from the effects of the first application.

Dangers of the Use of Radium.—I have lately heard of one case in which radium was used, quantity, time or screening not known, in which the patient some two and one-half months after the irradiation died of a ruptured bladder. This case emphasizes the fact that if the tumor is at all extensive it is very difficult by the cystoscope to tell exactly the amount of bladder involved. Cystographs may help some. It is possible that further experience will indicate that, in extensive carcinomas, we should do a suprapubic observation of the exterior of the bladder. If we find that the carcinoma has penetrated the bladder, radium treatment is probably both useless and dangerous.

REPORT OF BLADDER CASES

Nine bladder tumors have been irradiated.

Extent of Growth.—In one of these cases the growth was absolutely inoperable. In another case the growth should be classed as a prostatic carcinoma with secondary invasion of the bladder. In five other cases the extent of the growth indicated that total cystectomy would have been the only operation to offer anything. In another case partial cystectomy, with the reimplantation of the left ureter, would have been possible, while in another the growth itself possibly could have been removed.

Microscopic Examination.—In six of the nine cases the diagnosis of carcinoma has been confirmed by the microscopic examination of pieces taken from the growth. I believe that in all cases the diagnosis must be confirmed by the microscope. But when once confirmed the cystoscopy and the rectal feel give us much more trustworthy data as to the extent of the tumor and the prognosis in a given case than does the microscope.

Result of Treatment.—One patient died three months after irradiation. This patient had an extensive inoperable carcinoma of the bladder base; three patients have been too recently treated to make any report. Another patient is definitely getting worse. This is the patient in whose case the radium was applied through the suprapubic opening in October, 1915. I have never been able to examine this patient with the cystoscope to see the effect of the radium on the bladder, but he is losing weight and having more frequent and more painful urination. In two other cases the symptoms are about the same, and the patient's general condition is slightly improved, but the carcinoma still persists. One of these was treated with radium about three months ago, and the other was treated several times, beginning in October, 1915. In two of the nine cases the growth has disappeared. One has only recently been examined cystoscopically, notwithstanding the radium was applied in February, 1916. In the other the growth has been absent (by cystoscopic examination) for three months. These last two cases are of enough interest to report in some detail:

Case 1.—C. T., man, aged 59, came to Dr. Keyes in January, 1916, and stated that since June, 1915, he had had occasional attacks of painless hematuria. In July, there had been two bloody emissions, though he had been impotent for ten years. At that time a papilloma was found, and since then he has been fulgurated four times—October 22, November 1, December 9, and January 11. Because of the return of the growth it is suspected to be carcinoma. Dr. Keyes reports a sloughy ulcer about the left ureteral orifice with definitely carcinomatous looking lumps in the edge. A piece was removed which Dr. Ewing reports as diffuse carcinoma, and the growth was burned again with the high frequency current. Three weeks later, 214 millicuries of screened radium were left in the bladder for seven hours. After the irradiation the patient went to his home and had various ups and downs, an attack of grip, etc. Three days after the irradiation and for a period of two weeks, he arose five to six times at night to urinate, but had no special burning on urination. From that time on the frequency has diminished. He was examined cystoscopically, May 2, 1916, at which time no trace of the original tumor could be detected. The entire bladder was slightly congested, and there were a few bullae about the bladder orifice. He is the picture of health, and there is no hardness felt in the prostate or the base of the bladder.

Case 2.—C. A. G., woman, aged 69, had painful and frequent urination for one year, three or four times at night, and by day every three to four hours. She has been passing bloody urine for some time. She was examined cystoscopically some months before I saw her, and a diagnosis made of inoperable carcinoma of the bladder. Cystoscopy revealed a large red cauliflower tumor with small necrotic areas on the left side of the bladder base. I had some difficulty in determining its full extent. It probably was as large as half a dollar and sessile. It was directly over the left ureteral orifice, which could not be seen. Dr. Ewing reports carcinoma. I burned the tumor twice with high frequency current, but this had little or no effect on it, and I considered it useless to continue. January 4, I put 100 millicuries of screened radium in the bladder and left it in eight hours. The patient went out of town the next day and at the end of three days had severe bladder pain with increased urinary frequency so that she urinated every hour. Two days later she was absolutely normal as to pain and urinary frequency.

February 4, cystoscopy revealed that the tumor was gone. The ureter was in plain sight and covered with normal mucous membrane. The patient had a little pedunculated papilloma of the bladder neck, which was burned. Dr. Keyes confirmed my examination. April 28, cystoscopy revealed that there was still no tumor. She had a slight cystitis (caused by retention of urine due to a cystocele).

Whether the carcinoma in these cases will return or not, no one can say. I believe that the fact they have reacted so quickly to radium may indicate that we have eradicated the growth. Only time will tell, however.

CARCINOMA OF THE BLADDER

The problem involved in the diagnosis and treatment of carcinoma of the prostate is different from that of carcinoma of the bladder. In the first place is the difficulty in diagnosis. An extensive carcinoma which runs up into the vesicles can usually be exactly and positively diagnosed by palpation. On the other hand, a carcinoma as extensive as this is probably beyond the hope of cure. If the carcinoma, as far as can be determined by palpation, is confined to the limits of the prostate, then the diagnosis by palpation alone is sometimes not only difficult, but impossible.

In a recent case which I treated with radium there were two positive diagnoses, including my own, which was possibly biased, one of "very suspicious," one of merely "suspicious" and two indeterminate. As Geraghty has pointed out, palpation of the median lobe on a sound introduced into the urethra is of assistance. It has been suggested that enough of the prostate for microscopic diagnosis can be obtained by the introduction of a trocar through the perineum into the suspected prostate. In one of my cases part of a carcinomatous lobe was removed and the diagnosis made from this. Such a procedure, however, is not ideal, as it might make the carcinoma grow more rapidly. If one treats cases which one is sure are carcinomas of the prostate, but in which a microscopic diagnosis has not been made, and makes such patients temporarily or permanently better, one will, of course, run a risk of dealing with cases which were not carcinomatous.

Treatment.—The operation after Legueu, Young and others apparently succeeds in curing the disease in a certain number of cases. The operative mortality is probably between 10 and 20 per cent., and the cured cases very few. Aside from the mortality, one objection to the operation is the fact that many patients are left with partial or complete incontinence. Because the results of an operation are unsatisfactory, radium has been employed in attempts to destroy the growth. Irradiation has been both rectal and urethral. Pasteur and Degras[1] report a number of cases in which the radium in the prostatic urethra or bladder gave a marked diminution of the size of the prostate and a decided improvement in symptoms. One patient three and one-half years after treatment by radium was in excellent health, with a small regular movable prostate and clear urine. This carcinoma had extended through into the bladder. Geraghty, applying radium by way of the urethra, has been able to relieve the symptoms of frequent urination, tenesmus, etc., in a number of cases, but has been unable to cause any appreciable diminution in the size of the carcinoma.

Technic of Application of Radium.—Because the carcinoma starts in the interior of the prostate gland, and radium by urethra or rectum often causes intense irritation, I have applied the radium differently. A needle 4½ inches long and about 18 gage has been used. From 50 to 100 millicuries of radium have been placed in the end of this needle for a distance varying between ¾ inch to 1½ inches according to the indications of the individual case. The patient is placed in a lithotomy position, a finger introduced into the rectum and the perineum between the urethra and rectum is anesthetized with novocain (1 per cent.). I have frequently inserted the needle without anesthetization, causing very little pain. The radium needle is then plunged into the perineum between the urethra and rectum, and, guided by the rectal finger, the end of the needle is passed into the middle of one or the other of the carcinomatous lobes.[2] After the needle is introduced, the patient frequently does not feel its presence. The needle is left in place from four to six hours. If one wishes to irradiate the other lobe, the needle is pulled out of the first lobe and introduced into the second and left there the proper time. The ease of this procedure is obvious. I was nearly dissuaded from using this method by reports of necrosis following the use of unscreened radium. I have now used the needles in the prostate fifteen times, and to date have had no radium sloughs. These patients are apt to have burning and pain beginning the week after the radium is used and lasting for from one to two weeks. During this time the prostate swells, and the maximum effect of the radium on the growth is not to be looked for until two or three months. Some patients, notably those with the carcinoma extending into the vesicles, have a great deal of pain. Neither the pain, however, nor the urinary disturbance are as great as when the radium is used in the bladder. And curiously enough, radium in the urethra seems to cause or increase an already present residual urine; while this needle method, as far as I have observed, does not. There is a certain class of borderland cases in which the carcinoma has broken through into the bladder neck and in which it is a question whether to use the prostate needles or the screened radium in the bladder neck. I think these cases should be started with prostate needles, as the reaction is often little or nothing.

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[1] Pasteur and Degras: Radium in Cancer of the Prostate, Jour. d'urol., September, 1913.

[2] The needle in the prostate also serves to exclude prostatic stone, the one condition hard to differentiate from carcinoma.

REPORT OF CASES

Extent of Lesion.—Five patients have been treated by the needle method.[3] In but one of these cases was a specimen obtained for pathologic examination. In this case the bladder was opened suprapubically, and one lobe of the prostate removed and found to be carcinomatous. In two of the cases there was very extensive carcinoma of the prostate with involvement of the vesicles. In another case there was but little involvement of the vesicles, but a large hard irregular unmistakable carcinomatous prostate. In the fifth case there was a doubt of the diagnosis. Dr. Keyes and I thought it to be carcinoma. Another surgeon said that it was "very suspicious," still another "suspicious," and two refused to give an opinion.

Number of Treatments.—In one case I inserted the needle four different times; in the four other cases I used the needle only once. The largest dose of radium that I have used in a needle is 102 millicuries for four and one-half hours in one lobe, and the same needle was changed to the other lobe, and remained there four hours. I have never seen a slough from the use of the needle, although I prefer to begin with small doses at first, from 50 to 75 millicuries for six hours.

Results of Treatment.—One patient died two months after the irradiation. He had an extensive carcinoma of the prostate and vesicles. The immediate cause of his death I do not know. One of the patients has been too recently irradiated to determine the result. The other three patients have all improved symptomatically.

One who was irradiated in December, 1915, directly after suprapubic exploration (by another surgeon) I have been unable to reach to examine. I have heard indirectly, however, that he is up and doing a good day's work. This is all I know about him.

The second, a possible borderland case, was treated Feb. 8, 1916. He had just before the irradiation an acute retention of urine. For six months prior to this he had a night urinary frequency (from two to four times). The radium needle caused absolutely no pain and no urinary disturbance. When seen, May 3, 1916, his prostate was considerably reduced in size. He had gained a few pounds in weight, he had no night frequency and was doing a full day's work. During this time he had no urethral instrumentation.

The last patient is decidedly better symptomatically, and his prostate is so much reduced that if I did not know his history I would have much difficulty in convincing myself that he had any carcinoma. He was first seen in November, 1915. He gave a history of night urinary frequency of from six to eight times for four months, and some pain running down his right thigh for five years. There had been no erections for one and one-half years. He weighed 116 pounds. He had lost about twenty pounds. Both lobes of the prostate were large, irregular, stony, hard, with slight extension up toward the vesicles. The prostate was so hard that the possibility of prostatic stones was thought of. A roentgenogram excluded this. He had no residual urine. Radium was used in November, 1915. A month later he reported that he had a number of vigorous erections which "gave him hope." The prostate at that time was at a maximum swelling. January 14, the weight was 126. The prostate was much reduced. Dr. Keyes said: "It is more the slight irregularity of the prostate than anything else that suggests carcinoma."

I again irradiated the patient, January 18. February 7, he was not up at all at night. He weighed 132¾ pounds. February 22, I irradiated again. April 4, I irradiated once again. When last seen, April 21, his frequency had gone from none at all at night to twice at night because of the radium of April 4. He has a small hard lump in the left lobe and a narrow, hard ridge along the outer margin of the right lobe. The prostate is very flat. This man has gained about 16 pounds in weight. From getting up at night six or eight times, he has had a long period just before the last radium burn of getting up not at all at night. His prostate is markedly reduced in size, but I believe still has carcinoma in it. For six months his carcinoma and the symptoms caused by it have markedly regressed.

SUMMARY

By means of radium we have caused the rapid and complete disappearance of two bladder carcinomas out of nine treated. These cases were carcinomatous by cystoscopic appearance and microscopic examination. Time only will tell whether these patients are cured.

In one case of prostatic carcinoma, treated for six months, the carcinoma and the symptoms have markedly regressed. In another case, treated three months (possibly borderland) the symptoms have improved. Of three other patients treated, one is dead, one has only recently been treated, and one is doing a full day's work but could not be reached for examination.

It has been possible to carry out this work because of the cooperation of three men: Dr. Janeway has given valuable advice as the radium expert of the hospital; Dr. Keyes has very generously contributed advice, corroborating examinations, and material; while Dr. Ewing has suggested ways and means and made all the pathologic examinations. My grateful thanks are due to these three.

109 East Thirty-Fourth Street.

Separation of Buttocks.—Occasions arise in which the examination of the anus or the contiguous skin is necessary, or some minor operation of the area is indicated, but when, unfortunately, the patient objects to a third person (assistant). At times, as in private homes, assistance on similar occasions is lacking. Being confronted with such a case (the removal of a small external hemorrhoid), I was much annoyed by the falling together of large, soft, flabby buttocks. This disadvantage was quickly overcome by the simple expedient of applying a 2 inch strip of surgical adhesive plaster to each buttock and by a bandage which united the ends in front, pulling the buttocks apart. The adhesive strips are applied about an inch from the anus, transversely to the axis of the body and closely attached to the skin for, say, 6 inches. It is a great relief to the operator to witness how easily the buttocks are separated by this means and what an excellent field this simple method provides. It is painless, quick, cheap, efficient and, best of all, may be applied at any time or place when a roll of adhesive is available.—John C. Silliman, M.D., Palo Alto, Calif.

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[3] A sixth patient was treated by radium inserted in the rectum. In this case there was considerable irritability and urinary retention, and the patient finally died uremic. I have not included him in the foregoing series.

New Instruments and Suggestions

RED MERCURIC IODID, A PHARMACEUTICALLY "SOLUBLE," THERAPEUTICALLY INSOLUBLE, SALT

G. Frank Lydston, M.D., Chicago

Considerable interest recently has been shown by physicians in the use of oily "solutions" of red mercuric iodid (mercury biniodid) by intramuscular injections. Properly prepared, a solution of the biniodid is an elegant and eligible method for intramuscular administration; but it is well to understand that in the last analysis the biniodid is no more soluble than the salicylate or the mild chlorid. I have proved by experiment that the biniodid immediately is precipitated by fresh blood serum. It naturally follows, therefore, that the drug is released from solution as soon as injected into the tissues and deposited as an "insoluble" salt. I later injected a dose of 1 grain into the abdominal muscles of a rabbit. On dissection, about six minutes later, the mercurial salt was found free in the tissues. As to its subsequent "solution" and absorption from the site of injection, I am not as yet in a position to state, from experiment. So far as therapeutic effects are concerned, the evidence seems to show that such solution and absorption apparently occur. The foregoing is worthy of note in connection with the intravenous use of "solutions" containing red mercuric iodid. I will state, however, that I frequently have administered intravenously red mercuric iodid dissolved in potassium iodid, thus far with no harmful effects. As to the efficacy of intramuscular injections of the biniodid, I am not as yet quite satisfied. I am using it, however, quite extensively, in the hope that it may prove more efficacious than some of the other insoluble salts.

25 East Washington Street.

A MODIFIED GRAM STAIN FOR DIPHTHERIA

Albert Albrecht
Hospital Steward, United States Navy

In Stitt's "Practical Bacteriology," second edition, is the formula for "an easily made and quite permanent gentian violet stain":

Saturated alcoholic solution of gentian violet......25 c.c.
Five per cent. dilution of liquor formaldehydi......75 c.c.

This stain is unreliable as a Gram stain, and was omitted from the third edition of the book.

During the past two years at the United States Naval Hospital, Naval Training Station, Great Lakes, Ill., over 3,000 cultures were made from the throats of recruits as they came to the station, to determine whether or not they were diphtheria carriers. Two and five-tenths per cent. were positive.

There were also two small epidemics of diphtheria. In all, more than 4,000 cultures were made on Loeffler's serum and stained by the following method:

1. Stain with the foregoing gentian violet stain for two minutes.
2. Flood preparation with one-half strength Gram's iodin solution for one and a half minutes.
3. Immerse slide seven or eight times in a jar of 95 per cent. alcohol.
4. Counterstain with saturated aqueous solution of Bismarck brown for four minutes.
5. Wash in water and examine.

The Klebs-Loeffler bacillus, when stained according to this method, appears as a brown rod, and the metachromatic granules are stained a deep violet. In other words, the bipolar granules alone remain gram-positive.

A single diphtheria bacillus can quickly be seen in a field with numerous other kinds of organisms.

The picture is that which we are supposed to get with Neisser's stain, but the organisms are stained more deeply, and the results are more constant.

U. S. S. *Illinois*, in care of Postmaster, New York.

Therapeutics

MOUTH INFECTIONS

(Continued from page 1371)

PYORRHEA ALVEOLARIS

The occurrence of pyorrhea alveolaris varies among different classes of people. At present the care of the teeth has an important place in the daily routine of the better educated people, and although cases do exist among them, they are less frequent than among those who are strangers to the toothbrush and to mouth cleanliness. Bass and Johns[9] state that they found pyorrhea in 95 per cent. of the cases examined by them. It is possible that their cases were collated from the poorer classes of people and from those suffering from tooth affections.

By pyorrhea alveolaris is meant a condition in which pus to a greater or less degree is present at the gingival margins affecting the peridental membrane and ultimately exposing the bone. As a result, pus pockets, from which pus escapes freely or may be easily expressed, occur. Predisposing factors are bad crowns, careless fillings, improper bridging, and, in all classes, neglect of the care of the teeth. Bacteria find a lodging place in the tartar deposited on the teeth or under a cap, and set up an inflammation. The gums become painful and tender, and there is a tendency to bleed easily from the slightest touch. Gradually the gums recede until pockets form between the teeth and gums in which the bacteria grow and thrive unchecked. Unless the disease is stopped, the teeth lose their firm support in the alveolar processes and become loose.

Pyorrhea alveolaris seems directly responsible for a large number of body ailments, produced by the entry into the lymph or blood stream of the bacteria from the infected gums. Their toxins also produce systemic disturbances. It is also true that general systemic infections, by lowering the resistance of the gums, may be the starting point of pyorrhea alveolaris, which will continue after the general infection has been cured. Removal of the pus may cure the associated condition. It is also probable that the pyorrhea, through its micro-organisms and their toxins, reduces the physical resistance of the body to such an extent that it is readily susceptible to other invasions.

When, by removal of the pyorrhea, the body resistance is restored to normal, the systemic condition is cured through the action of the antibodies in the blood and the cells. Hartzell,[10] in an examination of the teeth in 1,020 cases of mouth infections, in all of which there was pyorrhea, found eighty with disturbances of the alimentary tract, and all with evident signs of malnutrition. Other persons were suffering from migraine, and still others were neurasthenic. There were cases of arthritis and endocarditis. Anemia and even pernicious anemia were found associated with pyorrhea. Craig[11] found a number of nervous disorders due to peridental infection. The common symptom, paresthesia of the fingers and toes, "pins and needles," he states, may be due to pyorrhea, as may otalgia, tic douloureux, and neuritis of the sciatic nerve and brachial plexus. These conditions disappear with the removal of the pyorrhea.

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[9] Bass, C. C., and Johns, F. M.: Pyorrhea Dentalis and Alveolaris, The Journal A. M. A., Feb. 13, 1915, p. 553.

[10] Hartzell, T. B.: The Responsibility of the Dentist and Physician in Regard to Mouth Infections and Their Relation to Constitutional Effects, The Journal A. M. A., Oct. 4, 1913, p. 1270.

[11] Craig, C. B.: Peridental Infection as a Causative Factor in Nervous Diseases, The Journal A. M. A., Dec. 5, 1914, p. 2027.

There has been considerable difference of opinion as to the causative micro-organism producing pyorrhea alveolaris. Fully 150 different organisms have been isolated from the gums and described. It has been assumed by many using vaccines that the real offender was a streptococcus, and that if such were obtained from the deep recesses of the pus pocket, it could be used for the manufacture of an autogenous vaccine in the treatment of the condition. Hartzell and Henrici[12] found streptococci in cases of pyorrhea alveolaris and dental abscess associated with arthritis deformans, acute articular rheumatism, endocarditis, pernicious anemia, gastric ulcer, and acute iritis. Vaccines were used with varying results, but these authors cannot positively state that vaccines have a definite value in these cases. They also found other organisms present with the streptococci.

Barrett[13] and later Bass and Johns[9] recognized the ameba or endameba as the specific micro-organism of pyorrhea alveolaris. Barrett,[14] however, also considered that pathogenic bacteria played an important part in the condition. There seems to be but little doubt that *Endameba buccalis* is a common invader of the tissues within the mouth, particularly the gums. This has been known for many years, the special strain of endameba around the gums having been called the *Endameba gingivitis* by Gros, in 1849. A contrary view of the action of the endameba has been held by Chivero,[15] of the University of Rome, who, after a careful study of the mouth protozoa, stated that he had found the *Endameba buccalis* in the pus in all cases of pyorrhea, but that he thought them beneficial, claiming that they fed on pathogenic bacteria.

Perhaps the best proof of the relation of the endameba to pyorrhea alveolaris is furnished by the action of ipecac or emetin, a specific amebicide, on the endameba. Such treatment often results in a disappearance of the pyorrhea alveolaris. Not only has the pus disappeared, but there has also been a subsidence and improvement, often with cure, of the complications produced by the pyorrhea. Emetin treatment, however, without additional measures, such as removing the offending bridge, crown or tooth which may have caused the pus pocket, will not suffice in effecting a cure, as pockets still persist and invite further accumulation of tartar and pus.

Treatment of pyorrhea alveolaris may be applied locally, or it may be given hypodermically. Bass and Johns[9] give doses of 0.5 gm. emetin hydrochlorid hypodermically each day for from three to six days, the duration depending on the case, and also on the stage of the disease. They found that the endamebas disappeared from all lesions in 90 per cent. of their cases after a one to three day treatment, and in 99 per cent. of the cases after at most six days' treatment. With the disappearance of the endameba, they also found that the pain and soreness disappeared, and that there was no further tendency of the gums to bleed. They found no indication in any of their cases for the space between the root and the alveolar process to fill up with periosteum or other tissue. On this account a pocket was left that provided a place for further pyorrhea. This would mean constant injection of emetin, which would, for various reasons, be impracticable. On this account there is offered good opportunity for recurrences. Reinfection may be prevented by daily local application of fluidextract of ipecac to the gums. It has been found that this, even when diluted 200,000 times, will kill the endameba. The fluidextract may be diluted ten times with alcohol and applied by means of a toothbrush, care being taken to force the ipecac between the teeth. Even with this prophylaxis, relapses have occurred, and on this account it is suggested that courses of injections of emetin be repeated every three or four weeks.

With the emetin treatment there is also essential the treatment of the teeth, such as removing the tartar, cleaning, and removing any dead tissue from the pus pockets. With such treatment the pus pockets should also be irrigated with a weak solution of the fluidextract of ipecac.

Williams and associates,[16] studying amebic infections in the mouths of children and the subsequent condition in some of these following treatment by ordinary cleansing methods and in others with mouth washes containing emetin, found in the first group that the number of mouths showing ameba was reduced one-half, and with emetin was reduced to 10 per cent. They used a 1 : 200 emetin solution which, as the treatment continued, was reduced to a 1 : 400 solution.

There have been reported serious results from the emetin injections. Levy and Rowntree[17] report two cases of poisoning from emetin, in one of which the patient died. In both cases there was diarrhea, and in the fatal case signs of kidney involvement.

The question of the constant presence of the endameba in some mouths brings up the question of carriers. It is quite evident that inasmuch as the endameba is a common invader of the mouth, the person with pyorrhea alveolaris must be a carrier, and hence capable of infecting those who come in contact with his mouth secretions. The disease can doubtless be transmitted in the same ways as other mouth infections, such as by the use of common drinking and eating utensils, by droplets in speaking and coughing, and by kissing.

Some of the solutions used in the mouth or injected into the gums have contained hydrochloric acid, and it has been shown that some acid fruits are more cleansing for the teeth and gums than are alkaline washes.[18] Tweddell[19] has found that the internal administration of dilute sulphuric acid in doses of from 30 to 60 drops, taken with a large amount of water, and administered three or four times a day, is of value not only in fighting furunculosis, but also in combating pyorrhea alveolaris.

Whatever the local or systemic treatment of the *Endameba buccalis* or of the associated pus germs, even when autogenous vaccines are made and used and act successfully, the dental management of the retracted gums and eroded and diseased teeth is of primary importance, and treatment will fail unless the dental care of the jaws is successful.

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[12] Hartzell, T. B., and Henrici, A. T.: A Study of Streptococci from Pyorrhea Alveolaris and from Apical Abscesses, The Journal A. M. A., March 27, 1915, p. 1055.

[13] Barrett, M. F.: Dental Cosmos, 1914, lvi, 948.

[14] Barrett, M. F.: Dental Cosmos, 1914, lvi, 1345.

[15] Chivero, Angelo: Dental Rev., December, 1914, p. 1133.

[16] Williams, Anna W.; von Sholly, Anna I.; Rosenberg, Caroline, and Mann, Alice G.: Significance and Prevention of Amebic Infections in the Mouths of Children, The Journal A. M. A., Dec. 11, 1915, p. 2070.

[17] Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420.

[18] Oral Cleanliness, Therapeutics, The Journal A. M. A., Nov. 8, 1913, p. 1719.

[19] Tweddell, F.: Med. Rec., New York, July 4, 1914, p. 16.

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SATURDAY, NOVEMBER 11, 1916

NEWER ASPECTS OF BACTERIAL METABOLISM

In the early era of modern bacteriology, with its discoveries of new micro-organisms and important etiologic consequences following each other in rapid succession, the attention of both investigators and their scientific audiences was focused almost exclusively on the morphologic and cultural characters of the minute living forms which were being recognized for the first time. The isolation of some new group of bacteria led at once to the question of its possible pathogenicity and of the precise sort of characters which would enable one to detect and grow the form. It was only in later years that consideration was given to the life of the bacteria themselves, to microbiology as a story of the metabolism and growth of these lower organisms apart from their possible relations to disease or other phenomena in the world in which they develop. Curiosity early arose, of course, as to the way in which bacteria exerted their functions; how they produced decomposition in organic matter; how they "secreted" poisons of almost magical potency; how they managed to develop under conditions in which other forms of life speedily deteriorated or died, and how they manifested some of the unique properties which have given them popular prominence in a comparatively short time.

The classic discovery by Eduard Buchner of zymase, the enzyme of yeast responsible for the reaction of fermentation, served as a stimulus for the investigation of the relation of enzymes to bacterial life. Incidentally, the problems of bacterial metabolism forced themselves into the foreground. It became more evident than ever before that these lowest forms, the bacteria, likewise effect their changes in the pabulum on which they act through the elaboration of bacterial enzymes. Decomposition, whether of proteins or carbohydrates or fats, assumed a new significance not unlike that of the better recognized enzymatic digestive changes in the nutrition of higher forms.

It was an unexpected turn when the English bacteriologist Bainbridge[1] announced, in 1911, that certain aerobic and facultative anaerobic bacteria of the gelatin-liquefying and nonliquefying types are of themselves unable to initiate decomposition of purified native proteins. These significant facts have been corroborated in this country by Sperry and Rettger[2] at Yale University, who have further shown that certain putrefactive anaerobes like *Bacillus putrificus* and *B. oedematis* are likewise devoid of this property. The American investigators further showed that the vegetable protein edestin, purified by crystallization, like egg albumin and serum albumin, does not undergo disintegration by direct bacterial action.

These unexpected observations[3] naturally have led to the assumption that protein nitrogen cannot be utilized by bacteria unless it is first made available in simpler combinations for cell nutrition through the action of proteolytic enzymes, or some other cleavage agencies. The resistance to decomposition is not necessarily due to some factor attributable to the "native" or unaltered condition of the purified isolated proteins heretofore studied in relation to bacterial metabolism; for Rettger, Berman and Sturges[4] have lately found that purified egg albumin, coagulated in the process of sterilization by heat, is still resistant to the bacteria mentioned, when it forms the sole source of nitrogen in the medium. Even more surprising, perhaps, is their observation that the inability of bacteria to attack and bring about the decomposition of proteins without the aid of enzymes or other proteolytic agents applies not only to the more complex proteins like egg albumin, but in all probability to proteoses and peptones as well.

This statement will promptly meet the reply that commercial "peptones" and proteose preparations are the conventional sources of the nutrient mediums for bacteria in every laboratory throughout the world. How is this seeming contradiction to be explained? What are the important sources of nitrogen available for bacterial metabolism without the aid of enzymes? It is now known that the amino acids, recognized as the primary units in nitrogenous metabolism in the higher animals, are readily utilized by bacteria. According to Rettger[4] and his collaborators, it begins to appear probable that so-called "peptone" mediums largely owe their value as culture mediums to the amino acids present and perhaps other nitrogenous substances which readily give up their nitrogen as the result of direct bacterial action, and unless bacteria are present which elaborate proteolytic enzymes, little if any of the proteoses and peptone in the medium is utilized. It may accordingly become necessary to adopt the view that the bacterial cell cannot utilize any protein until after it has been disintegrated by some other agent and the nitrogenous portion converted into a simpler form.

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[1] Bainbridge, F. A.: The Action of Certain Bacteria on Proteins, Jour. Hyg., 1911, xi, 341.

[2] Sperry, J. A., and Rettger, L. F.: The Behavior of Certain Bacteria Toward Purified Animal and Vegetable Proteins, Jour. Biol. Chem., 1915, xx, 445.

[3] The Resistance of Pure Proteins to Bacterial Decomposition, editorial, The Journal A. M. A., July 17, 1916, p. 257.

[4] Rettger, L. F.; Berman, N., and Sturges, W. T.: Further Studies on Bacterial Nutrition: The Utilization of Proteid and Non-Proteid Nitrogen, Jour. Bacteriol., 1916, i, 15.

If this view becomes tenable, it will be necessary, as Rettger maintains, to alter materially the current conception of the value of "peptone" and other soluble as well as insoluble proteins as culture mediums, especially so far as certain groups of tested bacteria are concerned. These newer conceptions evidently bring the metabolism and constructive nutrition of the bacteria into a degree of harmony with that of the higher animals. In the latter, complex foodstuffs must be prepared for the cells through the disintegrative help of enzymes either within or without the organism. No cell can directly assimilate and utilize undigested foreign food material. The same plan may perhaps apply to the bacterial cell, Rettger ventures, as well as in the field of animal cell nutrition.

IMMATURE VEAL AND HARD PALATES

Tradition and custom play a significant part in the selection of the dietary. Frequently these factors are the logical outcome of local economic conditions or geographic necessity. One would scarcely expect potatoes, for example, to be a prominent component of the ration in a region in which they are not readily available, owing to agricultural difficulties. Likewise the sort of cereal which is most generally consumed in one region or another has usually depended on the specific produce of the locality concerned. Latterly the ease of communication and transportation has made a much larger range of edible products available in all areas to which civilization reaches. Even perishable materials, like fresh fruits and meats, are carried literally to the uttermost ends of the earth for distribution. More stable products are correspondingly easier of transmission to open markets, according to the economic laws of supply and demand.

Sometimes an established prejudice in matters of diet puts an almost impenetrable barrier against the introduction of innovations in respect to diet. We have referred in the past to an instance of this which seems to exist regarding the use of very young veal, sometimes designated as bob veal.[1] The sale of calves less than from 3 to 6 weeks old for food is prohibited by federal and state laws. Is the current attitude against the young veal logical? Let us consider the argument of government experts in the field of nutrition. That the common opinion that veal is less wholesome than beef, they tell us,[2] and young veal less so than mature veal is not a consistent prejudice against young flesh foods is shown by the common and apparently growing taste which prefers squab to pigeon, ranks broilers as superior to fowls, considers sucking pig a great delicacy, and regards hothouse lamb—that is, lamb less than 3 months old and rapidly grown and fattened—as being as much superior to older lamb as lamb is to mutton.

What are the alleged justifications for the traditional prejudice against young veal? By some it has been claimed to be rather indigestible and thus made responsible for gastro-intestinal disturbances. Others have ascribed to it a positive toxicity of some sort, postulating the existence of some harmful compound which disappears with the age of the animal. Fish[3] of Cornell University hurled defiance at inherited belief a few years ago in his championship of young veal as a harmless food. No toxicity whatever could be established in his experiments on many human subjects. More recently Berg[4] of the Bureau of Animal Industry has helped to dispel mistaken beliefs by showing that there are no physiologically significant differences in the chemical composition of beef and immature veal. In a large number of artificial digestion experiments he found that the young veal was as quickly digested as beef; and feeding experiments with animals supported the contention of the harmlessness as well as the nutrient qualities of meat from very young calves.

Even more convincing must be the elaborate investigation of the coefficient of digestibility of very young veal conducted by Langworthy and Holmes[2] at the office of Home Economics in the State Relation Service, Washington. The value of their studies will be greatly enhanced in the eyes of many by the fact that the experiments were conducted on the human subject in normal health. The outcome was definite in showing that the digestibility of the protein of bob veal is the same as that found for market veal—namely, 93 per cent., in round numbers. The subjects of the dietary and digestion experiments experienced no physiologic disturbances during the experimental period or afterward. The tests showed that such veal can be prepared for the table in palatable ways, and that so far as could be judged, it was not unwholesome when eaten in quantity. In the digestion experiments the average weight of protein supplied by the meat exceeded that generally furnished by the meat portion of the ordinary diet, indicating that very young or bob veal was not distasteful. In the light of known facts one may reasonably conclude, therefore, that the general opinion that young veal is a common cause of digestive disturbance or fails to digest as thoroughly as similar foods is not justified.

Perhaps a better understanding of the truth about young veal will ultimately serve a manifold benefit. In grazing areas in which the cheapness of food makes it possible to rear cattle at least to early maturity, there is a natural tendency to do so. In regions in which the dairy industry is highly developed, milk is such an important product that it is not thought profitable to rear calves beyond the period when the mother's milk becomes salable. Under present traditions the lack of a market for very young veal results in the slaughter of the calves soon after birth without any attempt to feed them until the lawful marketable age. Changing economic conditions, especially the growing scarcity of meat, may help to overcome the existing prejudices and save what is now a considerable loss in the food industry.

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[1] Is "Bob Veal" Toxic? editorial, The Journal A. M. A., March 15, 1913, p. 834; "Bob Veal," June 7, 1913, p. 1795.

[2] Langworthy, C. F., and Holmes, A. D.: Digestibility of Very Young Veal, Jour. Agric. Res., 1916, vi, 577.

[3] Fish, P. A.: Preliminary Observations on Bob Veal, Rep. New York State Vet. Col., 1909-1910, p. 130; Further Observations on Bob Veal, ibid., 1910-1911, p. 138; The Digestibility and Decomposability of Bob Veal, ibid., 1912-1913, p. 51.

[4] Berg, W. N.: Biochemical Comparisons Between Mature Beef and Immature Veal, Jour. Agric. Research, 1916, v, 667. Immature Veal as Food, editorial, The Journal A. M. A., March 11, 1916, p. 820.

Reference to economic necessity may serve to call attention to another neglected animal product, the so-called "hard palates" which are taken from the roof of the mouth of beef cattle. These contain very little muscular tissue such as is characteristic of meats in general, and they are of somewhat unattractive appearance. Aside from a small layer of stratified epithelium, the bulk of the tissue consists of connective tissue together with a small admixture of involuntary muscle. The government experts[5] have found that these hard palates can be transformed into a palatable product by suitable culinary procedures. According to the report just cited, the protein of the hard palates appears to be almost as thoroughly assimilated, if it has previously been thoroughly cooked, as that of the common cuts of meat. Perhaps this newly suggested food product will make a greater appeal if conditions arise in which frugality and conservation of meat resources become more necessary than at present.

INTRAVENOUS THERAPY

The intravenous administration of drugs is a new departure in therapy, but one which is rapidly increasing in use. Among its reputed advantages are that it is the quickest means of obtaining the effects of a drug, the effects are obtained with a certainty not obtained by other methods, and they are so marked that they cannot fail to impress the observer. These advantages in many cases are apparent rather than real; but even were they real advantages, they should not blind us to the various and serious dangers which this method involves. The technic, although not difficult, must be thoroughly mastered, or undue pain, infection, air embolism, or even death may result. Such accidents, however, are ordinarily easily avoided, and should be considered quite inexcusable. More serious is the fact that the drugs given intravenously reach the system, and especially the heart, in a different manner and concentration from that to which physicians are accustomed with ordinary methods of administration. Pharmacologists have long practiced intravenous administration, when studying acute effects of drugs, and they have observed that frequently the immediate result of such injections is a prompt fall of blood pressure, not obtained when the same drugs are given by mouth or even hypodermically. This fall in blood pressure is commonly attributed to irritation of the endocardium. It is usually of short duration, but is certainly undesirable and sometimes may have serious results.

It has also been observed that several drugs, for instance, quinin and potassium, depress the cardiac muscle when given intravenously much more than when given in other ways. Furthermore, any substance which tends to precipitate proteins must be injected slowly and with extreme caution, or it will produce intravascular clotting and sudden death. Deaths have resulted not only from a lack of knowledge of the technic of intravenous therapy, but also from a lack of knowledge of drugs which may be so administered. Sudden death has been reported following the injection of an iron preparation containing peptone, and also following intravenous injection of ether. Intravenous injections, while sometimes superior to the slower methods, are distinctly inferior when a continuous rather than a sudden action is desired. Drugs leave the blood system with great rapidity, and therefore their action on the circulation will cease promptly unless they are continuously supplied. It would be undesirable to inject intravenously such drugs as iodids, nitrites, iron or salicylates.

With these dangers and disadvantages in mind, it seems unwise to resort to promiscuous intravenous medication until the effects of this method have been studied in detail for the drugs employed, and unless there are distinct advantages to be secured. This is the case when an immediate action is necessary in emergencies, as in the use of strophanthin for cardiac collapse, quinin in pernicious malaria, etc., or if the drug would be destroyed in the stomach or tissues, as in the case of salvarsan, or where the drug is not adequately absorbed by any other channel, as in the case of epinephrin.

Intravenous therapy will be most securely advanced if its employment is restricted to such well defined fields. These fields can be satisfactorily determined only by a scientific pharmacologic study of the action of these drugs when so administered in animals, as well as in man, under conditions in which the results are carefully controlled. The intravenous method is an impressive one, approaching in preparation almost to that which goes with a surgical operation. The patient is usually interested and impressed by this new, and to him, mysterious method. There is a psychic element in his reaction to the injection which is not a factor in his reaction to the same drug when given by mouth. The intravenous injection of a complex mixture would appear to be particularly reprehensible. Little is known, as has been stated, of the results to be expected from intravenous therapy, even with simple substances. The use of complex mixtures will without doubt react against the proper use of the method.

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[5] Langworthy, C. F., and Holmes, A. D.: Digestibility of Hard Palates of Cattle, Jour. Agric. Research, 1916, vi, 641.

POSSIBLE DANGERS OF THE BUBBLE FOUNTAIN

The propaganda in the interest of public health has succeeded in introducing numerous innovations into our daily life. Most of these have improved sanitary conditions; some have helped to eradicate disease and to promote hygienic efficiency. The dangers to health which lurk in the common use of articles that find an application in the everyday life of man with respect to his person have become more clearly recognized with the development of bacteriology. Dentists' and barbers' utensils, the common towel, and the public drinking cup are believed to harbor a menace because of the possibility of transmitting infection from person to person through the successive use of the same device without special purification or sterilization for each application.

Laws have been framed to prohibit the use of the common drinking cup and are being widely enforced in this country. As a result, the "individual" or single service cup, usually made of paper, has come into use; and where suitable water supply is available, the bubble fountain has been generally installed. In the latter device it has seemed as if the application of sanitary science had almost reached hygienic perfection; for what could be more obvious than the freedom of the ever changing bubbling stream of pure water from contamination through the evanescent contact with the mouth?

The circumstance of an epidemic of streptococcus tonsillitis two years ago in one of the dormitories of the University of Wisconsin unexpectedly directed suspicion to the bubble fountains in the building. The water pressure in them was so low that it was scarcely possible to drink from the bubbler without touching the metal portions with the lips. An examination of the fountains showed them to be heavily contaminated with streptococci. Positive results were obtained from the surface of the fountain, from the inside and from the water discharged, but the city water supply by which they were operated gave no evidence of these organisms. These facts led to an extensive bacteriologic investigation of the hygiene of the bubble fountain in general by Pettibone, Bogart and Clark[1] of the University of Wisconsin Laboratory of Medical Bacteriology. From this it appears that the bubble fountains may become a factor in transmitting disease.

The facts of the Wisconsin investigation are surprising as well as unexpected. A survey of all fountains of the university showed the presence of streptococci in over 50 per cent. of the total number. These bacteria varied in abundance from a few chains to an almost pure culture obtained by swabbings from fountains in the epidemic-ridden dormitory. In an experimental bubble fountain, *Bacillus prodigiosus* when introduced either by means of a pipet or by the moistened lips remained in the water from two to 135 minutes, depending partly on the height of the "bubble."

The explanation of this finding seems to be clear. Most of the organisms are flushed away in the water stream; but some remain dancing in the column much as a ball dances on the garden fountain, even though the bubble be increased to the impracticable height of 4 inches. To avoid this difficulty, always present in the vertical column of spouting water, a simple fountain with a tube at an angle of 50 degrees from the vertical was constructed. *B. prodigiosus* was never found in the culture plates from this type of fountain, even when samples were taken immediately after the intentional introduction of the organisms.

Danger disguised in the cloak of safety is a menace of the most potent sort, particularly when it receives the approbation of health authorities in the way that the bubble fountain has shared it. The Wisconsin investigators believe that a jet of water from a tube erected at an angle of 15 degrees or more from the vertical and with an adequate collar guard to prevent possible contact with the orifice is adequate to prevent micro-organisms from "dancing" on the column of water. The construction of a safe bubble fountain is thus made practicable, and the problem of furnishing water uncontaminated by human lips even to a constant succession of thirsty persons is apparently solved anew.

Current Comment

NATIONAL RESEARCH COUNCIL

The National Research Council, organized by the National Academy of Sciences at the request of the president of the United States, has elected Dr. George E. Hale, the director of the Mount Wilson Solar Observatory, as chairman. This council has been created to bring into cooperation existing governmental, educational, industrial and other research organizations in order to encourage the investigation of national problems, the increased use of scientific research in the development of American industries, the employment of scientific methods in strengthening the national defense, and such other applications of science as will promote national security and welfare. Under such a plan, the possibilities of the council are practically unlimited. It has been decided that the efforts of the council shall be uniformly directed toward the encouragement of individual initiative in research work, and that cooperation and organization shall not involve restrictions or limitations of any kind on research workers. Committees on research for educational institutions, promotion of industrial research and national census of research have been appointed. Joint committees on various branches of science are to be formed to cooperate with corresponding national scientific societies. Dr. William H. Welch, Dr. W. W. Keen, Surgeon-General W. C. Gorgas, Dr. Victor C. Vaughan and Dr. Simon Flexner comprise the medical members of this important board.

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[1] Pettibone, Dorothy F.; Bogart, F. B., and Clark, P. F.: The Bacteriology of the Bubble Fountain, Jour. Bacteriol., 1916, i, 471.

THE "UNITED DOCTORS"—TYPICAL QUACKS

"The professionalism of the case taker and fee getter is of worth only insofar as it tends to make the desired impression upon the patient." The statement just quoted is credited, by Dr. Burton E. Manchester, to another physician previously hired by him to play the part of an itinerant "specialist." Here is expressed, in few words, the letter and the spirit of the principles that govern the advertising quack. Manchester, as will be seen by those who read the Propaganda Department this week, was the head of an itinerant quack organization styled the "United Doctors." He hired professional renegades to go from town to town as "specialists." Their coming was heralded in the newspapers by advertisements placed by Manchester through an advertising agency managed by Manchester; they dispensed pills and potions furnished by Manchester; they obtained and kept records of the financial condition of the victims and sent these reports to Manchester. After paying for the advertising, the medicaments, stationery, "follow-up letters," hotel and traveling expenses, 50 per cent.—or more—of what was left went to Manchester. Such was the scheme of the itinerant United Doctors. Because two of Manchester's hired men decided to place their own advertising (using the United Doctors' "copy"), furnish their own medicines and pay their own traveling and hotel expenses, keeping the entire amount garnered from the gullible, Manchester sought relief in the equity courts and urged that his two traitorous disciples be enjoined from continuing their nefarious trade. The result of this court action was to give the public a little light on the inner workings of the quack. And it is from one of the exhibits in this case, submitted by Manchester, that the quotation with which this comment opens is taken. "With me," still quoting from Manchester's exhibit, "as you probably know, the *modus operandi* is essentially commercial." It is. The man speaks not only for himself, but for the quack fraternity generally.

RECENT LEGISLATION FOR THE MEDICAL CORPS OF THE NAVY

A few weeks ago, attention was called to legislation which had been enacted for the medical department of the army. The last Congress also enacted legislation for the Medical Corps of the navy which should make most attractive a career in that branch of the public medical service. Like the Medical Corps of the army, this corps is placed on a percentage basis equal to 6.5 per cent. of the total personnel of the navy, immediately increasing the corps from 345 to over 680 medical officers; there are at present over 350 vacancies. The corps now has all ranks, from that of assistant surgeon with the rank of lieutenant junior grade (corresponding to rank and pay of a first lieutenant in the army) to the grade of medical director with the rank of rear admiral (corresponding in rank and pay to that of a major-general in the army). The establishment of the rank of rear admiral for medical officers, other than the officer temporarily holding the rank of surgeon-general, is a special achievement for the Medical Corps of the navy, as it establishes a dignity of high rank for a staff corps. The upper grades of the corps, that is to say, above the rank of lieutenant-commander (corresponding to the rank of major in the army), are distributed on a percentage basis — 0.5 per cent. rear admirals, 4 per cent. captains (corresponding to the rank of colonel), and 8 per cent. commanders (corresponding to the rank of lieutenant-colonel). An officer in the lower grades of the Medical Corps is promoted through the various grades, with the officer of the line with whom or next after whom he takes precedence. Promotion is certain to be rapid for those entering the Medical Corps of the navy within the next three years.[1] Twenty large general hospitals with most complete and modern equipment are maintained in various parts of the world. The corps also maintains a quarterly journal which reflects the scientific character of the work accomplished. Candidates for this corps are examined in two stages. The first stage of the examination is in the fundamental medical branches. The candidate, if successful, is then appointed to the Medical Reserve Corps. After a course of study at the Naval Medical School at Washington, D. C., he comes up for final examination for commission. The candidate may appear at a date mutually convenient to him and the board, as the latter is constantly in session at the naval hospitals at Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Chicago, San Francisco and Puget Sound. To the young medical man who feels that he owes a duty to his country, and who would fulfil that duty, at the same time securing practical development, broadening travel and experience in scientific research, the Medical Corps of the navy offers an exceptional opportunity.

WHAT MALARIA COSTS THE SOUTH

Most people measure the importance of a thing largely by its cost. Human life and suffering have no definite cash value. Until recently sanitarians and health advocates endeavored to arouse the public by showing the number of lives which could be saved and the quantity of suffering which could be avoided by stamping out preventable disease. Their efforts appealed only to the minority. Profiting by this early experience, the present day sanitarian endeavors to get away from the sentimental and purely humanitarian aspect of disease and to reduce it to terms of dollars and cents, appreciating that the commercial aspect will appeal to many persons not directly interested in health problems. An interesting effort in this direction is that by Van Dine,[1] of the United States Bureau of Entomology, who has made a careful study of conditions on a plantation in Madison Parish, La. Herrick in 1903 had suggested the enormous losses from this cause in the South, and Howard in 1909 estimated the annual loss in the United States from malaria to be not less than $100,000,000. These were necessarily estimates. Dr. Van Dine endeavors to work out the problem accurately on a small scale. The principal effects of malaria on farming are a reduction in the net profits on crops and reduced values from nondevelopment of farm lands. The survey included a detailed study of seventy-four tenant families, consisting of 299 individuals, on one plantation of 1,800 acres. There were 166 cases of malaria in 138 individuals out of a total of 299 persons. The actual time lost through malaria was 1,066 days of adult time from May to October, an average of 14.4 days for each family, or 6.42 adult days for each case of malaria. The loss in efficiency was 25 per cent. In May, June, September and October, there was a total loss directly affecting the crops of 660 adult days, equal to a money loss of $6,520.50, $2,200 of which was lost through sickness and $4,300 through inefficiency from malaria. The wage loss to the laborers was $660, and the net loss to the owner was $5,860.50.

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[1] The surgeon-general of the navy has issued a most interesting illustrated circular, which may be obtained from his office on application, describing the advantages of a career in the navy. This pamphlet will be of interest not only to prospective candidates, but also to the medical fraternity in general, as it contains much illuminating information concerning a special field for the medical profession and the character of its work, which takes its members to every part of the globe.

ANTIGENS AND ANTIBODIES IN SCARLET FEVER

Many different organisms have been isolated from the blood and tissues in the acute stages of scarlet fever, but whether any one of them is responsible for the disease is yet to be determined. Thus far suspicion mostly lies on the streptococci. Most of the work designed to demonstrate antibodies specific against the streptococci in scarlatinal serums has been based on (1) agglutination, some claiming specific agglutination and others denying it; (2) the opsonic index, which indicates that the streptococci play a part in the disease, and (3) complement deviation, which has not given any results which are decisive. Recently Drs. G. F. and G. R. Dick,[2] finding that animal experiments had failed to give definite results, sought by complement deviation and cutaneous tests to ascertain whether or not the blood at the height of intoxication, extracts of the spleen and of the lymph glands, or the mouth and throat secretions harbor a possible ultramicroscopic virus, or one which declines to grow on mediums in use. The complement fixation tests with the blood and with the organ extracts, and the cutaneous tests with these extracts were wholly negative, according on the whole with the work of previous investigators with organ extracts. With mucus from the throat in scarlatinal anginas as antigen, however, they obtained positive complement fixation in twelve of twenty-two convalescent scarlatinal serums (54 per cent.). The predominant bacterial growth in these mucus antigens was that of the streptococci, and tests comparing the antigenic power of the predominant streptococcus with that of the mixed culture of the mucus, and with that of each of twenty-two other organisms isolated in scarlatinal anginas indicated that no antigenic property need be assumed other than that of the predominating streptococcus. Of interest in this connection is the report of Di Cristina,[3] who asserts that he has induced specific complement fixation with antigen prepared from the desquamated scales of scarlet fever. Indeed, he has made a vaccine of the scales, which he says brings about specific complement fixation in the blood after three injections, and which he asserts has protected normal children through a thorough exposure to scarlet fever. That which he declares confers immunity on the healthy organism, if it shall be substantiated in subsequent work by other investigators, would seem to be a clue to the etiology of the disease.

WHEN WOMEN VOTE

Speaking of the ten hour limit for women workers — a good thing — what about the new conditions that have arisen? Now woman votes and is assuming the responsibilities of mere man. For example, she acts as an election official, reports for duty at 6 a. m. and finishes her work somewhere between fourteen to twenty-four hours later. When one considers the environment of the ordinary polling place one wonders whether it would not be advisable to make the regulations for conducting elections accord with the law.

GERMAN AND AUSTRIAN MEDICAL JOURNALS

On two or three occasions The Journal has called attention to the fact that German and Austrian medical journals were not being received. This has been the condition of affairs for some months. Attention[4] was called to the fact that the military authorities had issued orders that medical books and periodicals which might in any way help the enemy in conducting the war should not be sent out of the country. An Austrian exchange last December related that the officers of the organization of German publishers petitioned the authorities to countermand this order, emphasizing the neutrality of medical science and noting the fact that German medical literature stood at the head of medical literature the world over, and that there was danger it might lose this position if exportation was forbidden, especially to neutral lands. As will be noted in our news columns, German and Austrian journals are now making their appearance, nearly all foreign exchanges coming to hand this week. Each one bears a stamp to the effect that it has been released for exportation. It is noted in some of the journals that only certain numbers are so released. Those not released presumably contain matter which the authorities think should not be given general publicity.

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[1] Van Dine, D. L.: The Relation of Malaria to Crop Production, Scient. Month., November, 1916, p. 431.

[2] Dick, G. F. and G. R.: Immune Reactions in Scarlet Fever, Jour. Infect. Dis., 1916, xix, 175, 638.

[3] Di Cristina, G.: Immunity Reaction and Vaccination Against Scarlet Fever, Pediatria, Naples, 1916, xxiv, 385; abstr., The Journal A. M. A., Sept. 30, 1916, p. 1049.

[4] The Journal, Feb. 5, 1916, p. 440.

However that may be, it is encouraging once more to learn from original sources what is going on in medicine and surgery in Germany and Austria. We hope that this release of medical journals means that we shall again hear from our Berlin, Vienna and Budapest correspondents.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Personal.—Dr. Joseph J. Kinyoun, bacteriologist of the health department, who at the request of the authorities of Winston-Salem, N. C., has been for several months engaged in the reorganization of the health department of that city, has resumed his duties in Washington.

Appointments in Health Department.—Dr. Joseph A. Murphy, formerly in the medical service of the United States Office of Indian Affairs, has been appointed chief medical and sanitary inspector of public schools.——Reid R. Ashworth, D. V. M., who has been for some years in the food inspection service, has been promoted to the position of chief food inspector.

ILLINOIS

Raise Requirements.—The state board of health will, it is announced, pass a resolution at its next meeting requiring an internship in a hospital for one year in addition to the five years now required for medical certification, effective for all students matriculating after Jan. 1, 1917.

Personal.—Dr. Charles N. Pence, East Alton, was knocked down by a horse, October 27, and three ribs were fractured.——Dr. Carl Bernhardi, Rock Island, gave a dinner, October 25, in honor of Dr. Henry Matthey, Davenport, who has recently returned after service of more than a year at Brownsburg, Germany, where he was in charge of a base hospital.——Dr. John T. Legier, Carmi, has been seriously ill with septicemia, due to an infected wound of the thumb.——Dr. J. Howard Beard has been appointed health officer of the University of Illinois, Champaign-Urbana.

Chicago

Typhoid at Englewood.—The sixteenth case of typhoid fever among students and teachers of the Englewood High School developed October 24. Up to the present the health authorities have not succeeded in locating the source of this epidemic.

Gynecologic Society Prizes.—The Chicago Gynecological Society announces that it will award a prize of $100 to the author of the best paper presented to the society during each year on any gynecologic or obstetric subject. Those who desire to enter this competition should apply to Dr. N. Sproat Heaney, secretary of the society, 104 South Michigan Avenue.

Asks for Orthopedic Home.—At the meeting of the Cook County board with representatives of thirty-five social service organizations, President Reinberg emphasized the need of a state institution for crippled children, where they may receive orthopedic treatment and the advantage of proper care and education. It was stated that the capacity of the three institutions at present in the state is limited to 200 children and that there are 3,000 children in need of orthopedic care.

Honor to Fenger.—At the Cook County Hospital, November 3, more than 200 Danes and Danish-Americans assembled at the unveiling of the memorial tablet to Dr. Christian Fenger. The tablet was presented by the Danes of Chicago to perpetuate the name of Fenger. Governor Dunne accepted the memorial for the state, and addresses were also delivered by Dr. Joseph L. Miller and others. The memorial is the work of two Danish artists of Chicago, was unveiled by Miss Julia Jenson and Master Andrew Lundsburg, and was decorated with wreaths by Miss Clara Sorenson.

To Care for Poor Children.—Health Commissioner Robertson announced, October 3, after a conference with Dr. A. Augustus O'Neill, president of the Chicago Medical Society, the appointment of an advisory committee to the health department on diseases of the eye, ear, nose and throat. This committee consists of Dr. P. J. H. Farrell, chairman; Dr. Martin M. Ritter, secretary, and Drs. Merlin Z. Albro, Ulysses J. Grim, William L. Noble and Robert Sonnenschein, and its function is to suggest and devise means by which schoolchildren suffering from diseases of the organs of special sense may receive attention free of charge if their parents are unable to pay for treatment.

KENTUCKY

Rulings on Quarantine.—By the ruling of the state board of health, October 4, diphtheria patients must not be released from quarantine until two negative reports have been received from the state laboratory or the city laboratory, and scarlet fever quarantine must not be raised under three days.

Personal.—Dr. Squire L. Helm, Lexington, first assistant physician at the Eastern State Hospital, has been appointed superintendent of the State Institute for the Feeble Minded, Frankfort, succeeding Dr. H. C. Kehoe, Frankfort.——Dr. Will F. Arnold, Bowling Green, is reported to be seriously ill as the result of a cerebral hemorrhage.——Dr. Prather B. Curlin, Hickman, fractured his right arm, September 28, while cranking his car.

New State Officers.—The sixty-fifth annual meeting of the Kentucky State Medical Association convened in Hopkinsville, October 25, under the presidency of Dr. James W. Kincaid, Catlettsburg. The selection of Dr. Milton Board, Louisville, as president-elect, vice Dr. Ap Morgan Vance, deceased, was ratified by the House of Delegates and the following officers were elected: president-elect, Dr. Philip H. Stewart, Paducah; vice presidents, Drs. Ben P. Earle, Charleston; Albert S. Brady, Greenup, and Joseph G. Gaither, Hopkinsville; councilors, Drs. James W. Kincaid, Catlettsburg; Joseph N. McCormack, Bowling Green, and Robert C. McChord, Lebanon; delegates to the American Medical Association, Drs. Arthur T. McCormack, Bowling Green, and Madison E. Alderson, Russellville; orator in medicine, Dr. Sidney J. Meyers, Louisville, and orator in surgery, Dr. Fred L. Koontz, Louisville. Dr. Elmer L. Henderson, Louisville, was elected councilor from the fifth district, succeeding Dr. Charles W. Hibbitt, on duty with the state troops on the Southern border; Dr. Daniel M. Griffith, Owensboro, was elected councilor from the second district, succeeding Dr. Cyrus Graham, Henderson, resigned. Ashland was selected as the place for the next meeting.

MARYLAND

Infantile Paralysis Quarantine Removed.—Health Commissioner John D. Blake, Baltimore, issued an order that removed the infantile paralysis quarantine, November 1. The order affected about 30,000 children less than 13 years of age who have been kept out of the schools on account of the disease. Conditions are not yet quite normal and caution against risking infection is urged by the health department. The condition in the counties is much improved and no new cases have been reported.

Meetings.—The twelfth Maryland Conference of Charities and Correction will be held at the Emerson Hotel in Baltimore in conjunction with the Delaware and District of Columbia conferences, November 14, 15 and 16. Prominent speakers from all over the country will take part in the program.——At a meeting of the Baltimore City Medical Society, November 3, infantile paralysis was discussed by the health officers and P. A. Surg. James P. Leake of the United States Public Health Service, who spoke on the epidemic in New York. A report on necropsy findings with an exhibition of specimens was made by Dr. John F. Hempel of the health department. Dr. John D. Blake, health commissioner, also spoke, telling how the health department handled the situation in Baltimore and stating that there were only 185 cases from the latter part of June to November 1, and of this number forty-seven were negroes.

MICHIGAN

Society Postgraduate Work.—The Jackson County Medical Society has completed a week of graduate study under the direction of an experienced medical teacher. During the day, clinics were held at a local hospital, and at these members of the society, under the direction of the instructor, examined patients. In the evenings lectures on different subjects were given. The interest manifested and the benefit obtained prompted the society to take action in accordance with which one or two similar week-long programs will be arranged each year.

Internship Required.—At its meeting, held October 11, the Michigan State Board of Registration in Medicine adopted a resolution requiring all candidates for examination who matriculated in recognized medical colleges subsequent to Jan. 1, 1917, to have an additional qualification of one year's internship in a recognized hospital before being admitted to the examination for licensure. This is the fifth state to require a year's internship. The requirement became effective for all graduates in Pennsylvania in 1914, in New Jersey in 1916, and will become effective in Rhode Island in 1917, and North Dakota in 1918. In Michigan it will apply to graduates in 1921 and thereafter.

Personal.—A banquet was given, October 27, by the citizens of Clare, in honor of Dr. Thomas H. Maynard, who has just completed half a century in practice of medicine.——Dr. William H. Price, health officer of Detroit, was elected president of the International Milk Inspectors' Association at its fifth annual meeting, held recently in Springfield, Mass.——Dr. Arthur W. Tucker, Grand Rapids, who was recently operated on for removal of the spleen, is reported to be convalescent.——Dr. Arthur F. Fischer, Hancock, has been reelected president of the Michigan Antituberculosis Society.——Dr. and Mrs. Charles C. Dellenbaugh, Portland, celebrated their golden wedding anniversary, October 4.——Fire, of unknown origin destroyed the new house of Dr. Julius C. Clippert, Detroit, October 7.——Dr. George A. Conrad, Houghton, has resigned as township physician and village health officer, to become chief surgeon of the Mohawk and Wolverine Mining Company, with headquarters at Mohawk.

MINNESOTA

Southern Minnesota Physicians to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held at Mankato, December 4 and 5, under the presidency of Dr. E. Starr Judd, Rochester. The annual banquet will be held on the evening of the first day. Among the essayists from outside the state are Drs. George W. Crile, Cleveland, and Albert J. Ochsner, Chicago.

Personal.—Dr. Egerton L. Crispin, who has been associated with the Mayo Clinic staff, Rochester, for three years, has moved to Los Angeles.——The office and library of Dr. Hugh C. Arey, Excelsior, were burned, October 27, with a loss of about $5,000.——Dr. Everton J. Abbott, St. Paul, who has been seriously ill, is reported to be improving.——Dr. William N. Theissen, Faribault, who was operated on for appendicitis and the removal of gallstones at St. Lucas Hospital, October 18, is reported doing well.——Dr. Arthur C. Rogers, Faribault, is said to be seriously ill with anemia at the Hospital of Minnesota, Minneapolis.——Dr. Myron Sherper, St. Paul, who has been under treatment at a local hospital on account of an injury of the arm, has recovered and resumed practice.

NEW YORK

Personal.—Dr. Arthur W. Booth, Elmira, has been elected president; Dr. Lewis S. Pilcher, Brooklyn, vice president, and Dr. Willard J. Denno, New York, secretary, of the State Board of Medical Examiners.

Annual Elections.—At the forty-eighth annual meeting of the Medical Association of Central New York, held in Buffalo, October 19, the following officers were elected: president, Dr. Ledra Heazlit, Auburn; vice presidents, Drs. John J. Buettner, Syracuse, and Charles W. Hennington, Rochester; secretary, Dr. Thomas F. Laurie, Auburn. Auburn was selected as the next place of meeting.——At the meeting of the health officers of the state, who took the recent course in the Syracuse College of Medicine, Dr. Charles H. Bennett, Sodus, was elected president; Dr. Ernest H. Wiedrich, Ontario, secretary, and Dr. Robert Knight, Seneca Falls, treasurer.

New York City

National Committee for the Prevention of Blindness.—This organization will hold its second annual meeting in the New York Academy of Medicine, November 24, at 4:30 p. m. The president, William Fellows Morgan, will preside and Surg. John McMullen, U. S. P. H. S., will deliver the chief address.

New Red Cross Bureau in New York.—The American Red Cross has established a special information bureau in the Metropolitan Tower, New York, under the charge of Mr. Albert Staub. It is the purpose of this bureau to keep the more than 200 Red Cross chapters in this country constantly advised as to the needs of the foreign Red Cross societies and representatives.

Personal.—Dr. James J. Walsh, New York, was presented with the Laetare Medal by the University of Notre Dame, Indiana, October 21.——Dr. Fred H. Albee, Manhattan, has returned after service in France.——Dr. William Sharpe, New York, delivered an address on recent advances in brain surgery, illustrated by moving pictures, before the College of Physicians, Pittsburgh, October 27.

Plans for Army Hospital.—The Presbyterian Base Hospital Unit of the American Red Cross, organized when similar units were organized in the New York and Bellevue hospitals, has prepared lantern slides of plans and drawings of a model base hospital which were recently exhibited in the lecture room of the hospital. They represent the working out of the problem as suggested by the surgeon-general of the army for the construction and preparation of a base hospital of 500 beds for use in the United States Army in time of war.

After-Care of Paralysis Victims.—Plans for the after-care of the victims of infantile paralysis have taken definite shape. The plans contemplate a central body to look after all the children discharged from hospitals, the training of nurses, especially for the work, and the districting of the city in order to conduct the work systematically. Dr. L. Emmett Holt is reported as having told the committee on after-care that there will be between 4,000 and 5,000 children in New York left helpless from the epidemic. The transportation committee has two ambulances and two motor cars running daily, and the use of two more cars has been promised. These cars take the children to and from the dispensary or hospital. The establishment of a day nursery for crippled children, where they may be cared for by trained nurses and taught at the same time, has been suggested. The Post-Graduate Hospital has opened a department for the after-care of children crippled from poliomyelitis where the latest appliances for treatment have been installed.

NORTH CAROLINA

Sanatorium Notes.—The sanatorium of Dr. Buxton B. Williams, Greensboro, has been consolidated with the Bloomsbury Sanatorium at Raleigh, and the institute will be known hereafter as the Williams-Oliver Sanatorium. It will be under the charge of Drs. Buxton B. Williams and Adlai S. Oliver.——Tranquil Park Sanitarium was formally opened October 14. Dr. John Q. Myers, Charlotte, is president and medical director of the institute.

Personal.—Dr. Joseph Akerman, Wilmington, has been appointed director of the University Hospital, Augusta, Ga., succeeding Dr. William C. Lyle, resigned.——Dr. Edward M. Gayle has resigned from the medical staff of the State Hospital, Morganton.——Senior Surg. James B. Stoner, U. S. P. H. S., who has been for two years in charge of the United States State Hospital at Wilmington, has been transferred to Ellis Island, New York, where after two or three months in charge of the immigration station, he will take charge of the immigration work at Montreal.

Hospital Notes.—The Wilmington Marine Hospital has been reopened and placed under the charge of Dr. John C. Wessell. The hospital will be used also as a research station in the pellagra work of the state.——The Gastonia State Hospital has leased and will occupy the fifth floor of the Realty Building in addition to the two floors already in use.——The new hospital at Berrien Springs, recently erected by the Sprunt family of Wilmington, at a cost of $15,000, was opened September 19.——The Martin Memorial Hospital, Mount Airy, has been incorporated with a capital stock of $25,000.

PENNSYLVANIA

Cost of Baby Malady.—State Health Commissioner Dixon November 1 received a report showing that the state's fight against infantile paralysis from the start of the outbreak, July 1 to October 1, cost the commonwealth $61,004. This sum does not include any of the money paid to the regular health officers of the department.

For New Hospital.—A campaign to raise $150,000 for the new Sacred Heart Hospital, Allentown, ended October 31 with contributions aggregating $183,000, not including an offer from an anonymous donor to buy surgical instruments to the value of $5,000. The campaign was nonsectarian and was conducted under the direction of Monsignor Peter

Masson, with Harvey E. Bohner as chairman of the executive committee.

Industrial and Efficiency Conference.—The fourth annual Industrial Welfare and Efficiency Conference will be held under the direction of the Pennsylvania department of labor and industry in the hall of the house of representatives, Harrisburg, November 21-23. The Engineers' Society of Pennsylvania is cooperating. On Tuesday morning, after the usual addresses of welcome, Hon. Harry A. Mackey, chairman of the state workmen's compensation board, will speak on "Nine Months of the Workmen's Compensation Law in Pennsylvania." This will be discussed by representatives of the employers and employees, also by Dr. William L. Estes, chairman of the committee on workmen's compensation of the Pennsylvania State Medical Society. In the afternoon, "The Accident Problem on Steam and Electric Railways and the Evils of Railway Trespassing" will be considered. Among other subjects to be discussed during the three day session are "Accident Problems of the Iron and Steel Industries, of Electric Companies, and of General Industries," "Employees Duty toward Accident Prevention," "Standardization of Safety Committees and Safety Committee Work," "Fire Prevention," "Industrial Education" and the "Elimination of Labor Disputes." On Thursday, the last day of the conference, is a special medical program, including a paper by Surgeon Benjamin S. Warren, U. S. P. H. S., on "Health Insurance," the discussion to be opened by Dr. John B. Andrews, secretary of the American Association for Labor Legislation; one by Dr. Loyal A. Shondy on "Medical Supervision for Workmen," and one by Surgeon Joseph W. Schereschewsky, U. S. P. H. S., on "The Relation of the Industrial Physician to Modern Industry." In the afternoon, Dr. William C. Posey, Philadelphia, will speak on "Industrial Eye Injuries and Their Prevention" and Mr. A. P. Bowers of the Pennsylvania Federation of Labor will speak on "Tuberculosis as it Affects the Workers."

Philadelphia

Pathological Society Lecture.—The annual Samuel G. Gross lecture of the Pathological Society and one of the series of Rush lectures for 1916-1917 was delivered Thursday evening, November 9, at the College of Physicians building by Prof. Lawrence J. Henderson of Harvard University who spoke on the subject of acidosis.

News of Institutions about Philadelphia.—At the Franklin Institute on Thursday evening, November 9, "The Fundamental Principles of Good Lighting" were explained by P. G. Nutting, Ph D., director of research laboratory, Westinghouse Electric and Manufacturing Company, Pittsburgh. ——The Rush Hospital for Consumptives will open a pavilion at its country branch, Malvern, for children ranging from 5 to 10 years of age, the charge to be five dollars per week. Applicants are to be examined at the city hospital before admission.——Health clinics are conducted on Monday and Wednesday afternoons at the Childrens' Hospital. Nurses from the social service department visit children living in the ward and teach parents how to carry out physicians' advice.——The Child Federation Little Mothers' Leagues reopened, November 8, with sixty-five classes for instruction in infant care. Municipal nurses and child federation volunteer workers conduct these clinics in the public schools, social centers and settlements.——The division of rentals and repairs of the Philadelphia Housing Association has aided in the abatement of insanitary and illegal housing conditions by reaching the absentee landlord and urging him to improve his property.——The Women's Hospital is holding dental clinics in charge of Dr. Matilda Groth where children of school age are treated on Saturday mornings.——The Children's Homeopathic Hospital has installed a fully equipped Roentgen-ray apparatus at a cost of nearly $2,000. The hospital has under treatment in its wards twelve cases of paralysis resulting from acute attacks of anterior poliomyelitis; also a number in the outpatient orthopedic clinic.

TEXAS

Dengue.—The epidemic of dengue fever continues in Floresville.——Dengue is reported to be epidemic at Runge.

Saving in Serum and Vaccine.—The state board of health reports that from Sept. 1, 1915, to July 1, 1916, under the system of distributing biologic products, the saving to the people of Texas was $74,717.15, because of the reduction in the price of serum and vaccine points.

Personal.—Dr. William B. Collins, state health officer, Austin, sailed October 29 from New Orleans on a trip to Central and South America. He expects to make a survey of the sanitation and quarantine conditions in ports of call and shipping points on the Atlantic Coast.——Dr. Roy W. Dunlap, Palestine, left October 19 for London, where he expects to spend six months in study in an eye and ear hospital.

Health Charts in Demand.—The state board of health is receiving numerous requests for the health chart arranged by Dr. William A. Davis, Jr., secretary of the board. Ten lessons are included in the chart which have been arranged for use in health institutes and schools of the state. The lessons include home sanitation, stimulants, personal hygiene, accidents, uninvited guests, preventable diseases, vital statistics, school sanitation and social hygiene.

VIRGINIA

Personal.—Dr. Harry B. Hinchman has been appointed resident intern at the Virginia Hospital, Richmond, succeeding Dr. Frederick B. Fletcher, resigned.——Dr. George G. Hankins of the staff of the Eastern State Hospital for the Insane, Williamsburg, was attacked by an insane patient and sustained a fracture of the skull.

Restraint of Dangerous Consumptives in Virginia.—According to public health reports for Oct. 27, 1916, any tuberculous person in Virginia who violates the laws prohibiting expectoration in public places and vehicles or who deliberately and continuously exposes any other person to infection may, under an act passed March 17, 1916, be restrained and detained in some suitable place for a period not exceeding twelve months, or may be required to give bond in a penalty to be determined by the court, conditioned on the cessation of the practice complained of.

State Society Meeting.—At the forty-seventh annual meeting of the Medical Society of Virginia, held in Norfolk, October 24 to 27, under the presidency of Dr. Joseph A. White, Richmond, the following officers were elected: president, Dr. George A. Stover, South Boston; vice presidents, Drs. Charles S. Webb, Bowling Green; Achilles L. Tynes, Staunton, and William B. Barham, Newsoms; secretary, Dr. Paulus A. Irving, Farmville (reelected); treasurer, Dr. Mark W. Peyser, Richmond; members of the executive council, Drs. Alfred L. Gray, Richmond, and Frank H. Hancock, Norfolk, at large, and Dr. Hunter H. McGuire from the seventh district. Dr. Samuel T. A. Kent from the fifth district, and Dr. T. A. Riley from the eighth district; Dr. William F. Drewry, Petersburg, was selected to succeed Dr. Henry S. MacLean (retired); member of the State Board of Medical Examiners, Dr. Hampden A. Burke, Petersburg, succeeding Dr. Otho C. Wright; delegate to the American Medical Association, Dr. Robert C. Bryan, Richmond; alternate, Dr. Charles V. Carrington, Richmond. Roanoke was selected as the next place of meeting.

GENERAL

Red Cross Magazine Moves.—Mr. Eliot Wadsworth, acting chairman of the central committee of the American Red Cross, announces a change in the place of publication of the American Red Cross Magazine, which will hereafter be produced by the Doubleday-Page Company of Garden City, Long Island. The magazine will be enlarged and members will be asked on renewing their membership to pay $1 additional for subscription to the magazine.

Tri-State Society Meetings.—At the forty-third annual meeting of the Northern Tri-State Medical Society, held in South Bend, Ind., October 24, Dr. Miles F. Porter, Fort Wayne, was elected president; Dr. Elmer L. Eggleston, Battle Creek, Mich., vice president; Dr. George W. Spohn, Elkhart, Ind., secretary (reelected), and Dr. Harry F. Mitchell, South Bend, treasurer.——The annual meeting of the Tri-State Medical Society of Illinois, Missouri and Iowa was held in Kansas City, October 25 to 27. Iowa City was selected as the next place of meeting. Dr. G. Wilse Robinson, Kansas City, was elected president; Dr. J. W. Martin, Des Moines, vice president, and Dr. Charles H. Parkes, Chicago, was reelected secretary-treasurer.

Heroin Addiction.—At a meeting of the committee on drug addiction, of the National Committee on Prisons, discussion revealed that heroin is the favorite drug among young addicts and those of the first decades of life. In view of this fact the committee passed resolutions to the effect that since heroin is not a drug of sufficient value to preclude its being replaced by other drugs or measures that do not develop and maintain vice and crime, it is recommended that federal legislation be adopted to prevent the importation, manufacture and sale of this dangerous habit forming drug in the United States. The committee on drug addiction consists of Dr. Simon Baruch, chairman, Drs. Samuel W. Lambert, Fredrick Peterson and Frederick Tilney, New York, and Ex-Surg.-Gen. Charles F. Stokes, U. S. Navy.

Bequests and Donations.—The following bequests and donations have recently been announced:

Brooklyn Home for Consumptives, $5,000, by the will of Mrs. Albert Bierstadt.

Chicago Lying-In Hospital, a donation of $100,000, by Mrs. James Hobart Moore.

Methodist Hospital and Maternity Hospital, Philadelphia, each $5,000, contingent on the legatees dying childless, by the will of Amelia M. Boyd.

Philadelphia Home for Incurables, $10,000, to endow two beds in memory of his parents Dr. William L. and Martha H. Wright, and $5,000 each to the Pennsylvania, Hahnemann, Jewish, Jefferson and German Hospitals, Philadelphia, the Childrens Aid Society and Society to Protect Children from Cruelty, and the residue of the estate to the Home for Incurables, by the will of Major T. Morris Wright.

For the equipment and endowment of the new library of the New York Medical College and Hospital for Women as a memorial to his son, the late George Carlton Dominick, by Mr. W. Dominick, New York City.

Red Cross Base Hospital Units.—The following base Red Cross Hospital units have already been organized and the money for their equipment subscribed: New York, six units; Chicago, four units; Boston, three units; Cleveland, Philadelphia and Detroit, each one unit. In addition to these sixteen units, hospital units are in process of organization at the following points, but the money for their equipment has not as yet been subscribed: Philadelphia, St. Louis, Cincinnati, the Mayo Clinic, Rochester, Minn., Johns Hopkins Hospital, Baltimore, Rochester, N. Y., Nashville, Tenn., and San Francisco, each one unit. These hospitals are purely military units, organized at the request of the medical department of the Army and Navy and equipped with a view to the needs of the military service. The muster-in pledge requires only national service when called into the military service of the United States, and the judge advocate-general of the Army has decided that this authorizes the calling out of these units by the president in time of war or when war is imminent.

Causes of Death for 1915.—A preliminary announcement with reference to mortality in 1915 issued by the Bureau of the Census, indicates that nearly one third of the 909,155 deaths reported for that year in the "registration area," which contained approximately 67 per cent. of the population, were due to three causes—heart diseases, tuberculosis, and pneumonia—and nearly two thirds were charged to twelve causes—the three just named, together with Bright's disease and nephritis, cancer apoplexy, diarrhea and enteritis, arterial diseases, diabetes, influenza, diphtheria and typhoid fever.

HEART DISEASES

Deaths from heart diseases (organic diseases of the heart and endocarditis) in the registration area in 1915 numbered 105.200, or 156.2 per 100,000 population. In 1900 it was only 123.1 per 100,000.

TUBERCULOSIS

Tuberculosis in its various forms claimed 98,194 in 1915, of whom 85,993 died from tuberculosis of the lungs. From 1904 to 1915, the death rate from tuberculosis in all its forms fell from 200.7 to 145.8 per 100,000, the decline being continuous from year to year. This is a drop of more than 25 per cent. Even yet tuberculosis causes more deaths annually than any other form of illness except heart diseases, and about 46 per cent. more than all external causes—accidents, homicides and suicides—combined.

PNEUMONIA

Pneumonia (including bronchopneumonia) caused 89,326 deaths in the registration area in 1915, or 132.7 per 100,000. This rate is higher than for 1912, 1913 and 1914. The rate for 1914, 127 per 100,000, was the lowest on record. The death rate from this disease has shown a marked decline since 1900, when it was 180.5 per 100,000. Its fluctuations from year to year have been pronounced.

NEPHRITIS

The only remaining death rate higher than 100 per 100,000 in 1915 was that for acute and chronic nephritis, 104.7. The total number of deaths due to these maladies in 1915 was 70,500; of this number, 64,480 were caused by chronic nephritis and 6,020 by acute nephritis. The mortality rate from these two cases increased from 89 per 100,000 in 1900 to 103.4 in 1905, fluctuated more or less between 1905 and 1912, and has shown little change since the last mentioned year.

CANCER

Next in order of deadliness come cancer and other malignant tumors, which caused 54,584 deaths in 1915. Of these, 21,221, or nearly 39 per cent., resulted from cancers of the stomach and liver. The death rate from cancer has risen from 63 per 100,000 in 1900 to 81.1 in 1915.

Apoplexy was the cause of 53,397 deaths, or 79.3 per 100,000. The rate from this disease has increased gradually, with occasional slight declines, since 1900, when it stood at 67.5.

DIARRHEA AND ENTERITIS

Diarrhea and enteritis caused 48,325 deaths in 1915, or 71.7 per 100,000. This rate has shown a marked falling off in recent years, having been 90.2 in 1913 and 79.4 in 1914. Nearly five sixths of the total number of deaths charged to these causes in 1915 were of infants under 2 years of age.

ARTERIAL

Arterial diseases of various kinds—atheroma, aneurysm, etc.—caused 15,685 deaths in 1915, or 23.3 per 100,000. This rate is higher than that for 1914, and is much higher than that for 1900, which was 6.1.

DIABETES

Diabetes was the cause of 11,775 deaths, or 17.5 per 100,000. The rate from this disease has risen almost continuously from year to year since 1900, when it was 9.7 per 100,000.

INFLUENZA, DIPHTHERIA AND CROUP

Influenza caused 10,768 deaths in the registration area in 1915, the rate being 16 per 100,000. The rate was higher in 1915 than during several years preceding, but was somewhat lower than the average between 1901 and 1910. No other epidemic disease produced a death rate as high as 16 per 100,000 in 1915. The fatal cases of diphtheria and croup—which are classed together in the statistics, but practically all of which are of diphtheria—numbered 10,544, or 15.7 per 100,000, in that year, the rate having fallen from 43.3 in 1900. This decline of more than 60 per cent. is relatively greater than that shown by any other important cause of death except typhoid fever.

THE TYPHOID RATE

The mortality rate from typhoid fever has shown a most gratifying and remarkable decline since 1900, having dropped from 35.9 per 100,000 in that year to 12.4 in 1915, the decrease amounting to nearly two thirds. This decline is greater, relatively, than that shown for any other important cause of death. The total number of deaths due to typhoid fever in 1915 was 8,332. Improved methods of sanitation, including the betterment of the water supply and sewerage systems, the campaign against the fly, and other preventive measures, have proved their efficacy in a striking manner by a reduction of almost two thirds in the typhoid death rate during a period covering but a decade and a half.

WHOOPING COUGH, MEASLES AND SCARLET FEVER

The principal epidemic maladies of childhood—whooping cough, measles and scarlet fever—were together responsible for 11,489 deaths of both adults and children, or 17.1 per 100,000, in the registration area in 1915, the rates for the three diseases separately being 8.1, 5.4 and 3.6, respectively. In 1913 measles caused a greater mortality than either of the other diseases, but in 1914 and 1915 whooping cough had first place. In every year since and including 1910, as well as in several preceding years, measles has caused a greater number of deaths than scarlet fever. The mortality rates for all three of these diseases fluctuate greatly from year to year. The rates for measles and scarlet fever in 1915 were lowest since 1900, while that for whooping cough was somewhat above the lowest recorded rate for this disease, 6.5 in 1904, although far below the highest, 15.8 in 1903.

THE "SAFETY-FIRST" CAMPAIGN

The "safety-first" campaign, inaugurated a few years ago, has apparently borne good fruit. For 1913, 54,011 deaths from accident were reported; for 1914 the corresponding number was reduced to 51,770, and for 1915 to 51,406; and during this period there was not only an increase in the population of the registration area as it existed in 1913, but an increase in the extent of the area itself. The rate per

100,000 population for accidental deaths fell from 85.3 in 1913 to 78.5 in 1914 and to 76.3 in 1915. There has been a considerable reduction in fatalities due to railway, street-car, mine, and machinery accidents, and the increase in those resulting from automobile accidents has not been as rapid as the increase in the number of machines in use.

Deaths due to railway accidents and injuries totaled 6,652 in the registration area in 1915, or 9.9 per 100,000. This number includes fatalities resulting from collisions between railway trains and vehicles at grade crossings. This death rate is the lowest on record and shows a marked decline during the past ten years.

Deaths resulting from street-car accidents and injuries numbered 1,555, or 2.3 per 100,000. This rate, like that for railway fatalities, is the lowest on record and shows a material falling off during the past ten years.

Automobile accidents and injuries caused 3,978 deaths in 1915, or 5.9 per 100,000. There has been an increase in this rate from year to year, but, as already mentioned, the increase has not been so rapid as that in the number of machines in use.

The number of deaths from mine accidents and injuries in the registration area in 1915 was 2,009, corresponding to a rate of 3 per 100,000. This rate shows a material decline as compared with the corresponding figure for 1913, 3.6, and a very great decline as compared with that for 1907, 4.8, which is the highest on record.

Deaths caused by machinery accidents in 1915 numbered 1,257, or 1.9 per 100,000. This rate also shows a marked decline during recent years, the corresponding figures for 1913 and 1914 being 2.4 and 2, respectively. The highest recorded rate from this cause is 2.5, for 1907.

SUICIDES

The number of suicides reported for 1915 was 11,216, or 16.7 per 100,000 population. The suicide rate has not varied very greatly during the past ten years.

DEATHS CAUSED BY FIREARMS.

The census figures bring out the astonishing fact that during the year 1915 firearms caused more deaths than railroad accidents, more than five times as many as street-car accidents, nearly as many as railroad and street-car accidents combined, and more than twice as many as automobile accidents. The total number of deaths due to the use of firearms in the registration area in 1915 was 7,994, corresponding to a rate of 11.9 per 100,000. Of these deaths, 3,608 were suicides, 2,885 were homicides, and 1,501 were accidental (including those concerning which the status as to suicide, homicide, or accident was in doubt). The suicidal use of firearms has increased from year to year since 1913; the frequency of accidental deaths due to their use shows a slight decline during recent years, and the homicidal use of firearms show a decline as compared with 1913 and 1914 but an increase as compared with 1910, 1911, and 1912. No separate data as to homicides by firearms for the years prior to 1910 are available.

FOREIGN

Nobel Prizes Reserved.—It was announced from Sweden, October 28, that no Nobel prizes for science or medicine would be awarded for this year, but that the money would be reserved for 1917. The Nobel prize for 1915 has also been reserved and will be added to the special fund.

Prize in Ophthalmology.—The German Ophthalmologische Gesellschaft has divided between Lindner of Vienna and Ohm of Bottrop the von Graefe-von Welz prize for the best article published in 1911-1913 in the *Archiv für Ophthalmologie.* Their articles were on trachoma and inclusion blennorrhea, and on miner's nystagmus.

Gaining an Hour of Daylight.—The Prussian higher authorities have been investigating the effect of setting the clocks forward an hour during summer, as was done from May to September in Prussia. The verdict among manufacturers and other establishments has been extremely favorable. All extol the advantages of the plan, and the Berlin Chamber of Commerce advocates setting the clock forward April 1 instead of waiting for May, next year. The consensus of opinion among the worker seems to be also in favor of it.

South American Society for Microbiology, Pathology and Hygiene.—A society was organized in South America with the above title, at the National Medical Congress held at Buenos Aires in September. The new society is to publish a review simultaneously at Rio de Janeiro and at Buenos Aires, in Spanish, Portuguese, French, English and German. The editorial staff consists of R. Krauss, director of the bacteriologic institute of Buenos Aires, and O. Cruz, director of the similar institution in southern Brazil and chief health officer of Rio de Janeiro when yellow fever was eradicated there.

Women in the German Universities.—The *Deutsche medizinische Wochenschrift,* September 21, states that women form 10.5 per cent. of the students enrolled in the German universities now, in contrast to 4.8 per cent. five years ago. As so many of the students are serving with the troops, the women form actually over 66 per cent. of those taking the courses now. The increase is the largest in the medical department; 25.3 per cent. are studying medicine, against 20 per cent. five years ago. The actual numbers are 1,394 in 1916 against 582 five years ago.

Infant Mortality in Berlin.—The *Deutsche medizinische Wochenschrift* of September 28 states that the cool summer and the extreme attention paid to infant welfare have exerted a progressively favorable influence on infant mortality in Berlin. This is especially evident on comparing the mortality for July, 1916, with that for the same month the year before. In 1916 there were only 210 deaths among infants during July, while the corresponding figure for July, 1915, was 410. These figures represent in 1916 only 11.26 per cent. of the total mortality, in contrast to the 19.12 per cent. of the year before. The general mortality in Berlin is also lower than it was in July, 1915.

Deaths in the Profession Abroad.—B. Riedel, aged 70, professor of surgery at the University of Jena and chief of the surgical clinic until 1910 when he resigned on account of an affection requiring amputation of one leg. He was a pioneer in certain phases of abdominal surgery and is said to have been the first to operate for reduction of dislocation of the hip joint. The last few years he has devoted himself almost exclusively to the questions connected with artificial legs, utilizing his own personal experiences.——E. Richter, aged 79, formerly professor of surgery at the University of Breslau. He was trained as an army surgeon and long kept up his connection with the army and published numerous works bearing on military matters, effects of bullets, etc. Since 1880 he has been editor of the *Zentralblatt für Chirurgie* which, with König and von Volkmann, he founded then.——J. Pollak, professor of otology at the University of Vienna.——G. Salomon, professor of physiologic chemistry at the University of Berlin, aged 67. His death was the result of a subway accident.——W. Reiss, professor of skin and venereal diseases at the University of Cracow, aged 50.

Special Typhus Service in Mexico Discontinued.—The April bulletin issued by the Mexican National Board of Health, just received, relates that an official order put an end to the special typhus service described in The Journal, Aug. 5, 1916, p. 447. The regular public health service is considered capable of keeping the disease under control now and the extra force was dismissed. During the month there were 1,075 new cases of typhus reported and 276 visits were made to the seventy churches under inspection in Mexico City and nearby communities. The bulletin states that a total of 4,763 persons were denied admittance to the churches, including 1,771 "notoriously dirty," 2,238 who were carrying lunch, 397 beggars and 357 sick persons. Of the 44 theaters inspected, 37 were compelled to clean up and 1,149 notoriously dirty persons were turned away. There are twelve establishments for bathing and 31,124 persons were given a lice-killing bath and 6,870 were placed in the hands of the barber. The chief, A. Pruneda, is in charge of the regular service, with ten medical inspectors. In regard to the course of the epidemic, the weekly report of the United States Public Health Service, October 20, reports 699 cases of typhus at Mexico City between August 28 and September 23.

Foreign Exchanges.—The mail the last six days has brought a number of German and Austrian exchanges. Each is stamped "Released for exportation by the military authorities." The *Medizinische Klinik* has this printed on the title page as: *Zur Ausfuhr zugelassen. Sanitätsamt d. mil. Institute. No. 1386; 1403; 1404; 1413 Z.* In the issue for two weeks later the numbers are *No. 1479; 1490; 1491; 1507 Z.*, and the following week *No. 1541; 1572; 1581; 1589; 1598 Z.* The *Deutsche medizinische Wochenschrift* has merely stamped on the cover *Vom Sanitatsamt des 19 Armeekorps zur Ausfuhr zugelassen.* A drug journal from Berlin has stamped on the cover *Vom Oberkommando i. d. Marken zur Ausfuhr i. d. Ausland zugelassen.* The *Wiener klinische Wochenschrift* has merely *Zensuriert* stamped on the cover. Russian exchanges have been coming regularly during the last two years as before, with few exceptions, and they are always stamped with "Rapid Military Censoring," *Bystro voennoiu tsenzuroi. No. 693* or other number. The two *Zeitschrifts* in this batch of foreign mail are stamped on the cover: *Tauschexemplar. Auswechselungsanstalt zugleich Ausfgsstelle. XIX Armeekorps, Leipzig.* The exchanges are all of dates between September 17 and October 1.

CANADA

University News.—War has ravaged the attendance at the University of Toronto. In some departments the enrolment is just one half of that in 1913-1914. In medicine in 1916-1917, the total registration is 399; in 1915-1916 it was 614; in 1914-1915 it was 660.

Hospital News.—Five hundred beds are now available for returned soldiers at the new hospital for the insane at Cobourg, Ont., and will be put into service as soon as the hospital is handed over to the Canadian Hospital Commission. In four or five months the Ontario government will have completed additional accommodation in that institution for 700 to 800 patients.——The Canadian Hospital Commission wishes it to be known that they have now established an artificial limb institute in Toronto, equipped to make the most improved artificial limbs. The Dominion government will furnish all artificial limbs free of charge to returned soldiers who require them.

Personals.—Dr. John R. Irwin, Cobourg, Ont., who has been on service with the R. A. M. C., and who was awarded the Military Cross for conspicuous bravery, returned to Cobourg, November 2.——Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, has resigned and will devote his time to social work and scientific medicine and to his duties as dean of the Medical Faculty of the University of Toronto.——Capt. Alfred K. Haywood, who was assistant superintendent of the Toronto General Hospital but who has been at the front since war was declared, has been given command of the Canadian Convalescent Hospital, Woodcote Park, Epsom, England.——It is reported now that Surg.-Gen. Carleton Jones, C. M. G., director-general of the Canadian army medical services in England, will remain in England and may continue in his present position.——Dr. Clarence Young, Guelph, Ont., who enlisted last spring and joined the R. A. M. C., has been awarded the Military Cross for bravery on the field.——Drs. Julia Thomas and Jennie Smillie, Toronto, recently gave a tea in honor of Drs. Jane P. Sproule, Victoria Reid and Isabella S. Wood, who are going abroad in a few days for overseas military work.——Dr. Catherine Travis, Montreal, who spent six months in Serbia with the American Red Cross, has returned to Montreal.——Lieut.-Col. J. George Adami, professor of pathology in McGill University, Montreal, has returned from England.——Capt. Robert D. Sanson, Calgary, Alta., who has been abroad with the C. A. M. C., has been declared unfit for further service.

WAR NOTES

Antitoxin to Warring Nations.—Health Commissioner Haven Emerson announced to the subcommittee on budget of the board of estimate of New York City that the board of health has sold $205,000 worth of antitoxin to France, England and Italy since the outbreak of the pan-European war.

Physicians for Service in Palestine.—Physicians and nurses are wanted to join the American Zionist medical unit for Palestine which is about to be formed by the women's Zionist organization "Hadassah." Those who are interested are requested to communicate with Miss Henrietta Szold, 2 Pinehurst Ave., New York City.

Collection of Medical Literature on the War.—The chief of the medical department of the German army, von Schjerning has published an appeal to physicians for aid in collecting for the library of the Military-Medical Academy at Berlin every work bearing on the medical, surgical and sanitary aspects of the war, the whole to form a complete library of medical war literature. Authors are urged to send copies of their work to the Kaiser Wilhelms Akademie.

Netherlands Ambulances at the Seat of War.—Dr. Wiederhold has left Holland and arrived at Christiania on his way to Petrograd to join the Netherlands Ambulance with the Russian troops and relieve Dr. Bijleveld who will return home. Dr. Van Dijk of Rotterdam has gone to join the Netherlands Ambulance at Saloniki, going by way of London and Paris, accompanied by four nurses. Drs. Hijman and De Grott also left recently to join the Netherlands Ambulance in Germany. It is stationed at Olmütz.

American Red Cross Work in Bavaria.—The American Red Cross Hospital in Munich has been administering to wounded soldiers for more than two years. On account of the tension between the United States and Germany, the committee in charge of the hospital inquired whether the continuation of their activities was agreeable to the German community; whether the hospital should be kept open. The municipal authorities emphatically requested that the hospital should continue its activities as before.

Scarcity of Auto Tires in Switzerland.—Our Basel exchange brings an appeal from the president of the Swiss Aerztekommission to physicians for their support in a contemplated appeal to the higher authorities to find ways and means to obtain tires for the automobiles of medical men, in the interests of the sick as well as of the physicians themselves. At present many physicians are unable to use their automobiles from inability to procure tires. The wholesale dealers allege they have none in stock, and the army authorities will not encroach on their reserves.

War Losses in the Profession in Germany.—The *Münchener medizinische Wochenschrift* of September 26, quotes statistics showing that the German casualty lists, 1 to 600, have contained the names of 343 physicians, including 104 active army or navy surgeons, 128 physicians of the reserves, 102 assistant surgeons and 8 civilian physicians; 185 have died of disease, a total of 528 deaths among the members of the medical profession with the German army and navy. In addition to these, 176 have been severely and 553 slightly wounded; 156 have been taken prisoners, and 87 are missing. The total figure is thus 1,500.

Ambulance Activities.—Twenty-five experienced American ambulance drivers with the French Army arrived at Saloniki, November 5, and will be assigned to duty with the Red Cross unit at that point. They are to be formed into a new section in charge of Lovering Hill, New York, and will operate thirty cars.——A. Piatt Andrews, chief inspector of the American Ambulance Corps in France, hopes to take back fifty additional men when he returns to France in December.——Thirty volunteer ambulance drivers and two orderlies sailed from New York, October 21, for service with the American Ambulance in France.

Social Insurance After the War.—Hanauer of Frankfurt, Germany, prophesies that after the war the benefits of social insurance will be extended to larger circles than at present, possibly to all with incomes up to $1,250 or thereabouts. More than half the population are now enrolled on the insurance lists, and he is confident that ere long five sixths will be included. The temporary war regulations for care of prospective mothers, for children, etc., will be enlarged and rendered permanent. The whole trend will be to enlarge the scope of existing measures. Physicians will have to adjust themselves to this change, and there is no doubt, he says, that the day of "officialization" of physicians will be materially advanced thereby. Stier-Somlo asserts that the whole matter of sickness insurance should be taken over into the hands of the state, and its expenses should be met by a special tax for the purpose, declaring that the whole nation profits by improved conditions of public health, and the social insurance system has proved a school of hygienic living and of economics for all connected with it.

OUR TROOPS ON THE BORDER

Filipino as Hospital Director.—Governor General Harrison has named Assistant Director Dr. Fernando Calderos to succeed Dr. William E. Musgrave, resigned, as director of the Government Hospital, Manila.

Typhus at El Paso.—A case of typhus fever has been discovered in the state jail at El Paso and the case is believed to have originated in a Mexican house near the camp of the Thirty-Third Michigan Infantry. On account of this discovery, orders have been issued by General Kirk that no more laundry work shall be done for the men by Mexican women, that no Mexican shall be allowed in the camp and that men keep away from the Mexican homes.

New Ambulances for Army.—A medical board consisting of Maj. Robert E. Noble, Allie W. Williams, Percy L. Jones and Capt. Arthur C. Christie, M. C., U. S. Army, has approved the adoption of a new standard type of army ambulance and the organization of new ambulance company units. Each company has twelve motor ambulances and one three-fourths ton repair truck. Four of these companies have been organized and are in service along the southern frontier.

LONDON LETTER

London, Oct. 16, 1916.

The Insurance Act

The insurance act is, of course, largely on its trial. Signs of future trouble with the physicians are not wanting, and, as foreshadowed in previous letters to The Journal, important modifications are likely. But in consequence of the war, in which nearly half of the medical profession is engaged, the problem is left in abeyance. One of the difficulties, however, has come to a head. The immediate origin of the trouble is a new regulation issued by the insurance commissioners to the effect that when provision for medical services over and above those provided by the panel physician is made by any public authority after consultation with the local medical committee and after due notice, each panel physician shall take such steps as are necessary to enable the patient to take full advantage of such provision. This regulation implies that consultants and specialists may be appointed under the national insurance scheme, and that when they are appointed it will be the duty of panel physicians (1) to give to the expert all necessary information as to the patient's previous history and the physician's diagnosis and treatment; (2) to furnish a specimen for laboratory examination, and (3) to attend with the patient for consultation with the expert in certain cases. These new duties, for which extra payment has not been offered, are regarded as an imposition by many of the panel physicians. The new regulations have a further significance. They constitute the beginning of the revolution in the health administration of the country. It seems probable that an attempt will be made to link up with the insurance scheme the great general hospitals and the special hospitals for diseases of the eye, ear, nose and throat. A further development possible is a linking up of the insurance scheme with the great public health services. With the example of the army providing all medical services for a large fraction of our male population, it cannot any longer be contended that the prevention of disease and the cure of disease are separate questions. At present the physicians dealing with prevention and the physicians dealing with treatment in civil life are unrelated in an administrative sense. This absurdity is made clear by a single example—the treatment of tuberculosis. The great hope in this case is prevention; and as the patient himself is the source of infection, treatment and prevention become merely aspects of the same problem. There is a feeling in the public mind that a thoroughly efficient whole time medical service could be obtained at the cost of the present panel service, and there are many distinguished members of the profession who would welcome the change. As soon as the war ends, a large number of highly trained physicians will return to civil life; the present system, with its buying and selling of medical practices, affords them, unless they have private means, little hope of acquiring a competence in reasonable time. Yet it is scarcely to be doubted that they are capable, if given an opportunity, of lifting medical practice in this country to a higher level. It is evident that the insurance commissioners are looking ahead and viewing their great responsibilities in a serious frame of mind.

Falling Birth Rate: Lowest Figure for Scotland Since Registration

The sixty-first annual report of the registrar-general for Scotland, dealing with the year 1915, has just been issued. The number of births registered during the year totaled 114,181, this being the smallest number in any year since 1869. It is 12,363 less than the average of the preceding ten years, and is 19,344 less than that of 1903, in which year the largest annual number of births that had ever occurred in Scotland was recorded. The birth rate for 1915 was 23.86 per thousand, the smallest since the institution of national registration in 1855. It is 3.1 less than the mean of the birth rates of the preceding ten years. The births of illegitimate children numbered 7,875, and constituted 6.9 per cent. of the total births. The number is 1,157 less than the mean of those of the preceding ten years. Marriages registered during the year numbered 36,272, the largest number in any year since 1855, and 3,930 more than the average during the preceding ten years. The marriage rate was 7.58 per thousand, or 0.69 more than this average, and was higher than those of all years since 1855, with the exceptions of 1873 and 1874. As explained in previous letters, the increase is due to the war. The death rate was 17.06. Although 1.23 more than the mean, it is less than those of all years from 1855 to 1895. The infantile mortality rate of the year was high; it amounted to 126.5 per thousand births. It was 14.9 more than the ten year mean, and the highest since 1901. An additional table is incorporated in the report to show the effect of war conditions on the birth and marriage rates. This is tested by comparing the war time monthly rates with the means of four corresponding rates before the war. By this test it is found that there was a marked fall in the birth rate commencing nine months after the declaration of war, that is, in May, 1915, and continuing up to the end of 1915.

PARIS LETTER

Paris, Oct. 12, 1916.

The War

REORGANIZATION ON A NEW BASE OF HOSPITAL ARRANGEMENTS FOR THE SICK AND THE WOUNDED OF THE ARMY

The character of the present war has gradually introduced changes into the ideas which have heretofore reigned in all the services of the army. The health service of the army has not escaped from this influence. The system originally employed for the transport of the wounded and sick into the interior of the country, being designed for the requirements of an open war, very early showed that it left much to be desired from the point of view of maintaining the effectiveness of the army. It has been remarked that the wounded and the slightly sick, when sent so far from the front, remain much too long in the hospitals and afterward in the depots of their regiments, representing a very considerable loss to the forces. It was soon learned that it was important to avoid sending to the interior of the country those wounded and sick who were likely to be able to return to service after a short delay, and that these should, therefore, be kept close to the front. The result is that at present hospitalization in the zone of the armies is very much more important than that in the interior of the country. Indeed, many hospitals in the interior have been closed, while a great number of such institutions have been created in the army zone.

According to the new instructions, the sick and wounded of three categories should be maintained in the army zone. These are:

1. Those whose condition does not admit of transport to a great distance. (*a*) Those who must be kept where they are (moribund patients, patients with grave shock, tetanus, delirium, and those who have just undergone serious operation). (*b*) The seriously wounded whose condition permits transport to a short distance (a maximum of 20 kilometers [12½ miles]). Such are patients presenting penetrating wounds of the skull, of the chest and of the abdomen; fracture of the upper third of the femur; wounds of the knee joint by artillery projectiles or hand grenade; injury to the spinal cord. (*c*) Patients with contagious disease who must be isolated in the special hospitals in the army zone.
2. Men slightly wounded or slightly ill, who will probably be cured within four or five weeks.
3. The men "temporarily out of action" on account of fatigue, slight illness or unimportant accident.

The evacuation hospital (l'hôpital d'évacuation) is the essential sanitary formation. On it falls the duty of sorting and classing the sick and wounded. It retains those whose condition does not permit of their being transported, and evacuates the others either on the base hospitals of the army, or to the interior of the country. Those stations, even when placed near the first line in contact with the troops, have become during the present war a relatively stable formation, remaining in the same place for many weeks. They are not, therefore, summary, makeshift installations as in an open war. According to the latest instructions, every evacuation hospital should include a covered place for automobile ambulances; reception rooms; separate wards for the wounded who are obliged to remain in bed, for those who can sit up, and for the "temporarily out of action" who are awaiting their distribution; other wards for the wounded and sick who cannot be transported, and isolation wards for the contagious diseases. The large evacuation hospitals of the first line are required to have several operating rooms and dressing rooms. For the others, it suffices to have one operating room with two tables, and one large dressing room with several tables.

On the other hand, besides the sanitary formations for the reception of the untransportable sick and wounded, and the depots for the "temporarily out of action," orders have been given for the utmost development of the hospital resources of the army for the slightly sick and wounded, that is, for those who are expected to become well within four or five weeks. It is laid down that the hospitals of this class should have a capacity of 2 per cent. of the army.

THE PHYSICOTHERAPIC CENTER OF THE GRAND PALAIS, PARIS

The physicotherapic annex for physical reeducation at the military hospital of the Grand Palais deserves to be known for its extensive and remarkable installation. It receives all those wounded who belong to the military governorate of Paris, and of the Third Region (Rouen), and it is certainly the center which treats the greatest number of wounded. The wounded arriving at Grand Palais pass first to the mensuration service where their injuries are examined and their condition determined by precise measurement. Thus, on the registration form are noted the length and circumference of the injured limb and of the whole limb; the angles of flexion and extension of the articulations; the electric excitability of the nerves and muscles, etc. The wounded then pass before the medical commission, which decides on the treatment to be applied. Each man receives a prescription slip; on the obverse of this are written the treatments, and on the reverse are spaces in which will be marked his attendance at the proper services. At fixed dates the man passes again before the mensuration service, which repeats the measurements already mentioned and notes them on the slip. He then goes to the medical commission, which, taking into consideration the effects of the treatment, prescribes its continuation or modification. At the end of their stay at the Grand Palais, the wounded are divided into two categories; those who are unfit to resume their service, and who are therefore sent away for convalescence or classed in the auxiliary service, or discharged from the army; and those who, being completely cured, are returned to their corps. The last receive a certain amount of drill in order to restore the habit of the use of arms and of military movements.

The number undergoing this treatment is frequently more than 2,200, 80 per cent. returning completely cured, or sufficiently so to enable them to return to the service. The incapacity measured at the time of entry averages 25.85 per cent., and on discharge 1.44 per cent.

Recently the Union of Foreign Colonies in France in favor of victims of the war has offered to the disabled workshops of every kind: tailoring, shoemaking, joinery, locksmith work, draftsmanship, accountancy (The Journal, July 22, 1916, p. 297).

Death of Jean-Joseph Picot

Dr. Jean-Joseph Picot, formerly professor of clinical medicine at the Faculté de médecine de Bordeaux, has just died at the age of 77. Born, Oct. 29, 1839, at Saint-Nicolas-du-Port (départment de Meurthe-et-Moselle), Picot was educated at the Faculté de médecine de Strasbourg. After the war of 1870 he left Alsace and was appointed associate professor at the school of medicine at Tours. In 1878, at the time of the creation of the Faculté de médecine at Bordeaux, he was appointed professor of medical pathology (*pathologie médicale*). The following year he succeeded Gintrac in the chair of clinical medicine, which he occupied until his retirement. Since 1887, Picot was national correspondent of the Académie de médecine. He wrote a work entitled "Les Grands Processus Morbides" (pathology), which was crowned by the Académie des sciences (Prix Montyon) in 1877, and "Leçons de Clinique Medicale" in 1882.

Marriages

Charles Townsend Hamaker, M.D., Philadelphia, to Miss Margaret E. Morse of New York, at Beaver Falls, Pa., recently.

Margaret Castex Jones, M.D., Goldsboro, N. C., to Samuel Booth Sturgis, M.D., of Philadelphia, July 6.

Howard Bradford Boone, M.D., Chandlerville, Ill., to Miss Marguerite Potter of Decatur, Ill., October 27.

Isadore H. Fuhs, M.D., Canton, Ohio, to Mrs. Flora Luthie of Ashtabula, Ohio, at Cleveland, October 25.

Don Rhodolph Flower, M.D., Tripoli, Wis., to Miss Clara Hirsch of Park Falls, Wis., October 19.

Lannes Irving Condit, M.D., to Miss Gladys Lou Race, both of Detroit, October 28.

J. Clyde Markel, M.D., to Miss Carolyn Owen, both of Pittsburgh, October 18.

Deaths

Edward William Schauffler, M.D., Kansas City, Mo.; College of Physicians and Surgeons in the City of New York, 1868; aged 77; a Fellow of the American Medical Association; president of the Missouri State Medical Society, 1878-1879; a fellow of the American Academy of Medicine and a member of the American Climatological Association; lieutenant, captain and adjutant of the One Hundred and Twenty-Seventh New York Volunteer Infantry, during the Civil War; clinical professor of internal medicine in the University of Kansas; one of the organizers of and a teacher in the Kansas City Medical College; a specialist on diseases of the lungs and heart; formerly a member of the state board of health and director of the Missouri State Sanatorium for Tuberculosis; died at his home, October 29, from heart disease.

Henry Kern Leake, M.D., Dallas, Texas; Kentucky School of Medicine, Louisville, 1869; aged 69; a member and once vice president of the State Medical Association of Texas, and president of the Dallas County Medical Society; professor of gynecology in the Southwestern University Medical College, Dallas; a Confederate veteran; for more than forty years a practitioner of Dallas, where he established the first private sanatorium; founder and editor of the *Texas Medical Record;* once president of the health board of Dallas; died at his home, October 29, from nephritis.

Edgar Alexander Mearns, M.D., Lieutenant-Colonel, M. C., U. S. Army (retired); College of Physicians and Surgeons in the City of New York, 1881; aged 60; a Fellow of the American Medical Association; who entered the army as assistant surgeon, Dec. 3, 1883, and after twenty-six years' service was retired with rank of lieutenant-colonel, Jan. 1, 1909, on account of disability in line of duty; who had devoted much time of late years to travel and the collection of zoologic specimens for the Smithsonian Institution, Washington; died at his home in Washington, D. C., November 1.

Phil C. Naumann, M.D., Burlington, Iowa; State University of Iowa, Iowa City, 1887; aged 55; president and medical director of the German-American Life Insurance Company of Iowa, Burlington; a member of the common council, 1894, and for two terms mayor of Burlington; a member of the board of trustees of the Burlington Hospital; died near his office, October 16, from cerebral hemorrhage.

Julius H. Eichberg, M.D., Cincinnati; Miami Medical College, Cincinnati, 1889; aged 57; a Fellow of the American Medical Association; formerly dean and professor of pharmacy in the Cincinnati College of Pharmacy; professor of materia medica and therapeutics in his alma mater; a specialist in diseases of the stomach; died in French Lick Springs, Ind., November 2, from heart disease.

Walter William Irving, M.D., Los Angeles; Hahnemann Medical College, Chicago, 1897; aged 49; formerly oculist and aurist to the Protestant Orphan Asylum, Milwaukee, Wis.; a specialist in diseases of the eye, ear, nose and throat; died in Los Angeles, October 13, from septicemia due to a wound of the finger, inflicted accidentally during a surgical operation, two months before.

Edward O. Plumbe, M.D., Chicago; Eclectic Medical College of the City of New York, 1868; New Orleans School of Medicine, 1869; aged 78; a veteran of the Civil War; formerly surgeon of the Chicago, Milwaukee and St. Paul Railway at Rock Valley, Iowa; acting assistant surgeon, U. S. Army, and U. S. P. H. and M. H. Service; died at his home, October 22.

Richard Frederick Winsor, M.D., Omaha; College of Physicians and Surgeons, Chicago, 1906; aged 35; formerly a Fellow of the American Medical Association and a member of the staff of the Peoria State Hospital, South Bartonville, Ill., from 1907 to 1912; instructor in pathology at Creighton Medical College; died at his home, Omaha, November 21, from pneumonia.

Merari Bunajah Stevens, M.D., Defiance, Ohio; University of Michigan, Ann Arbor, 1869; Bellevue Hospital Medical College, 1876; aged 73; a Fellow of the American Medical Association; one of the founders and for several terms the president of the Defiance County Medical Society; a veteran of the Civil War; died at his home, October 19, from heart disease.

Edward Sydney McKee, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1881; aged 58; a Fellow of the American

Medical Association and a well known obstetrician and gynecologist of Cincinnati; who had traveled extensively of late years; died in a hospital in Quito, Ecuador, South America, October 20, from malarial fever.

John Savile Lees, M.D., Norristown, Pa.; University of Pennsylvania, Philadelphia, 1863; aged 76; surgeon of U. S. Volunteers during the Civil War; who, after leaving the army, did not practice medicine, but was a woollen manufacturer; died at his home in Bridgeport, Norristown, October 9, from pneumonia.

William Lee McKibbin, M.D., Amaranth, Pa.; University of Pennsylvania, Philadelphia, 1869; aged 78; a veteran of the Civil War; formerly school director and overseer of the poor of McConnellsburg, Pa.; a practitioner of Fulton County for forty-seven years; died at his home, October 12, from injuries received by a fall.

Louis Chamberlain Purington, M.D., Boston; Hahnemann Medical College, Chicago, 1874; aged 71; a well known temperance worker and formerly national superintendent of the department of health and heredity of the National Woman's Christian Temperance Union; died at her home in Dorchester, Boston, October 26.

George W. Rightenour, Sheridan, Mont. (license, Montana, 1893); aged 77; a practitioner since 1862; a member of the Medical Association of Montana; once mayor of Sheridan; clerk of the school board for several years and for five years chairman; a veteran of the Civil War; died at his home, October 15.

John Campbell Spencer, M.D., San Francisco; College of Physicians and Surgeons in the City of New York, 1885; aged 55; a Fellow of the American Medical Association; a urologist and assistant professor of genito-urinary surgery in the University of California; died at his home, October 19.

George Lesser, M.D., Brooklyn; New York University, New York, 1897; aged 46; for many years a practitioner of the east side of Manhattan; director of the Jewish Maternity, Beth Israel and Mount Sinai hospitals and the Montefiore Home; died at his home, October 22, from asthma.

David N. McBride, M.D., Hillsboro, Ohio; Cincinnati College of Medicine and Surgery, 1868; aged 76; formerly a Fellow of the American Medical Association; a pioneer practitioner of Highland County, Ohio; died at his home, June 29, from arteriosclerosis.

Percy Guy Davis, M.D., Deerfield, Mass.; Baltimore Medical College, 1896; aged 49; a member of the Massachusetts Medical Society; for several years president of the Deerfield Village Improvement Society; died in his office, October 20, from heart disease.

William Jacob Coppernoll, M.D., Newark, N. Y.; University of Michigan, Ann Arbor, 1887; a Fellow of the American Medical Association and a specialist on diseases of the ear, nose and throat; died at the home of relatives in Laconia, N. Y., October 14.

Robert C. Westphal, M.D., Yorktown, Texas; Starling Medical College, Columbus, Ohio, 1902; aged 46; a Fellow of the American Medical Association; died in the Cuero (Texas) Hospital, October 21, after an operation for the removal of the right kidney.

Charles Westly Lester, M.D., Guthrie, Ky.; Vanderbilt University, Nashville, Tenn., 1880; aged 58; a Fellow of the American Medical Association and a prominent practitioner of Todd County; died at his home, October 11, from cerebral hemorrhage.

William R. Gladman, Tonganoxie, Kan. (license, Kansas, 1901); aged 68; a member of the Kansas Medical Society; a veteran of the Civil War and a practitioner for more than thirty years; died at his home, October 18, from malignant disease.

James Albert Cowan, M.D., New York; College of Physicians and Surgeons in the City of New York, 1904; aged 43; for ten years a member of the visiting staff of the Vanderbilt Clinic; died at his home, October 15, from cerebral hemorrhage.

George Henry Picard, M.D., New York; Cincinnati College of Medicine, 1877; aged 66; for many years editor-in-chief of a newspaper syndicate in New York; died in Roosevelt Hospital, New York, October 10, after a surgical operation.

William Heister Dukeman, M.D., Los Angeles; New York University, New York, 1880; aged 61; a specialist in abdominal surgery; died from heart disease, October 22, while driving his automobile, between Pasadena and Los Angeles.

Lewis A. Burck, M.D., Frederick, Md.; Southern Homeopathic Medical College, Baltimore, 1895; a member of the Medical and Chirurgical Faculty of Maryland; died in the City Hospital, Frederick, October 16, from cerebral hemorrhage.

William King Griffin, M.D., Marion, S. C.; University of Pennsylvania, Philadelphia, 1854; aged 85; also a pharmacist; for four years surgeon in the Confederate service during the Civil War; died at the home of his daughter, September 28.

Charles P. Bigelow, M.D., Grand Rapids, Mich.; College of Physicians and Surgeons, Baltimore, 1882; aged 92; a veteran of the Civil War; for many years a druggist; died in Blodgett Memorial Hospital, Grand Rapids, October 14.

David Francis Lincoln, M.D., Boston; Harvard Medical School, 1864; aged 75; acting assistant surgeon in the navy during the Civil War; at one time secretary of the American Social Science Association; died at his home, October 17.

Henry H. Whitaker, M.D., Hilliardston, N. C.; University of Maryland, Baltimore, 1883; aged 55; formerly a member of the Medical Society of the State of North Carolina; died at his home, October 12, from cerebral hemorrhage.

Sterling Barrows, M.D., Worthington, Mass.; College of Physicians and Surgeons in the City of New York, 1906; aged 36; a member of the Massachusetts Medical Society; died at his home, August 16, from tuberculosis.

Frances J. Bock, M.D., Lancaster, Wis.; Hahnemann Medical College, Chicago, 1906; aged 41; a member of the State Medical Society of Wisconsin; died, October 18, while on her way to New Mexico, in search of health.

Silas F. Roberts, M.D., Glencoe, Ohio; Kentucky School of Medicine, Louisville, 1895; aged 47; a member of the Ohio State Medical Association; was instantly killed by a train at a grade crossing in Glencoe, October 26.

David L. Howell, M.D., Big Rock, Tenn.; Vanderbilt University, Nashville, Tenn., 1877; aged 59; for one term a representative from Stewart County in the general assembly; died at his home, near Legate, October 17.

Joel Vinton Sampsell, M.D., Elyria, Ohio; Jefferson Medical College, 1877; aged 66; formerly a member of the Ohio State Medical Association; for forty years a practitioner of Elyria; died at his home, October 20.

William Lawrence Evans, M.D., St. Marys, Ont.; University of Toronto, 1915; lieutenant in the Canadian Army Medical Corps; was instantly killed while on duty at the western front in France, in August.

Edwin Henry Kertland, M.D., C.M., Toronto, Ont.; Queen's University, Kingston, Ont.; aged 91; one of the oldest practitioners of Ontario; died in the Toronto General Hospital, August 1, from senile myocarditis.

Adam Wendell Hubschmitt, M.D., New York; College of Physicians and Surgeons in the City of New York, 1900; aged 37; died in the New York Hospital, September 20, from atrophic cirrhosis of the liver.

Stanton Allen, M.D., Hood River, Ore.; College of Physicians and Surgeons in the City of New York, 1881; aged 57; for many years a practitioner of Milwaukee, Wis.; died at his home, about October 17.

Jacob N. Dennis, M.D., Hopkinsville, Ky.; Jefferson Medical College, 1860; aged 82; surgeon in the Confederate service throughout the Civil War; died at his home, October 18, from cerebral hemorrhage.

John Aaron Seapy, M.D., Geddes, S. D.; Bennett Medical College, Chicago, 1900; aged 42; a Fellow of the American Medical Association; died in St. Mary's Hospital, Rochester, Minn., about October 12.

James Bennett Gould, M.D., Minneapolis; Jefferson Medical College, 1886; aged 56; formerly a Fellow of the American Medical Association; died at his home, October 18, from cerebral hemorrhage.

James D. Wagner, M.D., Selma, Calif.; University of Nashville, Tenn., 1873; a member of the Medical Society of the State of California; aged 72; died at Long Beach, Calif., October 16.

Clarius Confucius Birney, M.D., Mason City, Iowa; Rush Medical College, 1874; aged 69; for many years a druggist of Mason City; died at his home, October 21, from nephritis.

Mathew John Mangan, M.D., Rutland, Vt.; University of Vermont, Burlington, 1905; formerly a member of the Vermont State Medical Society; died at his home, October 7.

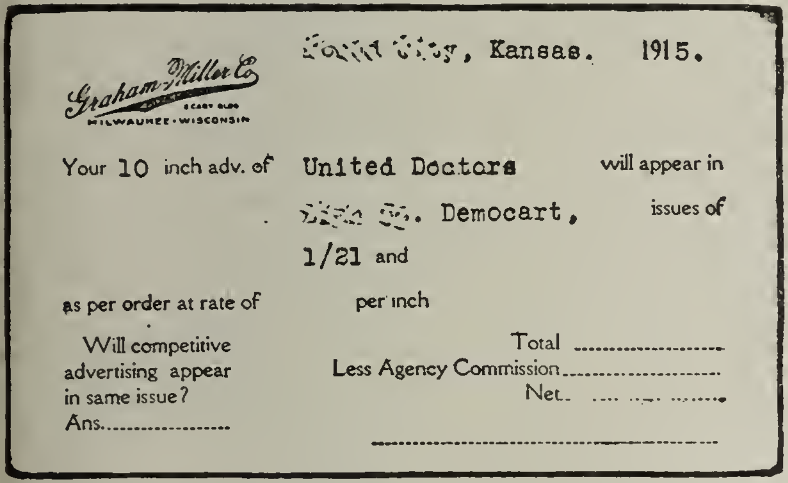
The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE ITINERANT "UNITED DOCTORS"

A Quack Organization Gets a Set-Back in Ohio

Many of our readers will remember that in 1913[1] The ournal published some articles dealing with a malodorous rganization of quacks called the "United Doctors." The noving spirit of this concern was one Ben W. Kinsey. The arious articles have been republished in a pamphlet "Medical nstitutes"[2] and make an interesting, if sordid story.


Graham-Miller Co.
3 Cary Bldg
Milwaukee • Wisconsin

[redacted], Kansas. 1915.

Your 10 inch adv. of United Doctors will appear in
[redacted]. Democart, issues of
1/21 and

as per order at rate of per inch

Will competitive advertising appear in same issue?
Ans.....................

Total ....
Less Agency Commission....................
Net.....................

The newspaper publisher who accepted the advertisements of the nited Doctors was required to sign a card similar to this and return t to Manchester.

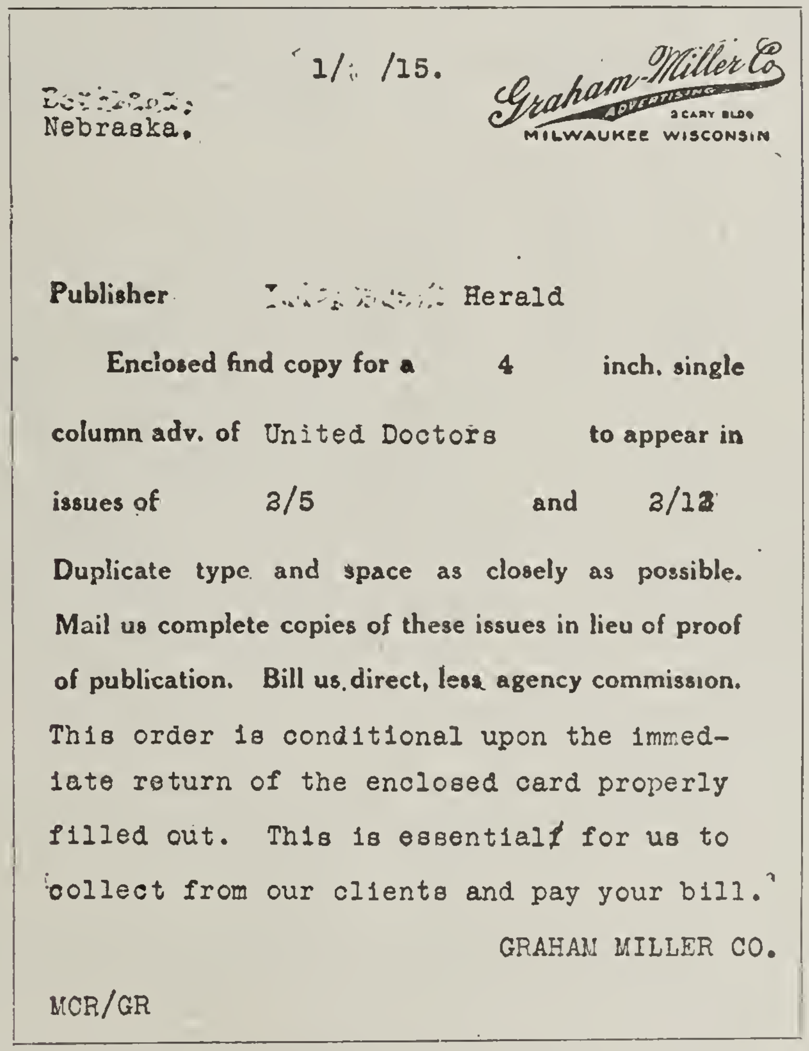
THE MANCHESTER ORGANIZATION

It now appears that there is still another organization that as been conducted under the name "United Doctors." The oncern previously dealt with, while not staying very long t any one place, usually opened offices and made a pretense f becoming a permanent resident of the towns in which it perated. The later brand of "United Doctors" has been a ne-day-stand affair, coming to country towns, after having iberally advertised their visit, and plying their trade in the ooms of the hotel at which they stayed.

The general manager of this outfit is one Burton Edgar Manchester, who also seems to have operated an advertising agency, under the name Graham-Miller Company[3] of Milwaukee, Wis., which "placed" the advertising for the "United Doctors." From our records, it appears that Manchester obtained a diploma from the Medical Department of the University of Buffalo in 1886. His disposition to wander seems pronounced. It appears that in 1886 he was in Buffalo; in 1890 and 1893 in Royalton, N. Y.; in 1900 in Syracuse, N. Y. In 1902 he had migrated to Crandon, Wis. Between 1904 and 1906 he seems to have been at Peshtigo, Wis., and Crystal Falls, Mich. In 1908, Menominee, Mich., was his place of abode, while in 1911 he had moved on to Green Bay, Wis., drifting from there to Milwaukee. Investigation has shown that Manchester's professional record at various places has been strictly in keeping with the class of business in which he is at present engaged. In December, 1915, Manchester was arrested in Kalamazoo, Mich., in connection with his activities as head of the United Doctors concern. The complaint against him was signed by Dr. Beverley D. Harison, secretary of the Michigan Board of Registration in Medicine. The case against him was *nolle prossed* by the prosecuting attorney when Manchester agreed to keep out of Michigan in the future.

THE OHIO CIRCUIT

During the past year Manchester has been "working" Ohio —and therein he showed poor judgment. Manchester's method was to hire men who, presumably, had the legal right to practice medicine in the states in which the "United Doctors" wanted to advertise and do business. The names of the physicians, of course, did not appear. The advertisements which were put out by Manchester through his "advertising agency" (!) notified the gullible that the "specialists" of the "United Doctors" would be in town on a certain date for one day only and could be seen from 9 a. m. to 8 p. m. at the hotel named in the advertisement.


[redacted]
Nebraska. 1/[redacted] /15.

Graham-Miller Co.
Advertising
3 Cary Bldg
Milwaukee Wisconsin

Publisher [redacted] Herald

Enclosed find copy for a 4 inch, single column adv. of United Doctors to appear in issues of 2/5 and 2/12

Duplicate type and space as closely as possible. Mail us complete copies of these issues in lieu of proof of publication. Bill us direct, less agency commission.

This order is conditional upon the immediate return of the enclosed card properly filled out. This is essential for us to collect from our clients and pay your bill.

GRAHAM MILLER CO.

MCR/GR

Photographic reproduction (reduced) of typical contract made with country newspapers by Manchester, *alias* United Doctors, *alias* Graham-Miller Co. "advertising agents!"

Manchester's contract with his hirelings was sometimes that of "fifty-fifty" on the net profits. Manchester prepared the itinerary, paid for the advertising, furnished the "report blanks" and also the drugs prescribed by his case-taker. The hireling doctors, on their part, were supposed to send in daily reports to the Milwaukee office, giving the name, address and ailment of, and the financial capacity of, and prospect of fees from, the victims. After paying for the advertising and, presumably, the "advertising agency's" commission (Manchester being the "agency"), and paying also for the drugs (which Manchester furnished from an alleged laboratory in Milwaukee) and, in addition, paying the railroad and hotel expenses of the hireling, what was left from the daily intake was divided between Manchester and his employees, Manchester always getting at least half—frequently more.

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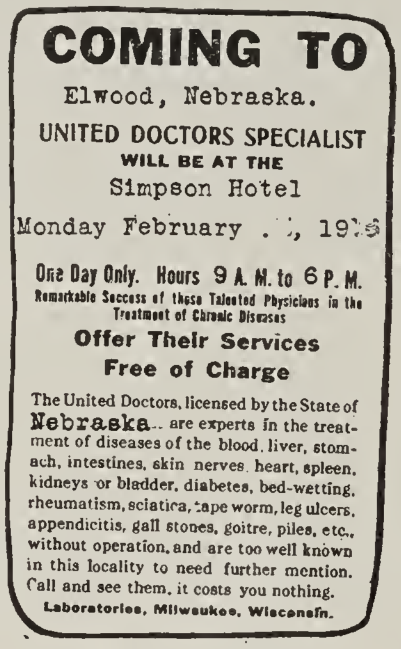
[1] The first article appeared in The Journal A. M. A. March 1, 1913; the second article, Aug. 9, 1913. News items also were published March 21, 1914, and April 25, 1914.

[2] "Medical Institutes" is one of a series of pamphlets on the nostrum evil and quackery published by the American Medical Association, price 10 cents.

[3] Some time ago Mr. A. C. Umbreit, attorney for the Wisconsin State Board of Medical Examiners, sent The Journal the following information regarding the Graham-Miller Company and its connection with the United Doctors: "With reference to the Graham-Miller Company, supposed to be the advertising agents of the United Doctors, this concern is unknown here. Their name does not appear in the telephone directory nor in the city directory. In looking up the address given upon the letter-head of this concern . . . I found such address to correspond to a small rear office in a small office building. There was not even a sign on the door, but the directory board of the building indicated the concern as occupying room No. 2, the name being given as Graham-Miller Company. The room referred to was occupied by a typewriter and its operator, some packages apparently containing medicines and other liquids and some papers and other nondescript matter. I made inquiries among reputable advertising agents here about this concern and none of them have ever heard of it. As to the supposed extensive laboratory of the United Doctors located at 531 E. Water St. I find that the place corresponding to this number is the ground floor of a small store building. The sign indicates that the space is occupied by the Gould Pharmacal Company, and it appears that one Paul Graw is proprietor of this concern. Apparently it is a small drug jobbing house. Nothing about the place indicated a laboratory of any size or description."

Later Mr. Umbreit wrote: "The Graham-Miller Company still has its headquarters in the Cary Bldg., a two-story office building on a side street. They apparently occupy four rooms and on the door of one of these rooms are written the words: 'United Doctors,' entrance through the office of the Graham-Miller Co. This name does not appear in the city directory nor in the telephone book."

For the "Ohio Circuit" Manchester hired two men, G. W. W. W. Walker and Theodore Jacobsen. Walker and Jacobsen, finding how easy the money came, apparently concluded that it was not worth while to split the profits with Manchester. After familiarizing themselves with the United Doctors brand of quackery, they started out "on their own," appropriating not only the trade name "United Doctors," but the style of advertising and follow-up letters, etc., used by Manchester.


COMING TO
Elwood, Nebraska.
UNITED DOCTORS SPECIALIST
WILL BE AT THE
Simpson Hotel
Monday February . , 1916
One Day Only. Hours 9 A. M. to 6 P. M.
Remarkable Success of these Talented Physicians in the Treatment of Chronic Diseases
Offer Their Services
Free of Charge
The United Doctors, licensed by the State of Nebraska... are experts in the treatment of diseases of the blood, liver, stomach, intestines, skin nerves, heart, spleen, kidneys or bladder, diabetes, bed-wetting, rheumatism, sciatica, tape worm, leg ulcers, appendicitis, gall stones, goitre, piles, etc., without operation, and are too well known in this locality to need further mention. Call and see them, it costs you nothing.
Laboratories, Milwaukee, Wisconsin.

Photographic reproduction (reduced) of typical advertising copy (of smaller advertisements) used by the United Doctors. Notice that the name of the hotel, date of visit, town and state are filled in on a typewriter.

WHEN QUACKS FALL OUT

This act of perfidy on the part of Jacobsen and Walker caused Burton E. Manchester to come "humbly complaining" into court, "praying" that Walker and Jacobsen shall be perpetually enjoined and restrained from stealing his "stuff" and appropriating his own private "swag." But Jacobsen and Walker, apparently unwilling to give up easy money without a fight, filed an answer to Manchester's complaint declaring that Manchester was coming into court with "unclean hands."

This was the status of affairs when the case came before Judge John M. Killits of the District Court of the United States, Northern District of Ohio. Before considering the question of issuing an injunction, Judge Killits, who seems to have a keen appreciation of the menace of quackery to the public health, directed the Ohio State Medical Board to determine whether or not Manchester was legally entitled to practice medicine in the state of Ohio. To the consternation of plaintiff and defendant alike, the state medical board served subpoenas on Jacobsen and Walker to appear at its meeting on October 3 and show cause why the board should not revoke their licenses. They were charged with violating the Ohio Medical Practice Act in that they were guilty (1) of splitting fees; were guilty (2) of "grossly unprofessional and dishonest conduct," based on their newspaper advertising and were guilty (3) of being connected professionally with an illegal practitioner, Manchester. After the hearing the licenses of Drs. G. W. W. W. Walker and Theodore Jacobsen were revoked.

On October 16, Judge Killits handed down his opinion in the case. This opinion is not only admirable in itself, but so succinctly describes the case before the court that we make no apology for giving it here in full:

JUDGE KILLITS' OPINION

"This is an action to restrain alleged unfair competition. The bill of complaint was filed on Sept. 5, 1916. An examination of the bill and its exhibit suggests very clearly that the defendants (assuming that the allegations are true) were violating whatever rights the complainant had in the premises, and, if the complainant's business were legitimate and entitled to the protection of the court, the case is one in which an injunction would clearly lie. We also note that, if complainant's business were illegitimate, his methods and manner of conducting it were shown to be so accurately copied by defendants that they could not complain of any restraint imposed by the court on their action. We therefore granted a temporary restraining order.

"The defendant filed a motion to the bill alleging that the complainant was seeking to protect an illegal business in the state of Ohio; that the complainant was in court with 'unclean' hands. The complainant thereupon filed a motion for leave to file an amended bill, and the matter is now before the court on the motion of the defendants to dismiss the case on the amended bill for the same grounds urged against the original pleading. The amended bill is permitted by the court to be filed on condition that the exhibits attached to the original bill are made part of the amended complaint.

MAKING MILWAUKEE FAMOUS

"Complainant alleges therein that he is licensed to practice medicine in the states of New York and Wisconsin; that his citizenship is in the state of New York, but because of his business and calling he is temporarily a resident of the state of Wisconsin; that at Milwaukee he maintains laboratories for the manufacture and compounding and sale of drugs under the trade name of 'United Doctors.' He asserts that he has given special study and 'most of his attention to the subject of certain diseases and their treatment and the healing thereof'; that he has extended his business throughout many states by means of agreements with other physicians who were licensed and duly qualified by law to practice in the several states where their practice was carried on.

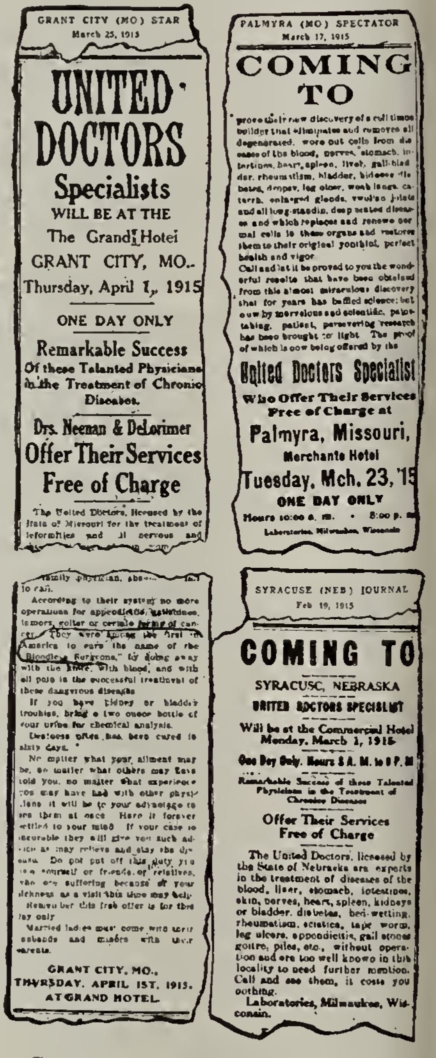
"Briefly, complainant carried on his business in the state of Ohio, being the business which he seeks to protect by his appeal to this court, by entering into contracts in writing with physicians qualified to practice medicine in the state of Ohio, by the terms of which contract these local physicians are to be advertised in the various newspapers and periodicals circulating within the state as 'United Doctors Specialists' who will visit selected places from time to time and meet the afflicted. It is their duty to consult with patients, diagnose cases, recommend medicines in consultation with the complainant, and suggest the purchase of the necessary remedies from complainant's laboratories in Milwaukee. Exhibits have been offered to the court showing special and confidential instructions to his physician agents by complainant, in which they are *especially enjoined to report to him the financial capacity* and disposition of the persons allured by the advertisements of the 'United Doctors,' and *the prospect for fees* therefrom, with recommendations as to amount of charges to be made in each instance. [All italics are ours.—Ed.]

A ONE HUNDRED THOUSAND DOLLAR BUSINESS

"The defendants, Jacobsen and Walker, were at one time employed by the complainant to pose as 'specialists' representing the 'United Doctors,' and to travel from advertised points to points within the state of Ohio. Contracts shown between the complainant and his local representatives, including defendants, disclose that the traveling 'specialists' were to receive a percentage of the profits of the business created by them, this percentage varying somewhat, as the exhibits show, according to the terms which the complainant is able to make with the respective hirelings. The complainant alleges that his business within the state of Ohio has exceeded in gross $100,000 in receipts in the last five years.

THE NEWSPAPERS' SHARE OF THE LOOT

"The bill further says that the advertisements published by complainant and under his authority 'have been worked out with great care and are the products of long experience of your orator in his method of doing business'; that complainant is the sole proprietor of the entire business carried on under the trade name and style of 'United Doctors,' and that he has spent within the state of Ohio the sum of $25,000 in advertising in country newspapers the business which he carries on under that name and through his representatives.


GRANT CITY (MO) STAR
March 25, 1915
UNITED DOCTORS
Specialists
WILL BE AT THE
The Grand Hotel
GRANT CITY, MO.
Thursday, April 1, 1915
ONE DAY ONLY
Remarkable Success
Of these Talented Physicians in the Treatment of Chronic Diseases.
Drs. Neenan & DeLorimer
Offer Their Services
Free of Charge
The United Doctors, licensed by the State of Missouri for the treatment of deformities and all nervous and

GRANT CITY, MO.,
THURSDAY, APRIL 1ST, 1915.
AT GRAND HOTEL.

PALMYRA (MO) SPECTATOR
March 17, 1915
COMING TO
United Doctors Specialist
Who Offer Their Services Free of Charge at
Palmyra, Missouri,
Merchants Hotel
Tuesday, Mch. 23, '15
ONE DAY ONLY
Hours 10:00 a. m. • 8:00 p. m.
Laboratories, Milwaukee, Wisconsin

SYRACUSE (NEB) JOURNAL
Feb 19, 1915
COMING TO
SYRACUSE, NEBRASKA
UNITED DOCTORS SPECIALIST
Will be at the Commercial Hotel
Monday, March 1, 1915
One Day Only. Hours 8 A. M. to 6 P. M.
Remarkable Success of these Talented Physicians in the Treatment of Chronic Diseases
Offer Their Services
Free of Charge
The United Doctors, licensed by the State of Nebraska are experts in the treatment of diseases of the blood, liver, stomach, intestines, skin, nerves, heart, spleen, kidneys or bladder, diabetes, bed-wetting, rheumatism, sciatica, tape worm, leg ulcers, appendicitis, gall stones goitre, piles, etc., without operation and are too well known in this locality to need further mention. Call and see them, it costs you nothing.
Laboratories, Milwaukee, Wisconsin.

Greatly reduced reproductions of characteristic advertisements of the United Doctors. Occasionally, as will be noted above, the names of the hireling physicians have been given. This, however, is unusual.

"The defendants, Jacobsen and Walker, after ceasing their contractual relationship with complainant in the early summer of the current year, seeing, doubtless, no legitimate reason why they should divide with their Milwaukee employer the profits of this business, concluded to work the people entirely to their own advantage, and, appropriating both the name and exactly the methods of their late principal, established an office in the city of Cleveland, styling themselves also 'United Doctors,' proceeding to advertise periodical trips to various country towns by copying in precise terms the advertisements which had heralded their approach when representing the complainant. One of these advertisements will suffice to illustrate the general manner of the business attempted to be carried on. It is that of defendants, but ith the exception of the hour and place and the last words, 'Laboraories, Cleveland, Ohio,' it is copied, wording and punctuation, from he advertising matter of the complainant which he had 'worked out ith great care' and which he assures us 'are the products of long xperience . . . in his method of doing business.' We quote from e Monroeville (Ohio) *Spectator*, Aug. 16, 1916, as follows:

COMING BACK

United Doctors Specialist Will Again Be at Bellevue, Ohio, Friday, August 25th, Hotel Bourdette

ONE DAY ONLY

Hours 9 A. M. to 8 P. M. Remarkable Success of These Talented Physicians in the Treatment of Chronic Diseases. Offer Services Free of Charge

The United Doctors Specialist licensed by the State of Ohio, for the treatment of all diseases including deformities, nervous and chronic diseases of men, women and children, offer to all who call on this trip, consultation, examination, advice free, making no charge whatever, except the actual cost of treatment. All that is asked in return for these valuable services is that every person treated will state the result obtained to their friends and thus prove to the sick and afflicted in every city and locality, that at last treatments have been discovered that are reasonably sure and certain in their effect.

The United Doctors are experts in the treatment of chronic diseases and so great and wonderful have been their results that in many cases it is hard to find the dividing line between skill and miracle.

Diseases of the stomach, intestines, liver, blood, skin, nerves, heart, spleen, rheumatism, sciatica, tape-worm, leg ulcer, weak lungs, and those afflicted with long-standing, deep seated, chronic diseases that have baffled the skill of the family physicians should not fail to call. Deafness often has been cured in sixty days.

According to their system no more operations for appendicitis, gall stones, tumors, goiter, piles, etc., as all cases accepted will be treated without operation or hypodermic injection, as they were among the first in America to earn the name of "Bloodless Surgeons," by doing away with the knife, with blood and with all pain in the successful treatment of these dangerous diseases.

No matter what your ailment may be, no matter what others may have told you, no matter what experience you may have had with other physicians, it will be to your advantage to see them at once. Have it forever settled in your mind. If your case is incurable they will give you such advice as may relieve and stay the disease. Do not put off this duty you owe yourself or friends or relatives who are suffering because of your sickness, as a visit at this time may help you.

Worn-out and run-down men or women, no matter what your ailment may be, call, it costs you nothing.

Remember, this free offer is for this visit only.

Married ladies come with their husbands and minors with their parents.

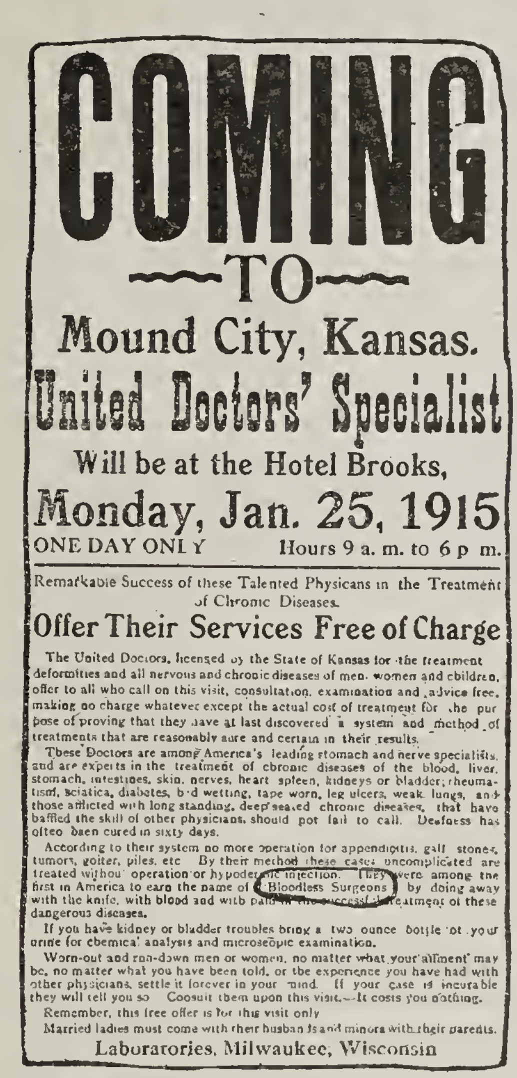
Laboratories, Cleveland, Ohio.

"Our attention is called by the defendants to Section 1275 of the ieneral Code of Ohio as amended in 1915—105 Ohio Laws 178, to upport their contention that plaintiff's (as well as their own) business s illegal in this state. This section provides that a license to practice nedicine within the state of Ohio may be revoked by the state medical oard for grossly unprofessional or dishonest conduct and by specific anguage of the statute, these words are declared to mean among other hings, 'all advertising of medical practice in which extravagantly vorded statements intended or having a tendency to deceive or defraud he public are made,' and also 'any division of fees or charges or any greement or arrangement to share fees or charges made by any physiian or surgeon with any other physician or surgeon or with any ther person.'

DOG EAT DOG

"It is unnecessary to enlarge by argument on the propositions that *he advertisement quoted violates the spirit and letter of the section* o which we have referred, and that *the financial arrangement* between he complainant and his representatives *is likewise obnoxious to the tatute.* These conclusions are too plain for extended discussion. Jndoubtedly complainant's representative in this state 'split' fees with im. The advertisement which we quote is claimed by complainant as is very own; he puts it forth to the public as the statement of the ualifications of himself and his 'specialists'; one prominent grievance gainst defendants which he seeks to have alleviated by court action n his case is that they employ his language to claim for themselves he same miraculous powers which he ascribes to himself and his repreentatives in this advertisement. Yet he does not even pretend in his omplaint that he has himself the comprehensive and profound proessional qualifications which one would assume from this advertisenent were enjoyed by the 'United Doctors.' He contents himself, as ve have quoted elsewhere from the complaint, with affirming that he as made a special study and given much attention to 'certain chronic liseases,' whatever they may be; nor does he hint anywhere in his omplaint that he employs representatives in this state who have anyhing more than the most ordinary medical qualifications. Apparently he did not dare to aver that he engages in behalf of sufferers allured by such advertising the medical skill which remotely measures up to the encomiums of this advertisement. *It*, as well as its fellows, we feel justified in saying, *is phrased in the language of a charlatan, of one who would prey on credulity born of suffering and weakness.* At least it must be the judgment of any intelligent and moderately informed person that complainant's advertising promises the impossible and is so extravagantly worded as to be considered deceptive, and, when we consider it in connection with the method by which he conducts his business in Ohio and with the fact of his personal irresponsibility as a nonresident of the state for malpractice, it seems very clear to this court that *we must regard that business to be essentially fraudulent and against public policy.*

"It is urged in his behalf that his business was established before the law in question was enacted in Ohio, and it is also somewhat naively suggested that we have nothing to do with the character of his business inasmuch as it may be legitimate elsewhere, but should protect his good-will and trade name in Ohio as a property right. This it seems to us is but begging the question. The validity of the Ohio act of 1915 has not been questioned and we are not disposed to question it. It is clearly in the interest of good faith and public welfare, and to enable one of the most deserving professions to be of the greatest possible service to people. The state at any time, in the interest of the welfare of its people, may legislate into illegality practices which theretofore were legal for want of legislative attention, and no rights in conflict with a reasonable exercise of the state's police power may ever be said to be vested.



COMING

—TO—

Mound City, Kansas.

United Doctors' Specialist

Will be at the Hotel Brooks,

Monday, Jan. 25, 1915

ONE DAY ONLY Hours 9 a. m. to 6 p. m.

Remarkable Success of these Talented Physicans in the Treatment of Chronic Diseases.

Offer Their Services Free of Charge

The United Doctors, licensed by the State of Kansas for the treatment deformities and all nervous and chronic diseases of men, women and children, offer to all who call on this visit, consultation, examination and advice free, making no charge whatever except the actual cost of treatment for the purpose of proving that they have at last discovered a system and method of treatments that are reasonably sure and certain in their results.

These Doctors are among America's leading stomach and nerve specialists, and are experts in the treatment of chronic diseases of the blood, liver, stomach, intestines, skin, nerves, heart spleen, kidneys or bladder; rheumatism, sciatica, diabetes, bed wetting, tape worm, leg ulcers, weak lungs, and those afflicted with long standing, deep seated chronic diseases, that have baffled the skill of other physicians, should not fail to call. Deafness has often been cured in sixty days.

According to their system no more operation for appendicitis, gall stones, tumors, goiter, piles, etc By their method these cases uncomplicated are treated without operation or hypodermic injection. They were among the first in America to earn the name of "Bloodless Surgeons" by doing away with the knife, with blood and with pain in the successful treatment of these dangerous diseases.

If you have kidney or bladder troubles bring a two ounce bottle of your urine for chemical analysis and microscopic examination.

Worn-out and run-down men or women, no matter what your ailment may be, no matter what you have been told, or the experience you have had with other physicians, settle it forever in your mind. If your case is incurable they will tell you so Consult them upon this visit.—It costs you nothing.

Remember, this free offer is for this visit only

Married ladies must come with their husbands and minors with their parents.

Laboratories, Milwaukee, Wisconsin

A typical United Doctors advertisement (greatly reduced).

INJUNCTION DENIED—COMPLAINANT PAYS COSTS

"What the complainant is asking the court to do is to protect him in the transaction of a business in this state which is reprobated by its laws; to permit him to make contracts with physicians in Ohio, the performance of which by them in this state would be to put them into opportunity as well as temptation to defraud, and which ought, by law, to result in the forfeiture of their right to practice medicine at all and to subject them to criminal prosecution. Of course no court of equity would ever stand for such a practice.

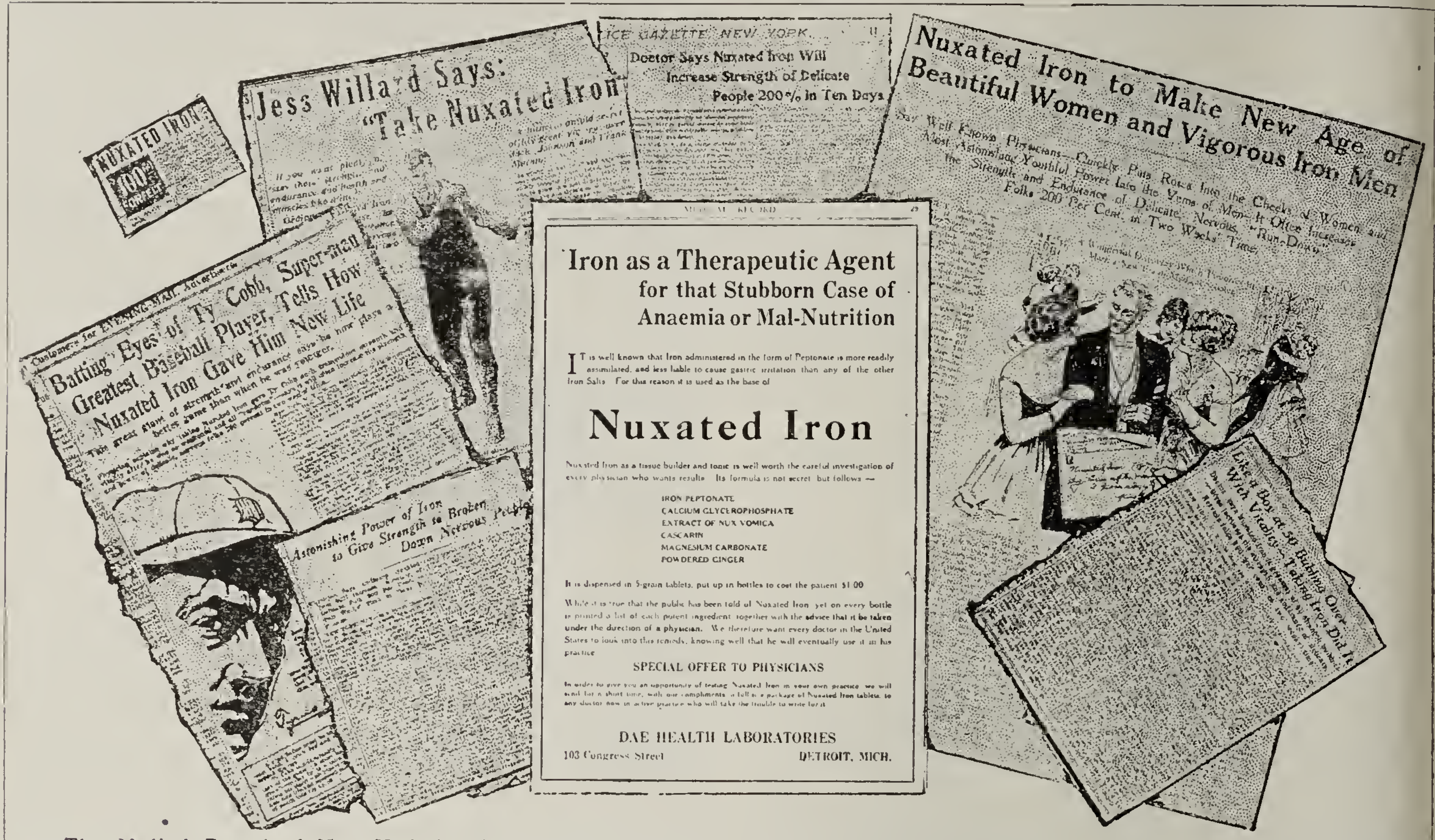
"There is no other disposition of this case possible than to dismiss the bill at the cost of the complainant."

Summed up, then, it seems that the United Doctors' brand of quackery is no longer to be tolerated in the state of Ohio. Manchester, the chief offender, is stamped as an undesirable by the courts and is denied relief in his plea for an injunction against Walker and Jacobsen, and is made to pay the cost of his appeal. The defendants in the case, Jacobsen and Walker, have had their licenses to practice medicine in Ohio revoked.

In addition to the forthright action of Judge Killits, no little credit for this public service devolves on Dr. George H. Matson, secretary of the Ohio State Medical Board, and Mr. G. V. Sheridan, executive secretary of the Ohio State Medical Association. Both of these gentlemen attended the second hearing of the Manchester case in Toledo and carefully investigated the court records showing the various counter charges. The case is discussed at some length in the October issue of the *Ohio State Medical Journal* which was published before the licenses of Jacobsen and Walker were revoked. In closing, the *Ohio State Medical Journal* well says:

"The state medical board is determined to press this case to the limit. There has been too much itinerant quackery in Ohio. The amendment to the law adopted by the last legislature materially strengthens the power of the board in dealing with medical crooks. With this increased power, those who are familiar with the situation believe that it will now be possible to inaugurate a state wide campaign on traveling quacks and permanently separate them from the source of their 'easy' money.

"Hasten that day!"


NUXATED IRON
Jess Willard Says: "Take Nuxated Iron"
ICE GAZETTE, NEW YORK
Doctor Says Nuxated Iron Will Increase Strength of Delicate People 200% in Ten Days
Nuxated Iron to Make New Age of Beautiful Women and Vigorous Iron Men
Batting Eyes of Ty Cobb, Super-Man, Greatest Baseball Player, Tells How Nuxated Iron Gave Him New Life
Astonishing Power of Iron to Give Strength to Broken Down Nervous People
Like a Boy at 50 Bubbling Over With Vitality Taking Iron Did It

MEDICAL RECORD

Iron as a Therapeutic Agent for that Stubborn Case of Anaemia or Mal-Nutrition

It is well known that Iron administered in the form of Peptonate is more readily assimilated, and less liable to cause gastric irritation than any of the other Iron Salts. For this reason it is used as the base of

Nuxated Iron

Nuxated Iron as a tissue builder and tonic is well worth the careful investigation of every physician who wants results. Its formula is not secret but follows —

IRON PEPTONATE
CALCIUM GLYCEROPHOSPHATE
EXTRACT OF NUX VOMICA
CASCARIN
MAGNESIUM CARBONATE
POWDERED GINGER

It is dispensed in 5-grain tablets, put up in bottles to cost the patient $1.00

While it is true that the public has been told of Nuxated Iron, yet on every bottle is printed a list of each potent ingredient together with the advice that it be taken under the direction of a physician. We therefore want every doctor in the United States to look into this remedy, knowing well that he will eventually use it in his practice.

SPECIAL OFFER TO PHYSICIANS

In order to give you an opportunity of testing Nuxated Iron in your own practice we will send for a short time, with our compliments, a full size package of Nuxated Iron tablets to any doctor now in active practice who will take the trouble to write for it.

DAE HEALTH LABORATORIES
103 Congress Street DETROIT, MICH.

The *Medical Record* of New York has been carrying full page advertisements of "Nuxated Iron." One of these advertisements is here reproduced in miniature, with others of the same product, from the *Police Gazette*, newspapers, etc. Many of the better newspapers, and all respectable lay magazines refuse advertisements of such nostrums. The publishers of the *Medical Record* are not alone culpable. They are not physicians, they are business men, furnishing the medical profession what it—presumably—wants; or at least what it will tolerate. The blame for the disgracefully low advertising standards of many medical journals rests with those physicians who subscribe for, or contribute to, such journals, without protest.

Correspondence

The Outgrowing of Stammering

To the Editor:—If stammering—spasmodic, abortive speech—is outgrown, there is a natural remedy, and it ought not to be difficult to bring that remedy under control.

The divergence of opinion on the outgrowth of stammering is illustrated by the following quotations, which might be indefinitely continued:

"Children do not of themselves grow out of the affliction."—Dr. G. Hudson Makuen.

"I think one can safely say that there is no such thing as 'growing out' of stuttering."—John M. Fletcher.

"Arndt notes that some children that stutter get well without special treatment."—Edward Conradi.

"Occasionally, light grades disappear spontaneously during late childhood and adolescent life. . . . Experience does not prove, however, that a majority of children who are affected outgrow the difficulty."—Dr. Frank A. Bryant.

"There are approximately three times as many stammering children as stammering adults. Late in childhood or during adolescence many stammerers lose the impediment."—C. S. Bluemel.

Note that stammering is the subject under discussion in each quotation, although the words "stutter" and "stuttering" are used. The range of divergence is from no outgrowing to two-thirds outgrowing of the condition.

Fletcher does not believe in outgrowth; however, he says, "Estimates show that male stutterers preponderate over females in ratios ranging from 2:1 to 10:1. The male preponderance is much greater in childhood than it is in adulthood." The German school statistics given by Rudolf Denhardt showing an average ratio of 3:1 may be used, for that is within Fletcher's range. Statistics seem not to be available for the sex ratio in adulthood, but the most agreement is probably on 9:1, which is also within Fletcher's range.

The adopted figures, reduced to a comparable basis, show that where there are nine stammering schoolboys there are three stammering schoolgirls, and that where there are nine stammering men there is one stammering woman. How can we account for the disappearance of the two stammering schoolgirls?

There are three possible solutions:

1. Young men may have contracted stammering after school age. But we must abandon this, for it is generally admitted that the contraction subsequent to 12 years of age is negligible. Dr. Arthur Chervin says, "As a rule stammering appears in early childhood, from 3 to 7 years, sometimes a little later, but very rarely after the age of 10 or 12 years."

2. The young girls may die off more rapidly than the young men. This may be considered under two suppositions, namely, that among stammerers alone the girls die off much more rapidly, or that females in general die much more rapidly than males. The first supposition is untenable, for stammering is not a fatal disorder, and whatever fatality it might cause would apply to each sex. The second supposition—that females die more rapidly than males—is the reverse of the fact; for mortality tables show that the rate is higher among males.

3. The remaining solution is that the two girl stammerers recovered from their stammering. This must be accepted, for the other two solutions have been shown to be untenable.

Let those who really want to do something worthy in connection with stammering find out the means by which two thirds of the girl stammerers recover, and apply that means to the other stammerers, and there will be no more stammering in adult life. Ernest Tompkins, M.E., Los Angeles.

A New Needle for Suturing Purposes

To the Editor:—In The Journal, Oct. 21, 1916, p. 1228, Dr. illiam C. Speidel, Seattle, describes and illustrates "a new edle for suturing purposes" which has a central eye. Such needle has been in general use in this country and England r several years, and was described and illustrated by P. P. le in the *Lancet,* London, Sept. 5, 1914, and is also described d illustrated in "Practical Medical Series," 1915, Volume p. 34.

Woodson H. Taulbee, M.D., Maysville, Ky.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not noticed. Every letter must contain the writer's name and address, t these will be omitted, on request.

WHAT IS PYORRHEA?

To the Editor:—Kindly advise me whether a physician and surgeon, gularly licensed under the Illinois law and thereby empowered to actice medicine and surgery in all their branches, requires a license a dentist before he may treat pyorrhea alveolaris.

William A. Lurie, M.D., Chicago.

Answer.—The Illinois medical practice act defines the actice of medicine as treating or professing to treat, operatg on or prescribing for any physical ailment or any physil injury to or deformity of another. The Illinois dental w defines dentistry as treating or professing to treat any of e diseases or lesions of the human teeth or jaws, or extractg teeth, or preparing or filling cavities in human teeth, or rrecting the malposition of teeth, or supplying artificial eth as substitutes for natural teeth. Where is the dividing ne between medicine and dentistry? In 1899, the Rhode land supreme court (*State* v. *Beck,* 21 R. I. 288, 43 Atl. 366) ld that a legally qualified physician could practice dentistry. he court said:

> Dentistry is now a well recognized branch of surgery. A dentist is dental surgeon. He performs surgical operations on the teeth and w and as incidental thereto upon the flesh connected therewith. The here of operations, then, is included in the larger one of the ysician and surgeon. A fair and reasonable construction of the two atutes taken together, therefore, comes to this, that the General ssembly . . . intended to except physicians and surgeons from e restrictions imposed on other persons regarding the practice of entistry. . . . It has always been the custom in this state and obably everywhere else for physicians to treat ailing teeth, to extract eth and to perform various other professional services which techically come under the purview of dentistry. . . . To now prohibit em from thus treating their patients would be . . . interference ith their proper and legitimate functions.

In 1909, the Minnesota supreme court held (*State* v. *Taylor,* 6 Minn. 218, 118 N. W. 1012) that a person licensed to ractice medicine and surgery cannot by virtue thereof practice dentistry without securing a license as a dentist. In is case, the defendant extracted teeth, took impressions in ax of the mouth and cavities, secured artificial teeth from ental laboratories and delivered them to patients. The urt held that in the absence of any legislation to the conary, a license to practice medicine and surgery would clude dentistry, but that for reasons of public policy, the gislature had made a separate profession of dentistry. The cts of the defendant came clearly within the definition of entistry. The legislature evidently intended to restrict the ractice of the physician and surgeon and to require him, if e desires to practice dentistry, to obtain a license from the tate board of dental examiners.

The question still remains whether pyorrhea is a purely cal disease, involving only the teeth and gums, or whether is a local evidence of a general and constitutional conition. Even if it is conceded that it is a purely local conition, is it a disease of the teeth or of the bone? If it is garded as a disease of the bone, would the board of dental xaminers take the position that all diseases of the jaw bone ome exclusively within the realm of dentistry? If so, then e surgeon who treats a gunshot wound or a fracture of the w or who removes an osteosarcoma, or the rhinologist who rains an infected superior maxillary sinus, must first secure license to practice dentistry. If the dental law forbids the hysician to use local treatment for pyorrhea, does not the edical law prohibit the dentist from using general treatment for the same condition? Must the patient with pyorrhea have a dentist on one side for local treatment and a physician on the other to administer general treatment? This reduces the question to an absurdity. The right of the dentist under the Illinois statute to the extracting of teeth, the filling of cavities, the correction of malpositions and the supplying of artificial teeth will probably not be questioned. The controversy will center around that part of the statutory definition of dentistry which includes "treating any of the diseases or lesions of human teeth or jaws." If this is interpreted literally by the courts, it can only lead to confusion.

MENTAL DISTURBANCES DUE TO WAR

To the Editor: Please give a list of publications dealing with special or new forms of mental diseases arising from conditions at the front, or indirectly caused by economic war conditions in the different countries affected. S. N. A.

Answer.—The following is a list of references on this subject:

Claude, Dide, and Lejonne: War Psychoses, *Paris méd.,* Sept. 2, 1916.
Psychic Disturbances Incident to the War, Berlin Letter, The Journal, April 29, 1916, p. 1398.
Chavigny, P.: Psychiatry in the Active Army, *Paris méd.,* Jan. 1, 1916; abstr., The Journal, Feb. 12, 1916, p. 538.
Soukhanoff, S. A.: War Psychoses, *Russk. Vrach.,* 1915, xiv, No. 34.
Weygandt, W.: Psychiatry in War, *München. med. Wchnschr.,* Sept. 14, 1915; Mental Disease in War, ibid., Oct. 27, 1914.
Wittermann, E.: Psychiatry on the Firing Line, *München. med. Wchnschr.,* Aug. 24, 1915.
Emslie, I.: War and Psychiatry, *Edinburgh Med. Jour.,* May, 1915.
Oppenheim, H.: War Neurology, *Berl. klin. Wchnschr.,* Nov. 30, 1914; abstr., The Journal, Jan. 16, 1915, p. 280.
Bonhoeffer, K.: Psychiatry and War, *Deutsch. med. Wchnschr.,* Sept. 24, 1914; abstr., The Journal, Nov. 7, 1914, p. 1703.

CHYLURIA AND FILARIASIS

To the Editor:—Please give me information as to whether the lymphatic disease with chylous urine, attacks of pain in the muscles and fever due to filaria, which have been found in the blood taken at night in the case of a Cuban, is curable; also give the method of procedure with drugs to be used. I have heard that thymol is good for this purpose; others say that there is no drug of service—that change of climate is the only thing.

Floyd Bonesteel Ennist, M.D., New York.

Answer.—The treatment of chyluria, according to Manson and others, is to send the patient to bed, elevate the pelvis, restrict the amount of food and fluid—especially fatty food—gentle purgation, and absolute rest. A day or two of this kind of treatment will probably be followed by temporary or prolonged cessation of the chyluria. Drug treatment of filariasis is uniformly disappointing. The drugs which have been recommended for the treatment of this disease are gallic acid in large doses, benzoic acid in large doses, glycerin, the tincture of ferric chlorid, decoction of mangrove bark, chromic acid, quinin, sodium salicylate, ichthyol, and *Nigella sativa.* It is not probable that these substances have any influence in stopping the lymphorrhagia, nor is it likely that thymol or methylene blue have any effect either on the filaria or on the disease it causes. Both drugs have been tried, but the results have not been satisfactory. It should not be forgotten that a filarious patient, for the protection of others, should sleep under a net, the varieties of mosquitoes capable of acting as intermediate hosts being numerous.

IODIN AS A DOUCHE FOR TEETH

To the Editor:—I have found marked benefit from the application of tincture of iodin, 5 per cent. solution, to the gums around the roots of the teeth. Do you know of any good substitute, as the iodin discolors the teeth? Please do not publish my name. W. F.

Answer.—Black, in his work on "Dental Pathology," recommends that the patient be taught to douche the gums twice daily with physiologic sodium chlorid solution. A rubber bulb syringe with a tolerably large nozzle is advised. This is to be held in such position that the stream will pass into and wash out the space between the edge of the gums and the teeth. In this way inflammation, which would otherwise result from accumulation of bacteria and their products, may be prevented. Black also states that more than half of all inflammations of the gums are due to slight traumatisms of various kinds, due to such causes as the lodgment of food between teeth, rough edges of fillings, crowns, etc.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

Connecticut: Regular, New Haven, Nov. 14-15. Sec., Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, Nov. 14-15. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Delaware: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka.

Kentucky: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

Maine: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Maryland: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Massachusetts: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

New Hampshire: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

Ohio: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.

Rhode Island: Providence, Nov. 15-16. Sec., Dr. Gardner S. Swarts, 70 Waterman St., Providence.

South Carolina: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

Virginia: Richmond, Dec. 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

West Virginia: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

Wyoming June Report

Dr. H. E. McCullum, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, June 14-16, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, including 1 osteopath, all of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Arkansas	(1909)	84
Denver and Gross College of Medicine	(1905)	77.7
University of Colorado	(1916)	82.9
University of Louisville (1912) 85.8;	(1916)	79.9
John A. Creighton Medical College	(1915)	83.8
Trinity Medical College	(1904)	91.3

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado	(1912)	Utah
Hahnemann Medical College and Hospital, Chicago	(1906)	Illinois
Rush Medical College	(1910)	Utah
John A. Creighton Medical College	(1901)	Iowa
Dallas Medical College	1903)	Illinois

Indiana July Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 11-13, 1916. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 45, of whom 42 passed, including 2 osteopaths, and 3 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surg. (1914) 94.1;	(1916)	89.8, 92.2
Rush Medical College	(1916)	89.9
Indiana University	(1916)	87.4, 88.2, 88.5, 88.8, 89.1, 89.5, 89.6, 89.6, 89.7, 89.8, 90, 90, 90.6, 90.6, 90.6, 90.6, 91, 91, 91, 91.1, 91.4, 91.6, 91.9, 92.6, 92.6, 92.6, 93.1, 94.4, 94.7, 94.9.
Harvard University	(1913)	94.7
St. Louis University (1912) 89.7;	(1916)	92.8
University of Vermont	(1915)	87.1
Marquette University	(1916)	93.5
University of Toronto	(1911)	93.1
FAILED		
Indiana University	(1916)	*, *
Vanderbilt University	(1915)	*

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College	(1913)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1914)	Illinois
Northwestern University	(1909)	Illinois
University of Illinois (1913)	(1914)	Illinois
Medical College of Indiana	(1885)	Nebraska
Kentucky School of Medicine	(1898)	Kentucky
University of Louisville (1910)	(1912)	Kentucky
University of Michigan Medical School	(1882)	Michigan
Jefferson Medical College	(1910)	Penna.
University of the South	(1899)	New York
Vanderbilt University	(1913)	Tennessee

* No grade given.

Book Notices

A Text-Book of Fractures and Dislocations: With Special Reference to Their Pathology, Diagnosis and Treatment. By Kellogg Speed, S.B., M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School. Cloth. Price, $6 net. Pp. 888, with 656 illustrations. Philadelphia: Lea & Febiger, 1916.

The clinical and statistical material in this book is taken largely from the voluminous service of Cook County Hospital, Chicago. In the earlier chapters, the regeneration of bone, and repair, etiology and mechanism, pathology, complications and sequelae of fractures are fully discussed. The immediate, nonoperative and operative treatment are described, and special consideration is given to the internal bone splinting both in recent and in old ununited fractures. The general considerations of dislocations are much more briefly considered. Skull and face fractures are well illustrated by tracings of roentgenograms and photographs and sketches particularly of the methods of fixation of the jaw fragments. The chapters on fractures of the lower end of the humerus and dislocations of the elbow are among the best. The newer studies on fractures and dislocations of the carpal bones are well reviewed and illustrated. The chapter on the operative treatment of fractures of the femur is particularly full. The varieties of fractures about the ankle joint and of the os calcis are minutely considered. On the whole, the illustrations of fractures of the lower extremities are much better and more numerous than are those of the dislocations. Numerous photographs of special therapeutic appliances and of pathologic specimens are included among the illustrations.

Obstetrics, Normal and Operative. By George Peaslee Shears, B.S., M.D., Professor of Obstetrics, New York Polyclinic Medical School. Cloth. Price, $6. Pp. 745, with 419 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

In presenting a new volume on obstetrics, a field already crowded, the author has endeavored to omit the irrelevant matter and confine emphasis to the practice of obstetrics. For this reason the book is admirably adapted to the practitioner of medicine, the man who does not have at his disposal the facilities of a hospital. Whether such a work is well suited to the student is a question fairly debatable. The author has felt that too many "texts" are constructed on a plan which does not conserve the interests of either the practitioner or the student. Therefore the theory of pure obstetrics has been emphasized and amplified, while the traditional sections on embryology, placentation and anatomy have been omitted. As evidence of the practical nature of the volume, the author goes into considerable detail in his chapter on the management of labor. He prefers the "superior safety of ether," while stating that women in labor enjoy a remarkable degree of immunity from the toxic effects of chloroform. He has not found "twilight sleep" injurious to the mother, and describes a modification of the Freiburg method. Two small doses of scopolamin and morphin are employed, with ether during the second stage. The use of nitrous oxid analgesia in labor is not mentioned. In many respects the author's methods cannot be too highly commended. Thus the technic described for the induction of labor by the use of rubber bags, or that of vaginal cesarean section, is admirable, clear, concise, and reveals expert workmanship. In forceps extraction the Tarnier axis traction instrument is employed, the traction apparatus being removed as soon as the fetal head has been brought down to the perineum, actual delivery being accomplished with the application handles. The illustrations are abundant and to the point.

Medicolegal

Marriage Not Annulled for Epilepsy

(Elser vs. Elser (N. Y.), 160 N. Y. Supp. 724)

The Supreme Court of New York, Special Term, Bronx ounty, per Justice Mullan, says: The husband sues to nnul the marriage on the grounds (1) that the defendant as physically incapable, etc., and (2) that he was induced o enter into the marriage contract by her fraud in concealng from him that she was an epileptic, and in leading him o believe, through statements to that effect, that she was in ood health. It was proved, even conceded, that the defenlant was, at the time of the marriage, and has been ever ince, afflicted with the disease known as epilepsy. As to he first ground urged, it was shown that the exercise of the natrimonial function induced on the part of the wife parxysms or convulsions symptomatic of her disease, and that his made copulation abhorrent to her and unsatisfactory to im, and thus lessened its frequency; but, as copulation was ossible, no more need be said on that subject. As to the harge of fraud, the court finds there was none. The court ad a physician called to examine the wife, and he testified hat the statistics show that in about 16 per cent. of the pileptic cases covered by the records from which the staistics were compiled the taint was inherited. The plainiff's counsel urges that public policy requires an annulment lecree in order to prevent the coming into the world of rogeny tainted by an epileptic strain, but we have not as et come to that refinement of civilization. Complaint disnissed, without costs.

Medical Practice Act and Diagnosis

(People vs. Jordan (Calif.), 156 Pac. R. 451)

The Supreme Court of California, in affirming a conviction f the defendant of having engaged in the practice of a ystem or mode of treating the sick and afflicted without havng a certificate authorizing him so to do, holds that the bjection was without merit that the title of the act under vhich the defendant was prosecuted (statutes of 1913, page 22) is not sufficient in its expression of the purposes declared n the body of the act itself. Nor does the court agree with he contention that the act violates certain constitutional proisions in that it is discriminatory in exempting from its rovisions a certain class of drugless practitioners, namely, hose who resort to prayer as a means of treating persons fflicted with bodily ills. The court says that it was argued hat the act is discriminatory because the prohibitory words hereof make it unlawful for any one of those who fall within its description to "diagnose" disease. It was said that o "diagnose" disease does not necessarily involve an intenion on the part of the diagnostician either to treat the fflicted person or to prescribe for him in any way, and that o require no diagnosis from those who profess to treat disease by prayer while prohibiting all other unlicensed persons from diagnosing various ailments is an unjust and unconstitutional regulation, favoring one class of citizens unduly. This whole argument rests on a misconception of the meaning of the term "diagnose." As used in pathology the word means "to determine the diagnosis of; to ascertain, as a disease from its symptoms" (Century Dictionary); it means "the recognition of a disease from its symptoms." Diagnosis is as much a part of the practice of medicine as is the administration of remedies, and it is a vastly more important branch thereof because, generally speaking, the treatment of disease is governed by the practitioner's theory regarding its cause. Intelligent treatment may follow only correct diagnosis. It was argued that diagnosis is merely "guessing," but that is only partially true. It is a matter of common knowledge that in the present development of microscopy, chemistry, bacteriology, radiography and kindred sciences there are some diseases which may be detected with absolute certainty by the accomplished diagnostician. But even where t depends partly on conjecture, real diagnosis is the product of knowledge and experience. The Supreme Court of the United States has declared diagnosis to be a part of the practice of the healing art, even in systems of treatment which do not deal with administration of remedies, but with mechanical adjustment of parts of the human body (*Collins* vs. *Texas,* 223 U. S. 288). It is impossible to dissociate diagnosis from the practice of the art of healing by any physical, medical, mechanical, hygienic or surgical means. It is competent, therefore, for the legislature to permit only those persons who are proficient and who have been found to be educated up to certain standards to "diagnose" ailments. The objection that those who profess to treat bodily afflictions by prayer are not required to be proficient in diagnosis, and that their exemption, under the law, is the extension of a favor to them which is withheld from others is met by the obvious answer that diagnosis is no part of such treatment. Those who believe that divine power may be invoked by prayer for the healing of the body believe also that God is all-powerful. Patients receiving their ministrations know this, and therefore no fraud or injury may be practiced on such persons by reason of any lack of skill by the healers in determining the nature of the diseases to be treated. But those who elect to depend on some other system of treatment have a right to protection by the state from the ministrations of unskilful, uneducated persons. In other words, the right to practice medicine should carry with it some assurance to the public that the licensed practitioner possesses reasonable proficiency in the technic of his profession.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
Southern Medical Association, Atlanta, Nov. 13-16.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

AMERICAN ROENTGEN-RAY SOCIETY

Seventeenth Annual Meeting, held at Chicago, Sept. 27-30, 1916

(Continued from page 1393)

Roentgen Appearances of Osteomyelitis

Dr. Roland Hammond, Providence, R. I.: A localized, definitely circumscribed area of increased radiability occurring in the juxta-epiphyseal portion of the bone in children is commonly known as Brodie's abscess. It is oval in shape, has a clear-cut bony wall, and is most often seen at the upper end of the ulna or the tibia. The Roentgen appearance would suggest a cyst; but the pain, localized tenderness, limitation of joint motion and elevation of temperature are more marked than usually obtains in a case of simple bone cyst. While the Roentgen appearance of pyogenic osteomyelitis is fairly typical in the ordinary case, it is likely at times to be confused with certain stages of tuberculosis and syphilis. It may be necessary to settle the question by laboratory tests or the histologic examination of the bone in question in order definitely to settle the diagnosis.

Roentgen Diagnosis of Metastatic Malignant Bone Disease

Dr. George E. Pfahler, Philadelphia: Metastatic carcinoma involving bone is much more frequent than is generally recognized, and probably in the advanced cases occurs in nearly 20 per cent. The metastasis to the spinal column takes place most frequently from mammary carcinoma in women, or prostatic carcinoma in man, and next to these probably the carcinomas of the stomach and the thyroid lead to spinal metastases. Rheumatic pains occurring in the growth of malignant disease should always make us think of metastatic carcinoma in the spinal column, and demand a thorough Roentgen study. The recognition of metastatic carcinoma of the spinal column or other bones makes a very bad prognosis, but not absolutely hopeless, and there may still be a considerable prolongation of life with hope and comfort even after the disease has become very extensive. A healing process has been shown by me in metastatic carcinoma of bone.

Renal and Ureteral Stone Symptoms in Spondylitis Deformans

Dr. E. Blaine, Chicago: The frequent Roentgen-ray finding, after careful and proper examination, of "no shadows indicating renal or ureteral stone" leads to a search for the cause of the patient's symptoms. The symptoms are usually more or less characteristic of stone, particularly the sharp pain which occurs intermittently. A series of fifty-nine cases were reviewed and the study of the findings reveals a high percentage of bone changes involving the lower spine at or near the kidney regions. These changes range from a mild hypertrophic spondylitis to a high grade bone increase, resulting in "bridging" and local erosions of the articular surfaces of the vertebral bodies. These findings, in the absence of stone shadows, suggest very strongly the cause of the symptoms which lead one to suspect lithiasis, but which evidently are due to spondylitis.

DISCUSSION ON ROENTGENOGRAPHY IN DISEASES OF THE BONE

Dr. John L. Porter, Chicago: Patients with tuberculosis of the spine have been operated on for stone in the bladder and for appendicitis, the pain having been referred. Facts are brought out in the roentgenogram which cannot be explained without clinical findings and the history. I think the roentgenologist should know something about the case, its clinical history and the findings, so that he can make a better interpretation of the roentgenogram.

Dr. H. E. Potter, Chicago: If the clinical symptoms are positive for osteomyelitis, no time should be lost in urging operation. A surgeon should not be kept waiting for positive Roentgen findings in acute osteomyelitis. When the disease is advanced and a definite pathologic condition shows in the bone, it will appear in the roentgenogram.

Dr. H. K. Pancoast, Philadelphia: Acute osteomyelitis or acute epiphysitis cannot be diagnosed by means of the Roentgen ray; that is, in the early stages of the disease. It has been my custom to impress on my students the fact that the patient should be operated on before the Roentgen diagnosis is possible.

Dr. A. B. Moore, Rochester, Minn.: Many metastatic cancer patients have no symptoms except perhaps some pain. Nothing in medicine is so deceptive as a so-called kidney history, and often the urinalysis may be negative and the Roentgen examination negative, even though there may be pathologic changes in the kidney. Pyelography and pyeloscopy are also of great help in making a diagnosis.

Dr. L. G. Cole, New York: I recall making negative plates of bones in which osteomyelitis was suspected to be present, but with added experience I learned to interpret that finding correctly.

Dr. E. Blaine, Chicago: In cases of acute osteomyelitis I always state that the Roentgen ray does not show any change in the bone during the first few days of the disease, and therefore the Roentgen findings should not be considered one way or the other. Operative intervention should not be delayed. It is astonishing how many cases of metastatic carcinoma of bones show no symptoms whatever.

Pathologic Reasons for Legitimate Errors in the Roentgen Diagnosis of Gastric Carcinoma and Ulcer

Dr. W. C. MacCarty, Rochester, Minn.: The pathologic reasons for the legitimate errors in Roentgen diagnosis of gastric ulcer and gastric carcinoma seem to be the following: There is no macroscopic differentiating structural difference between a single chronic gastric ulcer and an early carcinomatous chronic gastric ulcer. There is no differentiating variation in muscular structure which might be the basis of diagnostic difference in gastric rhythm in simple chronic gastric ulcer and an early carcinomatous chronic gastric ulcer. The diagnosis of early carcinoma in the border of a chronic gastric ulcer is a question of the position of a few undifferentiated epithelial cells in the mucosa or submucosa, and it still remains an open question whether or not Roentgen rays can differentiate such small quantities of such cells from normally differentiated epithelial cells or the cells of the other tissues in a chronic ulcer.

Diagnosis of Syphilis of the Stomach

Dr. L. T. LeWald, New York: It is a rare manifestation of syphilis, congenital or acquired, occurring mostly in males, especially in the fourth and fifth decades, but also at almost any age. Its pathology is characterized by (1) multiplicity of lesions in many organs, and (2) by variety and plurality of lesions in the stomach itself. Its symptomatology corresponds to the pathologic findings; it presents no unanimity of symptoms. There are four symptoms which are, however, fairly common, singly or combined. These are pain, especially immediately after eating, emaciation, tenderness and hemorrhage. If there is a clear history of syphilis, or if the Wassermann test is positive, the diagnosis should be comparatively simple.

Indications for Surgical Intervention in Gastro-Intestinal Cases

Dr. L. G. Cole, New York: Approximately one half of the cases of gastric cancer that I have examined have been inoperable, and the Roentgen evidence before operation indicated beyond a doubt that the case was inoperable. In only about 75 per cent. of the operable cases which are proved to be malignant at the time of operation can anything more than a palliative gastro-enterostomy be performed, and in many of these cases the desired palliation is not obtained. Nevertheless, this operation is justifiable even if the desired relief should not follow. This leaves 25 per cent. of the operable cases (only 12 per cent. of the total number of gastric cancers) in which there is any hope for surgical cure by resection of part of the stomach or by pylorectomy. In 70 per cent. of these cases in which an attempt was made to remove the growth, the patient died before leaving the hospital. Postpyloric ulcers with deep, penetrating, bullet-like craters with thick edges require surgical procedure. When the induration has transgressed the pyloric sphincter and causes secondary involvement of the pars pylorica, surgical procedure may be indicated to prevent malignancy. In such cases a pylorectomy, not a gastro-enterostomy, is indicated.

Roentgen Studies of the Pelvic Colon and Rectum

Dr. J. T. Case, Battle Creek, Mich.: That portion of the colon which has a long mesocolon should be freely movable. Adhesions of the pelvic colon which interfere with its free mobility are vicious, and when associated with other clinical symptoms may require surgery. The mere presence of adhesions is not a surgical indication. Adhesions must disturb the function. In most cases of pelvic colon obstruction, the symptoms are chiefly referred to the neighborhood of the cecum and ascending colon through increase of the normal antiperistaltic influence. Rectal constipation is a common finding. It may be due to adhesions near the pelvirectal junction, to any acute inflammatory rectal condition, such as prostatitis, hemorrhoids, rectal ulcer, or in other cases to atony of the rectal walls. Proctoscopic examination is needed to differentiate. In syphilis of the rectum the filling defect is smooth-edged and extensive, converting the shadow of the rectal ampulla into a long, narrow, smooth-edged tube, as contrasted with carcinoma, which produces an irregular filling defect, not involving the rectum so extensively in a longitudinal direction.

DISCUSSION ON ROENTGENOGRAPHY IN DISEASES OF THE STOMACH

Dr. E. H. Skinner, Kansas City, Mo.: If I had a carcinoma of the stomach, I would be operated on irrespective of the Roentgen findings. I should want some one to see that tumor and then pass judgment.

Dr. George C. Johnston, Pittsburgh: When the roentgenogram apparently shows a carcinoma of the stomach, look at the patient. If it is a case of syphilis, you will find that he does not look sick. If it is carcinoma, he will surely show some evidence of cachexia. Make a Wassermann test, and if it is syphilis the test will be positive. That is the way I make the diagnosis. In every case of malignant disease of the stomach in which I have reason to believe that there still remains sufficient gastric wall for the surgeon to do a gastro-enterostomy, I insist on having the operation done.

(To be continued)

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Sixth Annual Meeting, held at Scranton, Sept. 18-21, 1916

(Continued from page 1396)

Treatment of Compound Fractures

Dr. Jonathan M. Wainwright, Scranton: The main problems presented by compound fractures are to prevent or cure infection and to procure and maintain satisfactory reduction. Researches in the armies in Europe have shown that Dakin's hypochlorous acid solution is most effective in the treatment of infected fractures, and that the retentive fracture dressings must be such as to permit access to the wound for the purpose of dressing. As regards drainage, we must accept the teaching of Moynihan, that there "never yet was such a thing as a gauze drain." I believe that the fixation methods will narrow down to three: open operation and suture of the fragments by kangaroo tendon, the Albee sliding graft, or extension by the Steinman pin.

DISCUSSION

Dr. John B. Lowman, Johnstown: The success of the treatment of compound fracture lies in the primary dressing. Too much is done in the way of first aid. Convert the compound into a simple fracture before attempting any method of operation. Wipe off all the foreign material you can, paint with iodin, and put on the dressing. Our percentage of infections has become very low. A plate should not be put on a compound fracture.

Dr. William L. Estes, South Bethlehem: The indication in the compound fracture is, first, to provide for as nearly absolute drainage as possible. If the fluids which develop are dammed up, they will press on the blood vessels, and a thrombus develops, and, if it continues, a necrosis. The indication is to relieve that pressure as soon as possible and to prevent it. Remember that gauze is not a drain. I am not quite in accord with the dictum that metallic plates should not be used. I use them with the greatest satisfaction. I do not believe that absolute immobilization is necessary for union in fracture. I have seen delayed union caused from immobilization.

Dr. Edward Martin, Philadelphia: As a rule, a fracture unites in inverse proportion to the traumatism which has been inflicted. The greater the traumatism and the larger the exudate, the slower the union. There seems to be almost no constitutional condition which will either delay or interfere with union. We have had best results in cases of delayed union by the Bier condenser and by the simple common sense expedient of changing the treatment. Except in the operative cases we are not greatly troubled with non-union or greatly delayed union. In every case of fracture in which operation is performed, whether by kangaroo tendon, bone plates, pins, pegs, staples, screws or what not, unless there is some delay in union and the delay is proportionate to the traumatism inflicted on the end of the bone, we are to some extent led from the ideal of apposition.

Dr. G. F. Bell, Williamsport: In the large majority of cases, infection is due to the fact that the surgeon goes into the operative field before proper aseptic preparations have been made.

Abnormal Coagulation Time of the Blood, and Methods of Overcoming It

Dr. G. M. Dorrance, Philadelphia: Normal blood coagulates within fairly well defined limits. The factors concerned in normal coagulation of the blood are kinase, calcium, prothrombin, thrombin, fibrinogen, and fibrin. Kinase plus calcium plus prothrombin equals thrombin. Thrombin plus fibrinogen equals fibrin. Kinase and calcium are found in the cellular elements of the blood and all the tissues. Prothrombin is derived from placques and white blood cells, but its origin is unknown. Fibrinogen is derived chiefly from the liver. Any disturbance of these elements causes a change in the clotting time. Medication has little or no influence in changing the clotting time of normal blood. In all cases in which the coagulation time is lengthened, we must find the cause and attempt to correct the deficient element; for instance, if it is due to a lessened amount of calcium, we supply it; if due to any of the other elements, it is best remedied by the use of serum or transfusion. We should determine the coagulation time in all suspicious cases before doing any operative procedures.

DISCUSSION

Dr. Ernest Laplace, Philadelphia: In certain cases as long as eight or ten minutes are required for coagulation, and my rule has been to try to bring it down to three or four minutes before I thought it was quite safe to operate.

Dr. G. M. Dorrance, Philadelphia: Coagulation time in six minutes is perfectly satisfactory to us in certain instances. You have to qualify with what instruments you are using.

Tuberculous Abscesses

Dr. Charles W. Delaney, Altoona: Tuberculous abscesses should not be opened and drained. A mixed infection is immediately implanted, which sooner or later destroys life or causes a state of invalidism. Tuberculosis as a single infection never kills; it is the mixed infection, which produces pathologic changes in the internal viscera. Tuberculous abscesses should be aspirated and injected with a modifying solution under the most rigid aseptic operative technic. The technic of Calot in our hands has proved by far the most satisfactory of all methods. The formula of Calot's solution is: olive oil, 70 gm.; ether, 30 gm.; creosote, 5 gm.; guaiacol, 1 gm., and iodoform, 10 gm. Seven aspirations are made at ten day intervals, and at the last sitting a simple aspiration is done and a compress applied. The walls collapse and agglutinate.

Types of Pneumococci in Infants and Children

Dr. A. Graeme Mitchell, Philadelphia: Ninety children were studied; 11.1 per cent. showed Type I; 11.1 per cent. Type II; 3.3 per cent. Type III, and 74.4 per cent. Type IV. The mortality of infants and children infected with the fixed types (I, II, III) seems to be lower than in adults; with Type IV it is slightly higher (10.9 per cent.) than in adults. The fixed type occurs at all ages, the Type IV pneumococcus often causes as severe an infection as the fixed types. Type I seems to cause a mild infection. Type IV is the most frequent infecting organism in bronchopneumonia. Complications are more frequent with the Type IV infection. All the severe complications (empyema and meningitis) were in those infected with the Type IV pneumococcus.

Specific Treatment of Acute Lobar Pneumonia

Dr. Rufus Cole, New York: Clinical experience indicates that an immune serum effective against Type I pneumococci has great value. Immune serums against other types, however, are at present not of therapeutic importance.

The Curability of Certain Cases of Chronic Nephritis

Dr. Alfred Stengel, Philadelphia: Chronic nephritis is not at all a chronic disease in the sense that it is a process which, once initiated, through the impetus originally given goes on and on as a progressive malady. There is required a repetition of stimuli or of assault similar to or the same as the original one. There is evidence to show the relation of nephritis to infections, and the probability that repeated reinfections occasion a gradually increasing involvement of the kidneys. We have clinical evidence to show that removal of foci of infections is sometimes followed by an arrest of the disease, or if the condition is not too far advanced, complete disappearance of symptoms.

DISCUSSION

Dr. David Riesman, Philadelphia: There are some conditions in which the discovery of the focus of infection is the cure of the condition. This fact is not so well established for nephritis as it is for arthritis. Heredity should be considered in studying the etiology of nephritis. I have had under my care a child who had never been seriously ill but who died of chronic parenchymatous nephritis, evidently hereditary, since the father had had chronic interstitial nephritis. There are also cases wrongly labeled chronic nephritis because of the finding of albumin. A stone may be present which has given no classical symptoms but does cause irritation in the pelvis, perhaps of the kidney function, and gives albumin and casts. In a case of a boy of 8 years who had had scanty urine with albumin for three years, removal of the enlarged tonsils was considered inadvisable because of the apparently hopeless chronic nephritis. We took the tonsils out, however, and after three or four months the child began to improve, and he is in good health today.

Dr. George E. Hobtzapple, York: In cases of chronic interstitial nephritis in persons of 40 or 50 years of age, I have been impressed with the frequency with which I get the history of scarlet fever in childhood. Such persons apparently in good health suddenly develop symptoms of uremia. Examination of the blood pressure reveals hypertension; the urine is pale, abundant in quantity, and of low specific gravity with a few casts and perhaps a little albumin.

Some Phases of Chronic Colitis

Dr. Edwin Zugsmith, Pittsburgh: It is probable that the persistent showing of any amount of mucus justifies the diagnosis of colitis. Record has been made of a single evacuation of several pounds of mucus. Toxic materials entering the body because of the loss of the selective power of the colon in absorbing material cause anemia and nervous irritability often diagnosed as neurasthenia. Colitis is often a process secondary to infection of gums, teeth, throat and nasal sinuses, of the bronchial tubes, probably of the gallbladder, incompetent functionating power of the liver and pancreas, dietetic errors, and the abuse of laxatives. The relationship of colitis and appendicitis is very close. The tendency to progressive stasis about the cecum subsequent to appendectomy indicates the need of after-treatment in such cases, with particular attention to the colon. While colitis is often a secondary process, it may give rise to other conditions; some of the worst cases of inflammatory rheumatism undoubtedly have their origin in a diseased colon. Colitis is sometimes confused with other diseases, chiefly because the stool examination is omitted. Careful examination revealing tenderness in the right iliac fossa would often save the embarrassment of the mistaken diagnosis of appendicitis. Some cases of colitis are diagnosed ulcer of the stomach and duodenum on the history of pain after eating. The teaching that such pain means ulcer is fallacious. The proximity of the hepatic flexure to the gallbladder also confuses diagnosis. Colitis is often confused with neurasthenia through carelessness. The disease is essentially chronic. That it cannot be cured is a pessimism beyond justification. With proper food, hygiene and medication, many patients are cured and the majority are greatly improved. The most efficient guide against dietary errors is the frequent microscopic examination of the stools. Next in importance to diet in the treatment are hygienic regulations. Olive oil injected into the sigmoid at night, half a pint or more, and allowed to remain over night, aids more than any other remedy in overcoming constipation.

Chronic Intestinal Indigestion in Children

Dr. Robert K. Rewalt, Williamsport: Chronic intestinal indigestion is the most common ailment in children between the ages of 1 and 6 years. It will usually be found that the child has been fed improperly for some time. Treatment will give splendid results if the physician has the cooperation of the mother or nurse. The child should be kept in bed until the temperature remains normal for three or four days. A strict diet is the most important factor in treatment, consisting of milk and scraped beef or beef juice; four feedings a day may be given. A more liberal diet is instituted gradually. Intestinal irrigation is of much service in the presence of much mucus, and the fluid should be warm physiologic sodium chlorid solution, used once or twice a day. Of the intestinal antiseptics, salol and the *Bacillus bulgaricus* have been of great value in certain cases; but the *Bacillus bulgaricus* must be used where there is a tendency to acidosis. For the constipation, calomel and phenolphthalein, 1/10 grain of each, every half hour for ten doses, is admirable. This may be continued every week for as long as is necessary. The tincture of nux vomica is by far the best general tonic. The bitter wine of iron in connection with Fowler's solution is of value in cases in which the secondary anemia persists.

Value of the Roentgen Rays in the Diagnosis of Pulmonary Tuberculosis

Dr. Willis F. Manges, Philadelphia: Tubercles of macroscopic size, whether miliary or conglomerate, cast recognizable shadows on the plate. The presence of such shadows is essential to definite Roentgen diagnosis. The lesion in the depth of the lung is as easily recognized as one at the surface. This is not true of other methods of physical diagnosis. The roentgenogram furnishes the best record as to extent and gross character of the lesion at any time and frequently reveals the presence of tuberculosis when the disease has been overlooked clinically. Stereoroentgenograms of excellent quality are essential to negative diagnosis in any portion of the lungs.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July, XX, No. 1

1 Embryology of Bird's Lung. W. A. Locy and O. Larsell, Chicago.—p. 1.
2 Fusion of Cardiac Anlages and Formation of Cardiac Loop in Cat (Felis Domestica). H. von W. Schulte, New York.—p. 45.
3 Certain Cellular Elements in Celomic Cavities and Mesenchyma of Mammalian Embryo. V. E. Emmel, Chicago.—p. 73.
4 Genesis, Development, and Adult Anatomy of Nasofrontal Region in Man. J. P. Schaeffer, Philadelphia.—p. 125.

September, No. 2

5 Lachrymal Gland. J. Sundwall, Lawrence, Kan.—p. 147.
6 Experimental Mitochondrial Changes in Pancreas in Phosphorus Poisoning. W. J. M. Scott, Baltimore.—p. 237.

American Journal of Public Health, Boston

October, VI, No. 10

7 Plan for Education in Industrial Hygiene and Avoidance of Occupational Complaints. J. W. Schereschewsky, Washington, D. C.—p. 1031.
8 Methods and Results in Instruction in Personal Hygiene—Prospect of Improving Expectation of Life in Middle Age. E. C. Howe, Boston.—p. 1039.
9 Study of Methods for Determining Air Dustiness. G. T. Palmer, L. V. Coleman and H. C. Ward, New York.—p. 1049.
10 Control of Communicable Diseases in Schools. S. J. Baker, New York.—p. 1078.
11 West Virginia Flood of August 9, 1916, and Health Relief Measures. M. Tolman.—p. 1083.
12 Six Months of Harrison Act. C. E. Terry, Jacksonville, Fla.—p. 1087.
13 Grading of Milk in Small Communities. L. R. Williams, New York.—p. 1093.
14 Rôle Played by Public Health Nurse in Control of Communicable Diseases. C. J. Hastings, Toronto, Canada.—p. 1100.
15 What Ohio Is Doing to Conserve Life in Industries. V. T. Noonan.—p. 1102.
16 Scarlet Fever During 1915 in Philadelphia. M. Ostheimer, Philadelphia.—p. 1104.
17 Some Practical Methods of Bacteriologic Water Analysis and Results Obtained. A. V. Graf and A. G. Nolte, St. Louis.—p. 1109.

Arkansas Medical Society Journal, Little Rock

October, XIII, No. 5

18 Carriers and Epidemics. C. W. Garrison, Little Rock.—p. 91.
19 Dysentery. T. F. Hudson, Luxora.—p. 95.
20 Maxillary Sinusitis. W. T. McCurry, Little Rock.—p. 100.

Boston Medical and Surgical Journal

October 26, CLXXV, No. 17

21 Anterior Poliomyelitis. A. J. McLaughlin, Boston.—p. 587.
22 *Occurrence and Diagnosis of Pericarditis. E. A. Locke, Boston.—p. 590.
23 *Frequency of Epilepsy in Offspring of Epileptics. D. A. Thom, Palmer.—p. 599.
24 Artificial Heliotherapy; Mercury-Vapor-Quartz Light Valuable Therapeutic Agent. J. Bryant, Boston.—p. 600.
25 Treatment of Obesity by Rational Diet. E. E. Cornwall, Brooklyn.—p. 601.
26 Streptococcus Mucosus Capsulatus as Cause of Mastoid Disease; Report of Cases. G. Bacon, New York.—p. 602.
27 Case of Double Empyema Successfully Operated. F. B. Lund and H. Morrison, Boston.—p. 606.

22. **Occurrence and Diagnosis of Pericarditis.**—A study of the necropsy reports at the Boston City Hospital for the past nineteen years together with the clinical records of the same cases was made by Locke. The total number of postmortem sections made was 3,683. Acute lesions of the pericardium were described in 150, and chronic lesions in 209 instances. Exclusive of these 359 cases of true pericarditis, 88 showed milk patches in the pericardium. Acute endocarditis was described in 185, or 5 per cent., and chronic endocarditis in 462, or 12.6 per cent. Locke examined all the clinical records of the 150 cases of the acute form. In only 27 instances, or 17 per cent., is there any clear evidence in the clinical notes of the presence of disease of the pericardium. There were 17 cases, with an effusion of 200 c.c. or more, the amount varying from this minimum to a maximum of 1,000 c.c.

In the group of acute cases the largest number are of the so-called fibrinous type although the fibrinous, serofibrinous, purulent and adhesive forms are found with about equal frequency, the limits being 21.33 and 28 per cent. The serofibrinous, purulent and hemorrhagic, recognized clinically as pericarditis with effusion, together represent 50.7 per cent. of the total acute cases. Among the chronic types the serofibrinous and adherent forms distinctly predominate. This last mentioned group comprises approximately 46 per cent. of the total. In the 150 cases of acute pericarditis rheumatism was evident as the primary disease only twice. Pneumonia was the cause in 63 cases; empyema in 6; tuberculosis in 7; local or general sepsis in 28; nephritis in 16; meningitis in 3; not determined in 17 cases.

23. **Frequency of Epilepsy in Offspring of Epileptics.**—That epilepsy is less often transmitted directly from parent to offspring than has heretofore been believed is the conclusion reached by Thom from a study of thirty-three cases.

Georgia Medical Association Journal, Augusta

October, VI, No. 6

28 Diagnosis of Duodenal Ulcer. G. M. Niles, Atlanta.—p. 99.
29 Roentgenogram in Diagnosis of Renal Calculus. C. D. Cleghorn, Macon.—p. 103.
30 Cutaneous Manifestations of Syphilis. M. B. Hutchins, Atlanta.—p. 105.
31 *Two Cases of Tetanus Treated with Antitetanic Serum and Magnesium Sulphate; Recovery. L. C. Fischer, Atlanta.—p. 108.
32 Puerperal Septicemia. R. L. Rogers, Fairmont.—p. 110.
33 Brotherhood of Physicians. J. L. Weddington, Dublin.—p. 111.

31. Abstracted in The Journal, May 6, p. 1490.

Indiana State Medical Association Journal, Fort Wayne

September, IX, No. 9

34 *Uronephrosis; Its Significance and Detection. H. O. Mertz, Laporte.—p. 351.
35 Sequelae of Oral Foci of Infection. C. D. Lucas, Indianapolis.—p. 361.

34. Abstracted in The Journal, Nov. 20, 1915, p. 1846.

Journal of Immunology, Baltimore

October, I, No. 5

36 Cutaneous Reaction in Canine Distemper. J. A. Kolmer, M. J. Harkins and J. Reichel, Glenolden, Pa.—p. 501.
37 *Antibody Production by Typhoid Vaccines. H. W. Stoner, Baltimore.—p. 511.
38 Can Specific Neurotoxin Be Obtained from Corpus Striatum? L. M. Moore, San Francisco.—p. 525.
39 Action of Amido-Acids, Peptids and Proteins on Hemolysis by Cobravenom. E. Zunz and P. György, Brussels.—p. 531.
40 Relation of Bronchisepticin Skin Reaction to Immunity in Canine Distemper Including Bactericidal Action of Dog Serum for B. Bronchisepticus. J. A. Kolmer, T. Matsunami and M. J. Harkins, Glenolden, Pa.—p. 571.

37. **Antibody Production by Typhoid Vaccines.**—Stoner concludes from his experiments that as measured by the production of agglutinin, bacteriolysin and opsonin, sensitized vaccine possesses no distinct advantage over nonsensitized vaccine in the production of prophylactic typhoid immunity. The reactions following the injections of prophylactic typhoid vaccine are about the same with both the sensitized and nonsensitized product. Owing to lack of concrete evidence that prophylactic typhoid immunity is due wholly to phagocytic activity, and that sensitized vaccine produces an increased phagocytosis, the author shall still continue to recommend the use of nonsensitized vaccine.

Journal of Infectious Diseases, Chicago

November, XIX, No. 5

41 *Specificity of Abderhalden Reaction with Vegetable Proteins. O. J. Elsesser, Chicago.—p. 655.
42 *Complement Content of Eck-Fistula Dogs. N. P. Sherwood, C. Smith and R. West, Lawrence, Kan.—p. 682.
43 *Permeability of Gastro-Intestinal Wall to Infection with Sporothrix Schenckii. D. J. Davis, Chicago.—p. 688.
44 Relation of Allantoin Excretion to Leukopenia and Leukocytosis in Rabbits. O. H. P. Pepper and T. G. Miller, Philadelphia.—p. 694.
45 *Laboratory Infection Caused by Bovine Strain of Bacillus Enteritidis. K. F. Meyer, San Francisco.—p. 700.
46 Virulent Salt Solution Used in Production of Hog-Cholera Serum. W. S. Robbins, East Lansing, Mich.—p. 708.
47 *Etiology of Fibromyoma of Uterus. A. H. Curtis, Chicago.—p. 712.
48 *Case of Anthrax. G. G. Reinle and R. A. Archibald, Oakland, Calif.—p. 718.
49 Comparison of Rate of Multiplication of Bacteria in Raw Milk with Rate in Pasteurized Milk. P. W. Allen, Urbana, Ill.—p. 721.
50 Experimental Studies with Endameba Gros. F. Hecker, Kansas City, Mo.—p. 729.
51 *Culture Media for Gonococcus. T. Watabiki, London.—p. 733.

41. **Specificity of Abderhalden Reaction with Vegetable Proteins.**—It is demonstrated by Elsesser that the specificity of the Abderhalden reaction (dialysis method) in experimental animals (rabbits) immunized with pure isolated vegetable proteins is far from being absolute. In comparing the results obtained by the Abderhalden test with those obtained by anaphylaxis, by Wells, Osborne and Lake, using the same pure vegetable proteins in each case, it was found that the results present certain resemblances, but also often definite differences. In either reaction the more closely the proteins are allied chemically and physically, the less specific the reactions tend to become. On the whole, however, the results obtained by anaphylaxis are much more constant and specific.

42. **Complement in Eck-Fistula Dogs.**—The main result of this study appears to be the fact that there does not seem to be sufficient evidence, as yet, to warrant the assumption that the liver plays a more important rôle in the production of complement than do other organs or tissues of the body.

43. **Permeability of Gastro-Intestinal Wall to Sporothrix.**—Feeding this organism to rats, Davis found that it penetrates the normal mucosa of the intestinal tract, although no lesions active or healed were visible in the mucosa or in the wall of the stomach or intestines.

45. **Laboratory Infection with Bacillus Enteritidis.**—This paper presents clinical, bacteriologic and serologic observations of an accidental laboratory infection. A young man who apparently was predisposed to the infection on account of a chronic mucous colitis developed a severe gastro-enteritis ten hours after having handled a bottle of sterilized milk which was artificially contaminated with a culture of *Bacillus enteritidis* (Gärtner). The strain responsible for the infection had been isolated from the heart blood of a calf which had succumbed to infectious diarrhea. Evidence is presented to show that a recently isolated strain of *B. enteritidis* pathogenic for animals may differ from a strain pathogenic for man in its inability to be coagglutinated by paratyphoid or suipestifer serums.

47. **Etiology of Fibromyoma of Uterus.**—Attempts to secure cultures were made by Curtis with selected material from eighty patients with uterine fibroids. This material consisted of juices obtained by means of a meat crusher, and by grind-

ing. Forty-five specimens yielded no growth and twenty-two more were essentially negative. Thirteen gave positive findings. In six of these the endometrium was studied with positive results in two cases, and negative results in four. In two instances in which the patients had suffered from previous pelvic infection the diseased tissues were ground and cultured in a search for growth similar to that obtained from the fibroids. The mediums remained sterile. Diphtheroid bacilli, streptococci and small gram-positive bacilli were most often found. None of these exhibited virulence for animals. There was no tendency to produce new growth in the uteri and other pelvic organs of animals inoculated. A causal relationship between bacterial invasion of the uterus and the development of fibroid tumors was not evident; the small percentage of cases which yielded growth, the considerable variety of the bacteria isolated, and the lack of pathogenicity for inoculated animals, permit no other deduction.

48. **Case of Anthrax.**—This case is remarkable in that there were in all five pustules on the patient's arm, and excision, which most authorities believe to be the classical method of treatment, was not resorted to. Antianthrax serum, it appears, played an important rôle in bringing about recovery. Following the first dose of serum all the lesions became less progressive in appearance, and the progress of the fifth pustule, which appeared on the day treatment was commenced, was arrested immediately. Furthermore, the temperature curve seems to have been influenced by something other than the patient's own reactive powers; it gradually ascended until it reached the maximum of 103 F. thirty-six hours after the use of the antianthrax serum had been commenced, and then decreased as immunity and convalescence became established, reaching normal in about eighty-four hours. Another interesting point is that on the seventh day after the serum treatment had been commenced, smears and cultures from secretions underneath the crusts, which were raised to permit drainage, failed to reveal the presence of the anthrax bacillus or of any other infection. Coincident with improvement in the patient's condition the eosinophils became a factor in the blood picture. With signs of relapse due to drainage of secretions from the pustules into the neighboring subcutaneous tissue, the eosinophilia disappeared. When this situation was relieved, the eosinophilia reappeared and then gradually subsided as convalescence progressed.

51. **Culture Media for Gonococcus.**—Watabiki has used as a substitute for blood agar the following medium: 200 c.c. of cow's milk are warmed to 60 C. and 5 per cent. ascitic agar is added drop by drop, the milk being shaken to cause precipitation of the casein. It is then filtered through filter paper. To the filtrate is added 10 per cent. caustic soda solution up to the point of slight alkalinity, and then 2 gm. of urea. The clear colorless fluid is sterilized at 60 C. for thirty minutes every day for three days. The sterilized fluid is then mixed with melted 0.3 per cent. nutrose agar at 45 C. in the proportion of 1 part of the fluid to 2 parts of agar. Plate or slant forms are prepared as needed. The medium must be incubated before use to make sure that no microorganisms have gained access during preparation. When fluid mediums are needed, equal parts of the fluid and of ordinary broth or peptone water are mixed. It is very necessary that the fluid should not be heated above 70 C., as unsatisfactory results frequently follow the use of the fluid heated at a higher temperature. For the precipitation of casein the amount of acid is not constant, the different samples of milk undoubtedly varying in quality.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

October, XLIX, No. 4

52 *Obstetric Paralysis. J. J. Thomas and J. W. Sever, Boston.—p. 289.
53 *Convulsive Spasm of Face Produced by Cerebellopontine Tumors. H. Cushing, Boston.—p. 312.
54 *Facial Diplegia in Multiple Neuritis. H. T. Patrick, Chicago.—p. 322.

52 and 54. Abstracted in The Journal, June 17, p. 2036.
53. Abstracted in The Journal, June 10, p. 1886.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

October, IX, No. 1

55 *How Rapidly Does Intact Thyroid Elaborate Its Specific Iodin Containing Hormone? D. Mariné and J. M. Rogoff, Cleveland.—p. 1.
56 *Antagonism Between Atropin and Certain Central Emetics. C. Eggleston, New York.—p. 11.
57 *Elimination of Strychnin by Kidneys. R. A. Hatcher and M. I. Smith, New York.—p. 27.
58 *Pharmacology of Aconitum Heterophylloides, A. Nagarum and A. Napellus. T. R. Fraser, Edinburgh.—p. 43.
59 Effect on Tadpoles of Feeding Thyroid Products Obtained by Alkaline Hydrolysis. J. M. Rogoff and D. Marine, Cleveland.—p. 57.

55. **How Rapidly Does Intact Thyroid Elaborate Its Specific Iodin Containing Hormone?**—Marine and Rogoff found that following the injection of 50 mg. of potassium iodid into the circulation definite histologic changes (always involutionary) can be detected within twenty hours in favorable cases. The more marked the hyperplasia the more readily they are detected. Definite differences in the pharmacologic activity of control and iodized thyroid lobes can be detected as early as the eighth hour. This difference becomes well marked by the twentieth hour. These facts indicate that morphologic changes are closely related in time and dependent on the elaboration of the iodin containing hormone and that the generally held view that involutionary changes in the gland are the results of a decrease in functional activity of the thyroid cells and a storage and an increase of the pharmacologically active principle—the iodin containing hormone—in the gland is essentially correct. The storage of iodin in the thyroid from salts of this element is practically instantaneous, while the elaboration of the hormone is slow. Variations in the rate of formation of the active substance when taken in connection with the normal occurrence of iodin in the thyroid in both an active and an inactive form suggest the physiologic importance of the mother substance with which the iodin is combined.

56. **Antagonism Between Atropin and Emetics.**—It is claimed by Eggleston on the basis of experimental study that atropin and hyoscyamin are capable of antagonizing the vomiting produced in dogs by some central emetics—pilocarpin and nicotin—and are incapable of antagonizing that of other central emetics—morphin, apomorphin, aconitin, emetin and ouabain. The antagonism of atropin or hyoscyamin toward the emetic action of pilocarpin and nicotin is not of a chemical nature, but is physiologic and takes place on the center. The observations suggest a complexity of the vomiting center including at least two different points of action, or sets of receptors, for chemical stimuli. The one is stimulated by pilocarpin and nicotin and depressed by atropin. The other is stimulated by morphin, etc., but not by pilocarpin and nicotin and is not depressed by atropin.

57. **Elimination of Strychnin by Kidneys.**—Strychnin often appears in the urine within a few minutes after its administration, but only in the merest traces, and Hatcher and Smith caution that one should distinguish sharply between this prompt appearance of the merest traces and the rapid rate of elimination that accompanies excessive diuresis. Large doses of strychnin sulphate may be injected intravenously into dogs without the appearance of more than traces in the absence of copious diuresis within periods of two and a half to five and a half hours. In every one of seventeen experiments on dogs in which diuresis was actively induced the strychnin was eliminated at a relatively rapid rate by the kidneys, but nevertheless, in none of the fourteen experiments in which the amount of strychnin administered exceeded the average fatal dose by 20 per cent. or more was the amount eliminated in the urine during copious diuresis equal to the excess over the average fatal dose—in other words, the renal elimination alone was never sufficient to save the animal's life.

The authors suggest that it is possible that diuresis may contribute to the successful therapeutic treatment in those cases in which the amount taken is only slightly in excess of the minimal dose that would be fatal in the absence of treatment, or in cases in which the absorption of the poison is ery slow, but it must play a minor rôle in the treatment of oisoning in cases in which very large doses of strychnin ave been taken and in such cases artificial respiration and eneral anesthesia with ether and chloroform must continue o be the chief reliance. Hydrated chloral would seem to e contraindicated in such cases because of its tendency to xert its depressant action after the need for it has ceased.

58. **Pharmacology of Aconitum Heterophylloides.**—Fraser's xperiments indicate that *A. heterophylloides* and, probably, *nagarum* contain a preponderance of pseudo-aconitin, r a similarly acting alkaloid, whereas *A. napellus* contains preponderance of aconitin.

Journal-Lancet, Minneapolis

October 15, XXXVI, No. 20

60 *Fundamental Principles Underlying Treatment of Heart Disease. C. L. Greene, St. Paul.—p. 587.
61 Chlorin as Therapeutic Agent. M. B. Haldorson, Souris, N. D. —p. 596.
62 Infection Theory of Preeclamptic Toxemia and Eclampsia. R. T. La Vake, Minneapolis.—p. 600.

60. **Treatment of Heart Disease.**—The general attitude of medical men toward especially serious or apparently hopeless cases of cardiovascular disease, traditional attitude of hopelessness, Greene says, leads to the abandonment of many cases long before such a step is necessary, and involves the loss of many opportunities to win a victory in the face of what may seem certain defeat. Quite as striking, and no less disastrous, is the assumption that little can be done for the disease of the primary degenerative type which occur in elderly people. Many a fine old gentleman is permitted to drift along with steadily but almost imperceptibly failing faculties and strength when a little care and treatment at the proper time, and repeated as may be necessary, will greatly prolong his life, and for considerable periods retard the sequelae of the senile degenerative processes. Greene states emphatically that at the present time the cardiopath is not receiving at the hands of medical men either the comfort or the length of days readily obtainable in a great majority of instances by the intelligent application of modern methods of diagnosis and treatment.

Nebraska State Medical Journal, Omaha

October, I, No. 4

63 Uterine Cancer. E. B. Brooks, Pawnee City.—p. 99.
64 Deep Roentgen Therapy. A. F. Tyler, Omaha.—p. 103.
65 Roentgen-Ray Immunity. F. H. Kuegle and M. G. Wohl, Omaha. —p. 106.
66 Practical Roentgen-Ray Pointers. W. H. Mick, Omaha.—p. 109.
67 Cranial Fractures from Standpoint of Neurologist. G. A. Young, Omaha.—p. 112.

New York Medical Journal

October 21, CIV, No. 17

68 Medical Treatment of Goiter. J. M. Anders, Philadelphia.—p. 773.
69 Early Diagnosis of Tuberculosis. E. O. Otis, Boston.—p. 775.
70 Removal of Third Lobe of Cystic Goiter. A. E. Gallant, New York.—p. 778.
71 Focal Points of Infection. N. P. Barnes, Washington, D. C.—p. 779.
72 Laryngeal Abscess; Report of Three Cases. M. J. Ballin, New York.—p. 781.
73 Leiomyoma of Pylorus. J. R. Eastman and H. K. Bonn, Indianapolis.—p. 785.
74 Gravid Uterus Duplex. W. R. Jackson, Mobile, Ala.—p. 788.
75 Tuberculosis of Bronchial Lymph Nodes. M. E. Lapham, Highlands, N. C.—p. 789.
76 Pyorrhea Alveolaris. R. G. Hutchinson, Jr., New York.—p. 795.
77 Chauffeur's Fracture of Radius. A. C. Burnham, New York.—p. 797.
78 Pseudoscarlatina. B. Frankel, New York.—p. 799.

New York State Journal of Medicine

October, XVI, No. 10

79 *Results of Cranial Decompression in Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage. W. Sharpe, New York.—p. 475.
80 Types of Cerebral Defect in Children That May Be Benefited by Operation. H. G. Matzinger, Buffalo.—p. 484.
81 *Vision of Schoolchild. P. Lewis, Buffalo.—p. 486.
82 Therapeutic Importance of Scientifically Conducted Health Resort. W. B. James, New York.—p. 489.
83 Scope of Practicable Examination in Routine School Medical Inspection. C. P. McCord, Albany.—p. 493.
84 Diagnosis and Treatment of Ureteral Calculi. E. Beer, New York.—p. 501.
85 Diagnosis of Renal Tuberculosis. T. F. Laurie, Auburn.—p. 503.
86 Contract Practice. J. V. Woodruff, Buffalo.—p. 507.
87 *Postoperative Ventral Hernia. E. MacD. Stanton, Schenectady.—p. 511.
88 Education of Health Officers. F. Overton, Patchogue.—p. 515.
89 Roentgenography of Mastoid. F. M. Law, New York.—p. 517.

79. **Cranial Decompression in Cerebral Spastic Paralysis.**—This paper is a report of the operative treatment of 219 selected cases of spastic paralysis showing intracranial pressure both by an ophthalmoscopic examination and the measurement of the pressure of the cerebrospinal fluid at lumbar puncture; these operated patients up to April 1, 1916, are the ones selected as being suitable for the operation from the examination of 954 cases of spastic paralysis, that is, one in about every four cases examined. The operations which have been used in the past and are still being used to improve the conditions of spastic paralysis, namely, tenotomies, tendon lengthenings, sections of the posterior nerve root, alcohol injections of peripheral nerves, nerve resections and other operations, are, in Sharpe's opinion, of only temporary benefit, and he says he has yet to see a case in which the spasticity has not returned, in some degree, within one year. In all of his cases treated by the operations just mentioned during the past two and one-half years, the spasticity began to reappear within one year after operation.

The improvement in cases selected for operation has been so marked—not only a lessening of the spasticity, but a definite amelioration of the mental condition of the patient—and Sharpe believes a cranial decompression is indicated in those cases of spastic paralysis showing an increased intracranial pressure by the ophthalmoscopic examination and confirmed by a measurement of the pressure of the cerebrospinal fluid at lumbar puncture. Of the 954 cases of spastic paralysis examined, about 26 per cent. have shown signs of intracranial pressure, and are, therefore, patients that can be very much improved.

81. Abstracted in The Journal, June 3, p. 1815.

87. **Postoperative Ventral Hernia.**—Following the 500 laparotomies analyzed by Stanton there developed twenty-four hernias. Of these operations 456 were performed through midline or rectus incisions followed by twenty-one hernias. Each of these twenty-one hernias developed as the direct result of an insufficiently firm union of the fascia layers lying anterior and posterior to the rectus muscles. Stanton emphasizes the fact that in rectus and midline, and also in kidney incisions, it is the fascia which must be relied on to give permanent security to the scar. The technic which gives the best union of the divided fascia layers will give the fewest hernias. The fascia of the posterior sheath is the first line of defense. Suturing the peritoneum does not necessarily mean that the fascia is also sutured. In the case of rectus and midline incisions unless excessively large drains are employed the prognosis as regards subsequent hernia after the use of drainage will depend on the character of fascia union obtained in the sutured portion of the wound.

Ohio State Medical Journal, Columbus

October, XII, No. 11

90 Medical Side of Glaucoma. A. Knapp, New York.—p. 663.
91 Closure of Large Breast Wounds. J. L. Ransohoff, Cincinnati.—p. 666.
92 Castration by Patient; Report of Case. J. W. Fitch, Portsmouth.—p. 669.
93 Plea for Electrocautery in Treatment of Laryngeal Tuberculosis. S. Iglauer, Cincinnati.—p. 670.
94 Dual Personality. C. W. Stone, Cleveland.—p. 672.
95 Some Diseases Resulting from Infection of Mouth and Upper Air Passages. A. H. Herr, Lima.—p. 674.
96 Indications and Value of Gastric Lavage as Therapeutic Agency. E. S. Jones, Painesville.—p. 677.

Tennessee State Medical Association Journal, Nashville

October, IX, No. 6

97 Some Features of History Taking. W. H. Witt, Nashville.—p. 229.
98 Etiology of Tuberculosis. C. A. Robertson, Ridgetop.—p. 234.
99 Dacryocystitis as Predisposing Cause of Corneal Ulcers. L. M. Scott, Jellico.—p. 238.

100 *Treatment of Hip Disease. A. G. Nichol, Nashville.—p. 242.
101 Prostatic Problem. G. P. Zirkle, Kingston.—p. 244.
102 *Analysis of One Hundred Consecutive Cases of Appendicitis Operated on at Newell Clinic. E. D. Newell, Chattanooga.—p. 246.
103 *Tuberculosis of Colon. W. C. Dixon, Nashville.—p. 248.
104 Cooperation with Proprietary Preparations. K. S. Howlett, Franklin.—p. 250.
105 Senile Prostatic Hypertrophy. H. L. Fancher, Chattanooga.—p. 253.
106 Surgical Treatment of Some Tubercular Conditions. W. B. Burns, Memphis.—p. 254.

100 and 102. Abstracted in The Journal, April 22, pp. 1348 and 1349.

103. Abstracted in The Journal, April 22, p. 1347.

Vermont Medicine, Rutland

September, I, No. 9

107 *Surgery of Thyroid. C. A. Porter, Boston.—p. 249.
108 Some Features of Epidemic Poliomyelitis. C. S. Caverly, Rutland.—p. 260.

107. **Surgery of Thyroid.**—Of eighty-five patients operated on by Porter, twenty are absolutely cured; eighteen much improved; thirteen improved; four not improved and are requiring further operation; sixteen have not reported or done so in too general terms to be valuable for statistics. If then, Porter says, a patient has had a reasonable course of rest, medical treatment and Roentgen-ray treatment (if this proves to be really and permanently satisfactory) and the symptoms persist, operation should be advised. Among wage-earners who cannot give up the time, and in the chronic cases in which the disease has advanced too far to allow of delay, after preliminary rest, operation should be performed. Whether this be a preliminary ligation or lobectomy under local or general anesthesia must be determined in each case. Finally, in chronic cases in which there is doubt as to whether the patient is suffering from existing toxemia or has been poisoned irreparably by the disease, modern tests, of which basal metabolism is probably the most important, will aid the surgeon much in deciding for or against operation.

Wisconsin Medical Journal, Milwaukee

October, XV, No. 5

109 Symptoms and Diagnosis of Accessory Sinus Diseases. A. G. Kreutzer, Milwaukee.—p. 142.
110 General Considerations in Treatment of Fractures. H. Reineking, Milwaukee.—p. 145.
111 Infantile Paralysis; Its Management from Standpoint of Orthopedist. F. J. Gaenslen, Milwaukee.—p. 148.
112 Blood Sugar. J. P. Canavan and A. W. Dahlstrom, Milwaukee.—p. 151.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 7, II, No. 2910

1 *Simple Modification of Guillotine or Flapless Method of Amputation. Forceps Tourniquet. J. L. Thomas.—p. 481.
2 *Intraspinal Treatment of Syphilis of Central Nervous System; Report of Cases. A. R. Robertson.—p. 482.
3 *New Ulcerative Dermatomycosis. A. Castellani.—p. 486.
4 Further Experiments on Ascaris Infection. F. H. Stewart.—p. 486.
5 *Vaccine in Mediastinal Actinomycosis. W. S. Malcolm.—p. 488.
6 *Postmortem Findings in Case of Exophthalmos of Long Standing Originally Due to Exophthalmic Goiter. R. Mackinnon.—p. 488.
7 Universal Leg Frame, Splint and Cradle Combined. M. J. Chevers.—p. 489.

1. **Emergency Amputations in Military Surgery.**—The modification which appeals to Thomas is that which consists in making two lateral incisions through the apparently healthy soft tissues right down to the bone. The upper or proximal extensions of the lateral incisions are determined by the point at which sufficient soft tissues can be obtained to give ample covering for the bone. The main indications are speed and simplicity. The following are the essential points in carrying out the circular amputation with lateral incisions: The level at which the section of the bone is to be made must first be determined. The proximal ends of the lateral incisions begin at this determined point, and are carried down to the bone and continued toward, or into, the damaged tissues. A clean knife must be used for each lateral incision if available; if not, the knife should be thoroughly wiped and sterilized by flame. The soft tissues are then divided by one clean sweep down to the bone after the manner of the old circular method. The two flaps thus produced by the combination of the circular and the lateral incisions are retracted and the bone is sawn through at the level previously determined. The vessels are ligatured with silkworm gut or catgut, not thread or silk, for fear of sepsis in the wound. The flaps are then forcibly pulled down, forming a funnel-shaped cavity in which the muscles are not in apposition. This cavity is firmly packed with sufficient gauze wrung out of Wright's hypertonic salt solution or Dakin's fluid so as just to allow the flaps to meet firmly over the packing. The flaps are secured in position by three strips of self-adhesive strapping and the ends of the gauze are allowed to project at each corner through the lateral incisions. The stump is then covered with a dressing of sterile gauze and a bandage. The ordinary rubber drainage tubes, whether large or small, must not be used. In some cases, but only rarely, a few interrupted sutures of silkworm gut may be inserted to reinforce the strapping, but they should be quite slack.

2. **Syphilis of Central Nervous System.**—Of the eight cases reported by Robertson, two showed early, and in one slight, involvement of the central nervous system within a year of the primary infection. Each had received during the secondary period a single injection of salvarsan, followed by maximal doses of mercury by mouth, without, however, preventing the onset and progressive involvement of the central nervous system. A single combined treatment by intravenous salvarsan and intraspinal salvarsanized serum in the eighth case sufficed to clear up the leukoplakia on the tongue and convert the pathologic spinal fluid into a normal fluid. In one case a progressing nerve deafness was arrested, hearing restored to approximately the normal, the eye condition much improved, and the headache and nervousness abolished. The general health was also markedly improved, so that he was able to enlist for active service. The spinal fluid became negative to the Wassermann reaction. The other six cases were all of long duration, and showed various manifestations of the disease. In all the general health was markedly improved, and in cases in which headache and nervousness were present they disappeared. Shooting pains, present in three cases, were abolished. In all but one of the six cases, eye changes—usually inequality of pupils—were improved. In one case of early tabes dorsalis the atonic bladder recovered, and the anesthesia of hands and feet was remarkably improved. In seven cases the butyric acid test (Noguchi) for globulin was diminished to a faint reaction, and in one it was entirely abolished. The Wassermann reaction became negative in six of the cases.

3. **New Ulcerative Dermatomycosis.**—The fungus isolated by Castellani belongs to the hyphomycetes or *Fungi imperfecti*, and is of somewhat difficult classification. It is proposed to include it in the genus accladium, at least temporarily, and call it *Accladium castellanii.* The microscopic appearance on culture media (Sabouraud's agar, carrot) recalls somewhat the appearance of *Cladosporium herbarium*, with the difference that the colonies are whitish and amber yellow instead of being greenish black. The growth consists of many small roundish masses which later on often coalesce, covered by spiculated formations consisting of erect, straight filaments parallel to each other or at times interlacing. These filaments are approximately 2 microns in diameter and carry laterally pseudoconidia of variable shape, cylindriform, piriform, or spherical, attenuated in size at their points of insertion. Most of these pseudoconidia are 4 microns long with a breadth of 3 microns. These pseudoconidia become detached and then develop by sprouting, and mycelial filaments are formed. Certain filaments produce spherical chlamydospores arranged in small strings as found in certain fungi of the genus *Fusarium.* These small chains of chlamydospores are very frequently terminal, the dimensions being variable—8 to 10 microns.

In a well marked case ulcers are seen practically all over the body, though on the face, scalp, palms and soles they are in small numbers or altogether absent. The ulcers are generally sharply defined, roundish or oval, with red granulating fundus. In certain cases there may be abundant purulent secretion, and the ulcers are often covered by thick yellow crusts. Gumma-like nodules and furuncle-like lesions may also be observed. Some of the superficial lymph glands are often enlarged. The lesions are not as a rule very painful, and there is little or no itching. The general condition of the patient is not seriously affected for a long time, but he often complains of weakness, general discomfort and is unfit to attend to his work. Occasionally there is serotine temperature. In two cases in which the blood was investigated red blood corpuscles and hemoglobin were slightly below the normal, and in one case there was eosinophilia (5 per cent.). The urine did not contain either albumin or sugar. The course of the disease is long, and if left untreated there is apparently not much tendency to spontaneous cure. Potassium iodid should be given in full doses, 20 grains three or four times daily. The drug appears to act better if the patient is given a salt-free diet. As regards local treatment, it is sufficient to keep the ulcers clean by dressing them with weak mercury perchlorid lotion. Ointments are badly borne in most cases.

5. **Vaccine in Mediastinal Actinomycosis.**—Though a radical operation involving rib resection had been successfully performed in Malcolm's case two years before, and iodid in maximum doses was swallowed month after month and pound after pound, two sinuses continued to discharge, one of which was connected with a nodule on the pericardial surface. Treatment was started by weekly subcutaneous injections of 2½ million actino-fragments. The dose was gradually increased up to 10 million. The latter was an overdose. Ultimately 4 or 5 million was found to be an effective dose without bad effects, and this quantity was continued till about fifty doses had been given. The discharge soon lessened, the sinuses healed, the nodule in time could not be made out, and a "fulness" present in the parts disappeared.

6. **Exophthalmos of Long Standing Due to Exophthalmic Goiter.**—All the other symptoms of exophthalmic goiter had disappeared in Mackinnon's case, but the exophthalmos remained to a marked degree. The thyroid was normal in size, colloid appeared rather deficient. The two chief abnormal features recognized in microscopic sections of the gland were a marked vascularity and an increase of the glandular tissue at the expense of the colloid. The acini varied a good deal in size, and were lined with cubical or columnar cells, both being represented in one acinus in many places. The cubical cells predominated. The cells of columnar shape stained more heavily with hematoxylin and had the appearance of more recently formed elements. The thymus was persistent but small. The spleen was normal. A small accessory spleen was present. The pituitary and suprarenal glands showed no macroscopic lesions, and were normal in size and texture. There was no enlargement of the lymphatics, and the cervical ganglia showed no change. The heart was normal, and there was no thickening, hardening, or dilatation of the blood vessels. On removing the supraorbital plates nothing unusual was found. Owing to the protrusion of the eyeballs, the retro-orbital space was abnormally deep. This space was filled with fat. Pneumonia was the cause of death.

Edinburgh Medical Journal

October, XVII, No. 4

8 Histology of Disseminated Sclerosis. J. W. Dawson.—p. 229. To be continued.
9 *Acute Intestinal Obstruction. A. Miles.—p. 241.
10 Acute Generalized Tuberculosis. A. F. Hewat.—p. 251.
11 Case of Amebic Abscess of Liver. H. L. W. Wemyss.—p. 255.

9. **Acute Intestinal Obstruction.**—Twenty-four cases of obstruction due to bands in which Miles operated are analyzed. In four cases an isolated process of the great omentum had formed an adhesion at its free end and constituted the band which strangulated the bowel. In one case the fallopian tube and broad ligament formed the band. Only in one case was a Meckel's diverticulum the cause of obstruction. The terminal ligament of the diverticulum was attached to the umbilicus. In other cases the following bands were found: I. A short, broad band was found attached at one end over a calcified gland in the mesentery, and at the other to the convex border of the immediately adjacent small intestine. II. A band sprang from the mesentery and was attached to the distal side of an adjacent coil in such a way that its contraction folded the bowel over on itself and occluded it. III. A fibrous cord arose from a calcified gland in the mesentery on one side of the bowel, and passed circumferentially across to become attached again to the mesentery at a point directly opposite this, forming a ring round the intestine, about 3 inches from the ileocecal junction. IV. A band was attached to the convex border of two adjacent coils of small intestine and an intermediate loop slipped under it and was strangulated. V. A mesenteric band, in addition to ensnaring a loop of small intestine, so dragged on the portion of bowel to which it was attached as to kink it, and so cause a double obstruction. VI. The loop that happened to pass under a band had its two limbs bound to one another by firm fibrous adhesions which were evidently of long standing. VII. A week after an appendectomy the abdomen had to be opened to relieve an obstruction of the jejunum due to inflammatory adhesions. Subsequent to this it appears that the convex borders of two pieces of small intestine had become adherent by plastic lymph, and in course of time had been pushed asunder so that the wall of each was drawn out in the form of a short diverticulum. Under the arcade thus formed a loop of bowel slipped and became strangulated. VIII. Two bands sharing in the production of obstruction, one tag of the free border of the great omentum was adherent to the mesentery of the small intestine over some tuberculous glands, and another to the fundus of the bladder.

Journal of Tropical Medicine and Hygiene, London

October 2, XIX, No. 19

12 Equine and Bovine Streptococci as Causal Agents of Human Infections. A. J. Chalmers and A. Marshall.—p. 225.

Lancet, London

October 14, II, No. 4859

13 John Ward and His Diary. D. Power.—p. 665.
14 Trench Fever; Relapsing Fever Occurring Among British Troops in France and Salonica. A. F. Hurst.—p. 671.
15 Operation of Laryngofissure. I. Moore.—p. 675.
16 Late Sequelae of Frambesia. P. Harper.—p. 678.
17 Wound of Portal Vein; Operation; Death Nine Days Later. W. H. C. Romanis.—p. 679.
18 Case of Tonsillitis with Hemorrhagic Adenitis. C. F. Strange.—p. 679.

Medical Journal of Australia, Sydney

September 16, II, No. 12

19 Résumé of Seven Hundred and Sixty Consecutive Midwifery Cases Met with in General Practice. P. L. Hipsley.—p. 221.
20 Conduct of Normal Labor. J. C. Windeyer.—p. 223.
21 Prophylactic Induction in Normal Pelves. F. Barrington. — p. 224.
22 Herniotomy Under Local Anesthesia. D. Kelly.—p. 226.
23 Luxatio Erecta of Shoulder Joint. E. A. Falkner.—p. 227.

September 23, No. 13

24 Incidence of Venereal Disease and Method of Prevention. E. H. Molesworth.—p. 243.
25 Cesarean Section in Eclampsia. W. C. McClelland.—p. 250.
26 Congenital Auricular Fistula. H. Rischbieth.—p. 261.

Bulletin de l'Académie de Médecine, Paris

September 26, LXXVI, No. 38, pp. 211-226

27 *Syphilis Inherited from Great-Grandfather. (Syphilis héréditaire d'origine paternelle à la troisième génération.) Gaucher.—p. 213.
28 Local and General Reactions after Injection of Antitetanus Serum. Bazy.—p. 216.
29 *Cholesterin and Camphor to Mobilize and Reenforce the Natural Defensive Powers. (Mise en état de défense de l'organisme infecté. Méthode nouvelle "Actions antihémolytique et antitoxique." Applications pratiques aux grands blessés de guerre.) F. Barbary.—p. 221.
30 Hypochlorite Sterilization of the Hands. (Procédé de désinfection des mains par les hypochlorites terreux — magnésie et chaux.) Dubard.—p. 223.

27. **"To the Fourth Generation."**—Gaucher is the family physician to an apparently healthy young couple, both free from acquired venereal disease, whose three children present manifestations of inherited syphilis of severe type. One is an idiot. As Gaucher had been the physician also of the grandfather, he recalled certain manifestations of inherited syphilis in this man who had never acquired any venereal disease. At the time, Gaucher confesses, he did not recognize the manifestations as the work of inherited syphilis—in those days less was known about inherited syphilis than now, and the total freedom from acquired venereal disease misled him. But this man's father, the great-grandfather of the three children, died in early manhood from syphilitic paraplegia.

29. **To Reenforce the Natural Means of Defense.**—Barbary has been applying in practice the points learned in recent research on lipoids in general and on cholesterin in particular. The latter seems to stimulate the production of antibodies. By injecting cholesterin directly and injecting another substance which stimulates the production of cholesterin, the cholesterin content of the blood rapidly increases and the body repels or throws off infection and recuperates—all much earlier and more effectually than is otherwise the case. At least this has been Barbary's constant experience with the sick and severely wounded. In his hospital, at Nice, there have only been four deaths among the 767 wounded and nine among the 797 sick during the last twenty-one months, and the deaths among the wounded were explained by other reasons. He uses a mixture of 0.2 gm. cholesterin, 0.5 gm. camphor and 0.0005 gm. strychnin sulphate in 5 gm. olive oil, washed in alcohol. Chauffard has demonstrated that serious infections are always accompanied by a special hypocholesterinemia, while immunization processes show an exceptionally high cholesterin content in the blood.

Paris Médical

September 30, VI, No. 40, pp. 273-288

31 Filiform Drainage for Diffuse Peritonitis. (Nouveau mode de drainage de la péritonite généralisée.) H. Chaput.—p. 273.
32 Factitious Chronic, Picric-Acid Jaundice. (Les ictères picriques chroniques.) P. L. Marie.—p. 277.
33 Symptoms and Diagnosis of Deafness from Explosion Nearby. (Surdités par obusite.) R. Ranjard.—p. 279.
34 Device for Convenient Immobilization of Joints. (Appareils métalliques à arc pour l'immobilisation provisoire des plaies articulaires et des fractures juxta-articulaires du membre inférieur.) L. Courty.—p. 284.
35 Variable Tendon Reflexes in Syphilitic. (Réflexes tendineux variables seule manifestation clinique objective d'un état asthénique grave.) Dumolard, Rebierre and Quellien.—p. 286.

Presse Médicale, Paris

September 28, XXIV, No. 54, pp. 429-436

36 Factitious Picric-Acid Jaundice. (Pathogénie, diagnostic chimique et caractères urologiques des ictères par ingestion d'acide picrique.) M. Brulé, M. Javillier and B. Baeckeroot.—p. 429.
37 Gaseous Complications of War Wounds. N. Lapeyre.—p. 431.

Revue Médicale de la Suisse Romande, Geneva

September, XXXVI, No. 9, pp. 537-624

38 *The Skin Tuberculin Test in Schoolchildren. (A propos du Pirquet dans les écoles de Lausanne.) Weith.—p. 537.
39 *Roentgenotherapy of Uterine Fibromas and Hemorrhagic Trouble. Beuttner.—p. 553.
40 *Diagnosis and Treatment of Perforated Gastric and Duodenal Ulcers. G. Patry.—p. 574.
41 *Brazilian Trypanosomiasis: Chagas' Disease. (La trypanosomiase brésilienne et son rapport avec le corps thyroïde.) E. Novaes.—p. 592.

38. **The Skin Tuberculin Test Not for the School.**—THE JOURNAL summarized recently Jeanneret's assertions that the Pirquet test should be applied systematically to schoolchildren. Weith here takes issue with him, declaring that the Pirquet technic is not always absolutely harmless. Doganoff and Slatineau observed such pronounced general reactions and subjective phenomena that the latter has abandoned the Pirquet for the ophthalmoreaction. On the other hand, the response to the test is far from being always conclusive, especially in children. Müller found tuberculous lesions at necropsy in twelve out of seventy-seven with negative Pirquet during life. In short, Weith declares, we can assume to start with that now all children are infected with tuberculosis, and that all weakly children are nonresistant and hence should be built up into strong health. Efforts should be directed to prevent the children's getting infected in the first place. The local authorities should enforce regulations to ensure hygiene in the community. The school medical inspector should refrain from abusing his authority. The Pirquet test should be left to hospital and private practice. In conclusion Weith comments on the prevalence of bad breathing habits. So few children and even adults take in enough air into their lungs. Weakly children in particular do not expand their lungs enough.

39. **Roentgenotherapy of Uterine Fibromas, etc.**—Beuttner reports in detail thirty-two cases of fibromas given systematic roentgenotherapy, and twelve cases of hemorrhagic uterine trouble. His conclusions are to the effect that operative measures are preferable when the patient has to be cured as soon as possible and with the least expense. When an operation is impracticable for any cause, Roentgen exposures are a precious resource. He aims to restore physiologic conditions with uterine affections, not to arrest menstruation definitely, and he regards the results obtained as very satisfactory.

40. **Perforated Gastric and Duodenal Ulcer.**—Patry remarks that the outcome depends on the physician who suspects a perforation rather than on the surgeon who operates for it. Among his twenty-seven cases of perforation, one developed in the hospital under his eyes, and he was impressed with the difference between the clinical picture presented and the descriptions of such in the textbooks. He was impressed in this and other cases with the pronounced remission of symptoms after the first phase, the shock, which may last from a few minutes to two hours. Then the pain becomes bearable, the patient feels and looks much better, and the pulse grows slower and stronger. This deceptive improvement may last for two or three hours. This is the time for operation, although it may be hard to convince the patient of the necessity for it, as he thinks the trouble is waning. One great advantage of operating during this early phase of remission is that we thus take advantage of the reflex spasmodic contraction of the pylorus which occurs from the irritation but seldom lasts more than four or five hours at most. Then comes the phase of peritonitis. Perforation of a gastric or duodenal ulcer presents a more sudden and dramatic picture than appendicitis. The general condition is more serious, the pulse weaker and faster, and respiration becomes shallow and rapid, of the superior costal type, the patient trying to spare his abdomen all exertion. The muscle is woody only above the umbilicus, as a rule, and the pains spread upward instead of downward as with appendicitis. There is seldom fever with perforation at first, while it usually accompanies appendicitis. Patry denounces further the teaching that perforation may occur like a bolt of lightning from a clear sky; there is always a history of stomach or duodenal trouble in such cases. It may have been misinterpreted, as when a patient describes "hunger pain" and cites it as a manifestation of his "fine appetite," excluding all idea of stomach trouble.

There were only two women among Patry's twenty-seven cases. The perforation occurs usually during the period of gastric digestion; very rarely during fasting. The perforation may become walled off and the peritonitis remain strictly localized, spontaneously subsiding. Patry is convinced that these early plugged perforations are the explanation for the extensive adhesions found so often in the course of operations for old "recurring" ulcers. There may be sudden and violent cramps in the stomach, weakening the patient for a few days; but then there is no further trouble as the perforation ceases to be permeable.

The shock with perforation of an ulcer is due to the sudden irritation of the peritoneum from the stomach fluids. The syncope and changes in the pulse are the result of a reflex from the peritoneum. During the first five hours the ulcer is the main thing, the peritonitis can be disregarded, as a rule. After the fifth hour the peritonitis must be combated and the ulcer left to be attended to later, six weeks, three months later perhaps. Treatment for perforated gastric or duodenal ulcer is thus the same as for appendicitis, only hat the perforated ulcer causes a graver syndrome which develops more rapidly and demands a more serious operation, and the physician has less time to study the case.

41. **Chagas' Brazilian Trypanosomiasis.**—Novaes has been studying Chagas' "parasitic thyroiditis," as the latter designated it at first, and gives here the results of much experimental work. The parasite has been named the *Schizotrypanum cruzi.* Two colored plates show its growth and habitat in the blood. It induces in adults hypertrophy of the thyroid with myxedema, melanoderma and muscular weakness; in children the course is more acute, with fever, swelling of glands and hypertrophy of the thyroid, entailing symptoms from thyroid insufficiency and sometimes from meningeal irritation. In the chronic form there may also be a syndrome with heart or nervous symptoms predominating. The mind does not seem to be affected with goiter from this cause. Vaccines made from the parasite have not to date proved effectual. The parasites locate by preference in the skeletal striated muscle, but may invade glandular, adipose and connective tissue, heart, spleen, etc. Most of the cells of the organism seem to bear invasion by the parasites without much harm, but suffer from their toxins. These seem to affect the thyroid predominantly, but the genital glands and suprarenals are liable to suffer as well as the nervous system from the presence of the parasites in the brain. Their penetration into the heart is responsible for most of the deaths from Chagas' disease. The intermediate host is a bug, called "barber" by the natives as it bites mostly about the face.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 30, XLVI, No. 40, pp. 1249-1280

42 *Hysteria from Otologic and Rhinologic Standpoint. (Oto-rhinologische Beiträge zur Kenntnis der Hysterie.) F. Siebenmann.—p. 1249.
43 Malignant Pustule Subsides under Neosalvarsan. F. Heim.—p. 1258.
44 Measurement of Radium Activity. (Radiumskizzen. I.) E. Sommer.—p. 1262.
45 Nonfatal Lightning Accident. (Militärunfall durch Blitzschlag.) Bühler and Gisler.—p. 1264.

42. **Hysteria from Otologic-Rhinologic Standpoint.**—Siebenmann mentions briefly a number of cases in which the patients tried to deceive the physician by simulating or aggravating ear and nose troubles. In Chavanne's imposing compilation of cases of this kind, in 1901, males predominated. Siebenmann warns of the prevalence of what he calls *furor operativus subjectivus.* These patients are generally girls or young women who have been operated on once or have some chronic ear trouble or have watched some one who had. In one such case the young woman succeeded in getting fourteen operations performed, including two mastoid operations. Differentiation is most difficult when the manifestations of the hysteria are restricted to the ear. We must be on the alert when the objective findings do not seem to justify the intensity of the subjective symptoms. He is convinced that we are deceived into doing needless operations on sound accessory sinuses more often than the literature records. All are agreed that when the hysteric nature of the trouble is learned, the patient should be handed over to the psychiatrist. Cold douches and other brusque methods may exceptionally cure, but sham operations should not be attempted. He describes in detail the case of a young woman who had otitis in childhood and later simulated gastric ulcer and pulmonary tuberculosis and had operations for gastric trouble and three mastoid operations. A second young woman had chronic otitis media on one side and secured seven operations on the mastoid or accessory sinuses. The consequence is deafness on that side and paralysis of the face and tongue from operative injury. Both these women became addicted to morphin. In a third case a boy of 12 became totally deaf after the explosion of a bomb from an aeroplane. He was also unable to speak and presented a number of sensory and vasomotor cerebellar symptoms. This condition persisted rebellious to all measures for eight months. A complete change of environment—to the children's ward of a hospital—and local treatment of a catarrhal affection of an eustachian tube almost at once restored conditions to clinically normal. He did not improve when placed in a private room at the hospital.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 28, XXXVII, No. 78, pp. 1217-1232

46 *Cure of Tuberculous Epididymitis under Iodin-Iodid Treatment. (Caso di tubercolosi dell'epididimo guarito con la cura alla Durante.) A. Sofia.—p. 1229.

46. **Iodin Treatment of Tuberculous Epididymitis.**—In the case reported the solution of iodin and potassium iodid was injected directly into the fistula every few days and a subcutaneous injection made every day—all according to Durante's technic. The patient was thus given eighteen local and over 300 subcutaneous injections. When seen again six months later the young man was apparently in a most satisfactory, well nourished condition, the mucous membranes pink and the fistula healed. The bunches on the epididymis were soft, not tender, and reduced in size and number.

Policlinico, Rome

September, XXIII, Medical Section, No. 9, pp. 313-344

47 *Auscultation of Whispered Words in Diagnosis of Pleural Effusions. (Il fenomeno del Baccelli.) G. Viola.—p. 313.
48 *Pernicious Anemia. A. Roccavilla.—p. 329. To be continued.

Surgical Section No. 9, pp. 257-288

49 Treatment of Fracture of the Clavicle. C. Ghillini.—p. 257.
50 *Influence of Trauma and of Operative Procedures on Manifestations of Malaria. I. di Pace.—p. 260. First instalment in No. 5, p. 142.
51 The Urochromogen Permanganate Reaction in the Urine Not Specific for Tuberculosis. (La reazione di Moritz-Weiss in rapporto alla pratica chirurgica.) C. R. Belgrano.—p. 276.
52 Catheterization of the Ureters. E. Pirondini.—p. 284. To be continued.

47. **Transmission of Sounds Through Pleural Effusions.**—Viola's study of this subject has confirmed the fact that when whispered words can be auscultated the effusion is fluid. When some of the letters seem to be dropped out of the words, the effusion is somewhat purulent. As less and less of the words is heard, but the bronchial murmur persists, the effusion is more and more purulent. When nothing can be heard, no decisive conclusions can be drawn. This sign, known as Baccelli's phenomenon, assumes most importance after pectoriloquy of the whispered voice has reached its limit.

48. **Pernicious Anemia.**—Four cases of pernicious anemia of the classic type are reported with the necropsy findings. In one the Wassermann reaction was positive although Roccavilla is confident that syphilis could be excluded. He calls attention further to the burning heat and dryness of the lips, tongue and throat of which all the patients complained as the first sign of trouble. The complexion assumed a lemon yellow tint with greenish reflections in all but one of the patients, and in this case the anemia was symptomatic.

50. **Influence of Trauma on Manifestations of Malaria.**—Di Pace relates some cases of apparently entirely cured malaria in which, months and years later, after an operation or severe trauma, the malaria flared up again in severe form. It must be that the malarial parasite can lie latent in the organism in some of its known forms, or in some yet unobserved form, capable of reproducing itself under certain exceptional conditions. He discusses recent literature on the subject, and declares his conviction that a radical cure of malaria can never be counted on.

Riforma Medica, Naples

XXXII, No. 26, pp. 697-724

53 Pathologic Anatomy of Malta Fever. (Febbre melitense.) B. Lunghetti.—p. 697.

No. 27, pp. 725-752

54 Hypochlorous Acid in Treatment of War Wounds. (Asepsi ed antisepsi in chirurgia di guerra.) N. Giannettasio.—p. 728. Commenced in No. 25.—p. 676.

No. 28, pp. 753-780

55 *Fatal Erythema in Woman. (Eritema idiopatico mortale.) P. F. Arullani.—p. 753.
56 Psychic Mutism in Soldiers on Active Service. (Alcune considerazioni attorno al mutismo psichico nei militari, alla sua genesi emozionale e commozionale.) C. Goria.—p. 756. Commenced in No. 27.—p. 725.

55. **Fatal Erythema with Exudation.**—Arullani's patient was an otherwise healthy young woman with an ordinary erythema which had commenced three years before on the face. It subsided under local measures but returned nearly three years later, very severe, with certain characteristics of eczema, and was soon accompanied by uremia from acute parenchymatous nephritis, rapidly fatal. He is convinced that the kidney trouble was secondary to the exacerbation of the skin disease. There was nothing to suggest syphilis, rheumatism or other cause. Lewin had ten deaths in his seventy cases of erythema with exudation but the erythema was secondary to visceral trouble responsible for the fatal outcome. Under local treatment with petrolatum with from 5 to 10 per cent. oil of cade, the dermatosis in Arullani's case was apparently retrogressing when the fatal uremia developed.

Cronica Medica, Lima, Peru

XXXIII, No. 1, pp. 1-32

57 Mossy Foot. (Pie musgoso.) J. Arce.—p. 6.
58 Therapeutic Artificial Pneumothorax. (Metodo de Forlanini y tuberculosis pulmonar.) A. Corvetto.—p. 20.

No. 2, pp. 33-64

59 *The Remissions in Renal Tuberculosis. (Los periodos de mejoria en la tuberculosis renal.) C. M. Macedo.—p. 33.
60 The Oil Beetles of Peru and Therapeutic Action of Their Oil. (Estudio de los pseudomeloides de Peru y de la accion terapeutica de la pseudomeloidina.) E. Escomel.—p. 49.

No. 3, pp. 65-96

61 Camphor for Local Application in Smallpox. (Estudio de algunos tratamientos propuestos en la viruela. Exposicion de un nuevo metodo.) T. Taboada.—p. 71.
62 Hemorrhagic Purpura of Malarial Origin. E. Odriozola.—p. 75.
63 Indications and Technic for Prostatectomy. M. V. Matos.—p. 79. Continued.

59. **The Waves of Improvement in Renal Tuberculosis.**—Macedo has followed to date the history of three patients with a tuberculous process in the kidney who refused to permit operative treatment, and their kidney trouble seemed to pass into a latent phase. The secondary bladder changes also subsided more or less completely. The phenolsulphonephthalein test and Ambard's uremic constant, however, show that the functioning of the kidney has not improved. The detailed findings from clinical examination repeated at various times during the year are given for each time in each case. The symptoms which have subsided are the pain in the lumbar region, abnormal frequency of micturition and hematuria. The kidney proper is not really sensitive and the local pain is from stretching of the capsule, etc. As the kidney shrivels the pain subsides. On the other hand, the polyuria persists constantly and with it the albuminuria and pyuria, the latter minute but constant, and tubercle bacilli are still found in the urine. These findings show that the improvement with advanced renal tuberculosis is deceptive. When a tuberculous process in the kidney has reached the "open" stage, we can never count on a spontaneous cure or on recovery under medical measures alone.

Semana Medica, Buenos Aires

August 17, XXIII, No. 33, pp. 151-172

64 The Electron Conception of Values. (El concepto electronico de la valencia.) P. J. Mesigos.—p. 160.
65 Auscultation of Middle Ear During Swallowing. (Ruido auricular.) A. S. Lagomarsino.—p. 164.
66 Prophylaxis and Treatment of Syphilis in Maternities. E. Mazzini. —p. 165.

August 24, No. 34, pp. 173-194

67 Vaccine Treatment of Diphtheria. (Vacuna antidifterica Lemos.) C. Ponce.—p. 173.
68 Official Systematization of Modern Medicine: The Practitioner of the Future. (La sistematizacion oficial de la medicina moderna.) F. Otero.—p. 174.
69 History of Public and Social Hygiene in Argentina. I. (Puericultura en la Argentina, 1879-1910.) E. R. Coni.—p. 176.

Mitteilungen a. d. med. Fak., Kyushu Univ., Japan

II, pp. 1-280. German Ed. Last indexed Feb. 27, 1915, p. 783

70 *Common Trychostrongylus Intestinal Parasite in Japan. (Ueber "Trichostorongylus orientalis Jimbo.") K. Kitamura.—p. 1.
71 *Pancreatitis Caused by Ascarides; Four Cases. (Klinisches und Experimentelles über die Pankreatitis verminosa und Pankreasnekrose.) G. Izumi.—p. 61.
72 *Influence of the Food on the Composition of the Bile. (Einfluss der Nahrung auf die Zusammensetzung der Galle.) R. Toida. —p. 153.
73 Can the "Bleeding Polypus" Grow Out of the Nasal Turbinal? T. Matsui.—p. 175.
74 *Chorio-Epithelioma. (Zur onkologischen Kenntnis der sogen. heterotopischen Chorionepitheliome.) S. Yasuda.—p. 181.
75 *End-Results of Operative Treatment of Gastric Cancer. (Resultate der operativen Behandlung des Magenkrebses, insbes. über Dauerheilung.) H. Miyake.—p. 203.

70. **Trichostrongylus in Japan.**—Five double or triple page plates accompany this study of what Kitamura thinks is a new species of intestinal parasite. The ova are like those of the hookworm, but larger. The larvae were able to invade the mouse through its skin, but the parasite seems to have but little pathologic significance except from the bulk of large numbers.

71. **Ascaris Pancreatitis.**—Izumi relates that he has not been able to find any records in the literature of cases of chronic pancreatitis of parasitic origin, aside from a case published in Japan and a case in a cat, reported by Ordway. But he has encountered four cases in which persisting pains in the pancreas region and other symptoms compelled removal of the pancreas, and ascaris ova were found embedded in a circumscribed inflammatory process. In one case also a long female ascaris was found in the pancreatic duct and tail of the pancreas. The stomach, liver and biliary ducts were apparently normal in each case. Izumi reports further experiments on nine dogs injected with an emulsion of ascaris ova into the pancreas with control injections of isotonic salt solution. The findings confirm those in the clinical cases, showing that irritation from immigrated ascaris eggs is liable to set up chronic circumscribed pancreatitis. No fat tissue necrosis was found in the animals, although it was pronounced in the clinical cases. This suggested further research on the causation of acute hemorrhagic pancreatitis, and the details of experiments on ninety-six other dogs are given, showing the effect on the pancreas of interference with its circulation, of obstruction of the outlet, of injected duodenal content, injected olive oil, steapsin, hydrochloric acid, sterile or infected bile, blood and serum, trypsin, pancreatic juice or extract of duodenal mucosa. A bibliography of 113 titles is appended and four plates show some of the microscopic findings. The data all confirm the view that the trypsinogen element of the pancreatic juice is responsible for acute hemorrhagic pancreatitis, but it first has to be activated, and an extract of duodenal mucosa is the most potent activator. All other factors consequently are of minor importance in the genesis of necrosis of the pancreas.

72. **Influence of the Food on the Composition of the Bile.**—Toida's five dogs with fistula into the gallbladder had greatly increased proportions of the bile salts, cholesterin and fat in the bile when they were fed meat and fat foods. The mucin, the pigments and the inorganic salts did not seem to be much influenced by changes in diet.

74. **Ectopic Chorio-Epithelioma.**—Yasuda reports that the cadaver of a woman of 28 showed a primary cancer in the small intestine with multiple metastases in liver, lung, kidney, brain and mesenteric glands. Several years had elapsed since the woman's last childbirth, but the microscope revealed that the malignant growth was a chorio-epithelioma. He describes further the cadaver of a man of 54 dying of cancer in the pleura with multiple metastases. The microscopic findings closely resembled those of a chorio-epithelioma, but he thinks that such cases, in males and virgins, should be called pseudochorio-epithelioma.

75. **Ultimate Outcome of Operations for Gastric Cancer.**—Miyake gives the details and history to date of 175 patients with gastric cancer given operative treatment between 1902 and April, 1914. During this period 411 operations were done; no operation was attempted in thirty-two other cases. This article thus is based on 443 cases. In twenty-eight of the cases other members of the family had had gastric cancer. In only seven cases was there a reliable history of a preexisting ulcer. Of the 175 patients treated with resection, fifty-eight succumbed to the effects of the operation, a mortality of 33.1 per cent. He cites figures from twenty-eight

clinics regarding 1,266 resections for gastric cancer, with a mortality range from 66.6 to 8 per cent., the average being 32.8 per cent.—not much higher than the figures at his hospital. The technic and various problems of gastric cancer are discussed in detail and the present condition of the 117 surviving patients is tabulated: fifty succumbed to recurrence of the cancer after intervals of a few months to five years, the average survival being nearly nineteen months. Nearly 15 per cent. are in good health to date, more than three years since the resection. Analysis of these cases shows that the duration of the malignant disease and the histologic nature of the tumor are not of as much moment for the permanent cure as the absence of glandular metastases and tough adhesions, and the microscopic evidence of an early phase of the malignant growth. Exploratory laparotomy seems to be the only certain means for an early diagnosis.

Russkiy Vrach, Petrograd

XV, No. 33, pp. 769-792

76 *Familial Progressive Amaurotic Idiocy; Two Cases. (2 sluchaya boliezni Tay-Sachs'a.) I. A. Shabad.—p. 775.
77 Experimental Research on the Reaction of the Vessels of the Isolated Spleen to Certain Hormones. (K voprosu o reaktsie sosudov obosoblennoi—isolirovannoi—selezenki po otnosheniiu k niekotorim hormonam.) A. A. Grube.—p. 778.
78 Experiences with Antityphoid Vaccination at Vladivostok Marine-Hospital. (Predokhranitelniya protivutiphozniya privivki . . .) A. A. Shishlo.—p. 782.

76. **Familial Amaurotic Idiocy.**—Shabad states that about twenty-nine cases of Tay-Sachs' disease have been published in Russia, and he adds two typical cases to the list. The children developed apparently normal until the ages of 6 and 9 months, and then became absolutely lethargic, idiotic and blind, with muscles so lax that if the child was made to sit up, its head and back bent over until the face barely escaped touching the horizontal knees. Both died about the age of 2 from intercurrent disease.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 30, II, No. 14, pp. 1173-1268

79 *Osteochondromatosis of the Joint Capsule. (Osteochrondromatose van de gewrichtskapsel.) J. W. Kopp.—p. 1175.
80 *Goiter and Melancholia. (Struma en depressie.) B. D. G. Kappenburg.—p. 1187.
81 *Investigation of Visual Field in Operative Cases of Glaucoma. (Gezichtsveldonderzoek en glaucoomoperatie.) G. J. Schoute.—p. 1200.
82 The Crossed Finger Sensory Delusion. (Het tastzinbedrog van Aristoteles.) T. Wassenaar.—p. 1208.
83 Actinomycosis of the Lacrimal Duct; Three Cases. (Drie gevallen van actinomycose der traanwegen.) W. Koster.—p. 1213.

79. **Osteochrondromatosis of the Joint Capsule.**—Kopp has been able to find records of only twelve cases of this affection in the literature and yet he has encountered three cases in his own practice at Rotterdam. The patients were men of 24 and 39 and a woman of 77. One knee in one man and both knees in the other and in the woman were affected. The trouble began very insidiously and slowly developed in the course of years without much pain or limping, but suddenly there were severe symptoms as from incarceration of a loose body in the joint. When the joint is opened a number of hard, movable bodies are found, scraps of cartilage tissue, which apparently have developed from the capsule, the bone proper being entirely normal in aspect, and no signs of an infectious process having been found in these cases. Opening the joint and removing the loose bodies put an end to the trouble for a time but the former status soon returned, and arthrectomy likewise did not ward off recurrence. Resection offers the best prospects, and this Kopp commends as the rational treatment. He applied it to the older man and with eminently satisfactory results for twenty months to date, but now the other knee seems to be developing the same process. The younger man is a medical student and roentgenograms at different intervals during the three years show that the process is progressing but he refuses operative treatment. A number of hard, freely movable, loose bodies can be palpated in the right knee but there is little pain except when one of the free bodies gets caught between the parts of the joint. There is increasing limitation of the movements of the joint. The roentgenograms accompanying the article show the proliferation of the capsule but the bones of the joint seem entirely normal. No measures except surgical offer the least prospect of success. In one case the loose body seems to have broken through the capsule. This happened also in Lexer's case. No instance is known of the trouble proving malignant at any time. Although the proliferation of capsule tissue may eventually proceed outside the capsule, it does not spread by infiltration but by pushing other tissues aside.

80. **Goiter and Depressive Conditions.**—Kappenburg states that 20 per cent. of the fifty-six persons with goiter at the Utrecht Hospital presented more or less pronounced mental impairment while only 4.4 per cent. among 437 other inmates showed anything of the kind. Among the 20 per cent. nearly all were of the manic-depressive or melancholia types of psychosis, while this was true of only 1.1 per cent. among the others. The thyroid gland seems to be affected more than others by emotional influences. It is the *glande de l'émotion* as it has been called. He compares the various theories as to the pathogenic influence of the thyroid and its connection with psychic depression. One thing is certain, he declares, namely, that such an influence exists, and the figures he presents sustain this assumption.

81. **The Visual Field as Guide for Operating in Glaucoma.**—Schoute explains with illustrations how the changes in the visual field with glaucoma indicate the special operative measures required in the individual case.

Hospitalstidende, Copenhagen

October 4, LIX, No. 40, pp. 965-988

84 *Pains in the Feet. (Om Smerter i Fødderne.) C. Otto. Commenced in No. 38.—p. 913.

84. **Pains in the Feet.**—Otto remarks that the weight of the body is an ever increasing burden which the feet have to bear from the cradle to the grave, often exposed to cold and damp and other unfavorable conditions impeding circulation and nourishment. But traumatism is the main factor in the pathology of the feet. Not single trauma, but injury from long continued compression and weight bearing. This reduces their resisting power, and may entail insufficiency even when no objective signs of it are evident. But the result is always the same, complaints of tired, aching, tender feet, stiffness and pains. The pains are often referred to some point apart from their actual source, so that it is necessary to study the whole extremity as a static unit and examine it throughout. To compensate or relieve pain at some point a position may be assumed which elicits pain at another point. With genu valgum, for instance, the foot is held in a varus position, while there is a compensating flatfoot with genu varum. The location of callouses may aid in the diagnosis of static disturbances, as he describes in detail, especially with a tendency to pes valgus. He discusses in turn the various causes for pain in the heel region, in the middle of the foot and in the anterior portion, with roentgenograms of typical examples. A tendency to valgus or deforming arthritis may induce pain in the heel region; both are common, he says, and are liable to be misunderstood. Inadequate nourishment of the foot is undoubtedly a factor in the development of static flatfoot. The inadequately nourished muscles and ligaments are unable to do their work properly, and flatfoot disturbances ensue. Otto emphasizes that flatfoot is brought on more by standing than by walking. Muscles require action to keep in normal condition. Standing, with its incessant pressure on the soles of the feet, impedes the influx of arterial blood and the outflow of venous, and the insufficiently nourished muscles and ligaments stretch.

After discussing in detail the numerous traumatic and inflammatory changes in the foot which may be responsible for pain, Otto reaffirms that flatfoot must be incriminated in 95 per cent. of the cases in which the pain subsides during rest. Flatfoot in children usually manifests itself suddenly after some overexertion, and the pains and contracture are extreme. In older persons it develops more gradually and the pains may be vague and localized in the buttocks, back, shoulder, gastrocnemius, inner side of the knee or elsewhere, and are often mistaken for gout or chlorosis. He has the patient stand on a chair and he examines the feet from the rear. The heel is inclined to pronation. The internal malleolus is unduly prominent, while the external is scarcely perceptible, so that the ankle looks flattened. The Achilles tendon forms an open angle. The head of the astragalus is very prominent, as also the tuberosity of the scaphoid. The whole presents a characteristic outline and the diagnosis is confirmed by the tenderness back of the tuberosity of the scaphoid, over the triangular ligament, and in front of the external malleolus.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXVII, No. 10, pp. 1253-1396

85 *Experimental Study of the Functions of the Spleen. (Til studiet av miltens funktion.) A. Brinchmann.—p. 1253.
86 *Infant Mortality in Homes Where There is Tuberculosis. (Spædbarn i tuberkuløse familier i Kristiania.) Y. Ustvedt.—p. 1301.
87 *Improvement under Organotherapy of Pituitary Tumor. (Et tilfælde av hypofysetumor behandlet med organoterapi.) V. Magnus.—p. 1319.
88 Emetin in Treatment of Dysentery. V. Vogt (Yi-yang, China).—p. 1327.
89 *Fracture of Transverse Process of Lumbar Vertebra. (Om fraktur av lændehvirvlernes tvertagger.) S. Widerøe.—p. 1339.

85. **Experimental Research on the Functions of the Spleen.**—Brinchmann tabulates the blood findings and the changes in the pulse, etc., after splenectomy, with and without treatment with spleen extract. The work was done on twenty-four rabbits and nineteen guinea-pigs. One of the main questions he sought to answer was whether any evidence could be discovered indicating that the spleen regulates the functioning of the red bone marrow or of the lymphatic apparatus. The article is to be continued.

86. **Infant Mortality in Families Where There is Tuberculosis.**—Ustvedt has been compiling data in this line during the last five years at Christiania. When such a record has been continued for twenty years, tracing the later fate of the infants born in these families, unquestionably valuable lessons can be deduced from it. His material includes 480 infants born in families where there was one or more members with tuberculosis in a contagious stage. An average of 19.2 per cent. of the infants died within the first year of life while the average infant mortality in the city at large was 10.8 per cent. A number of tables are given for comparison of various data. They testify anew among other things to the dire influence of tuberculosis in the mother and of bottle feeding. Of the 19.2 per cent. that died within the first year, 40 per cent. had a tuberculous mother, and of the 334 breast fed children only 10.5 per cent. died while 28 per cent. of the 128 bottle fed did not live through the first year. Only 37.1 per cent. of the infants died of actual tuberculosis among the 124 that died during the five years in question. He comments that these figures teach nothing new, but they emphasize anew the vital importance of removing infants at once from tuberculosis in the environment, and especially from a tuberculous mother. Such statistical works as this can be utilized to educate the parents to the necessity for sending the infant out of the menacing environment. The tables show that when the mother had tuberculosis, the infant's danger was the greatest, whether it was bottle or breast fed.

87. **Tumor in Pituitary Body Treated with Pituitary Extract.**—Magnus' patient was a man of 29 who for several months had suffered from headaches and other symptoms of a tumor in the pituitary body. For the last three months he had been blind, vision being lost first in one eye. There was some improvement under a decompressive trephining operation followed by Roentgen exposures. Then a pituitary extract was given systematically by subcutaneous injection, and the tumor evidently retrogressed under it to some extent as vision returned. To restore sight to a blind man even for a few months is certainly encouraging. The man refused operative measures and the condition finally grew gradually worse again.

89. **Fracture of Transverse Process of Lumbar Vertebrae.**—Widerøe tabulates the details of thirty-five cases of this kind on record and two from his own practice. In his cases the fracture was indirect, one workingman of 40 slipping on one leg in alighting from a car. The third vertebra was the one affected, and the man was incapacitated for eighteen months and was accused of simulating or exaggerating the trouble of which he complained. When there are complaints of vague pains in the lower part of the back, for which no organic cause can be detected, the possibility of fracture of one of the transverse processes must be borne in mind. In the thirty-five cases in the literature the trouble was almost invariably ascribed to rheumatism, lumbago or sprain. Payr was the first to diagnose it in the living subject (1907) with the aid of the Roentgen rays.

There is always considerable tenderness at the point of the recent fracture, to one side of the median line, and the patient holds the region or the whole spine stiff and moves it as little as possible, with more or less scoliosis toward the sound side. Bending over to the sound side is particularly painful. When it is the transverse process of the first lumbar vertebra that is fractured, deep breathing elicits pain. If the fifth vertebra is involved, there is severe pain in bending over backward. The retroflexion squeezes the fractured bone between the crest of the ilium and the fifth vertebra. On the other hand, bending over backward does not cause this severe pain if the process above is the one that is injured. The contraction of the muscles in the region and extravasation of blood are liable to cause swelling, but there is no deformity of the spine and no signs of pressure on the cord.

Roentgen examination may be misleading in some cases, as the psoas may overlap the first and second processes or a concretion in the kidney may prove deceptive. The transverse process casts but a small shadow at best and there is no typical fracture dislocation.

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90 *Splenectomy. (Om Milteksstirpation.) J. Schou.—p. 1609.
91 The Wassermann Reaction Is Not Infallible. (Gør Wassermann-Reaktionen mest Skade eller Gavn?) B. Pontoppidan.—p. 1622.

90. **Splenectomy.**—A good review of the history of splenectomy is given by Schou with the experiences with it in various lands. The first splenectomy dates from 1549 or 1581 but the first time the spleen was removed on account of malaria was in 1855. Kopylow in 1913 had compiled 201 cases in this category, with a mortality of 25 per cent., but admits that the splenectomy is only palliative. Quite a number of persons have been restored to clinical health for a long time by removal of the tuberculous spleen, and Hoffmann has reported good results after removal of the spleen enlarged by a syphilitic process, rebellious to other measures. Splenectomy has been practically abandoned as treatment for leukemia except when local symptoms call for it, and it seems to have proved disastrous in the few cases in which it was done for polycythemia. But in Banti's disease it has proved its usefulness, even although we do not accept this syndrome as a morbid entity. Splenopexy has also answered the purpose here, according to Schiassi and Rossi. Schou thinks the only explanation possible for this is that the spleen does not functionate as well after the fixation, and hence does not produce so much toxins. Rovsing found in a case of apparently Banti's disease that there were no signs of fibrosis in the spleen although it weighed 4 kg. Necropsy three months after the splenectomy revealed a gangrenous ulcer in the cardial part of the stomach, that had involved the vessels communicating with the spleen. Schou splenectomized a woman of 37 who came to the hospital with the diagnosis of tumor of the kidney. She had been having severe pains in the upper abdomen with other symptoms suggesting Banti's disease. The spleen weighed 800 gm.; it showed no fibrous changes but rather changes suggesting incipient leukemia or pseudoleukemia. A month later the reds numbered 4,000,000, the whites 17,000 (about twice the previous figure), and a year later the blood picture and general health seemed to be approximately normal.

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RESULTS OF RECENT STUDIES ON DUCTLESS GLANDS *

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During the past four or five years many of the researches of the Harvard Physiological Laboratory have been concerned with the bodily changes which accompany strong emotions, such as fear and rage. These are fundamental experiences in man and the lower animals, so much so that their expression constitutes a sort of common language. The studies which have been carried on have revealed interesting relations between these emotions and certain glands of internal secretion, and have suggested also a way in which emotional excitement may occasion pathologic states.

When a cat becomes infuriated, the pupils are dilated and the hair is erect from the neck to the end of the tail. But besides these surface manifestations there are internal changes; for example, the heart beats rapidly and the activities of the stomach and intestines are stopped. Both the internal and the external changes are due to the passage of nerve impulses to viscera along the neurons of the sympathetic division of the autonomic system. The relation of the fibers connecting the central nervous system with these neurons is such as to provide for diffuse action on all the viscera that are innervated by this division.

The suprarenal glands are supplied with nerves from the sympathetic division; and also the secretion of the suprarenal medulla affects all structures innervated by the sympathetic division precisely as if they were being stimulated by its impulses. We have found that the suprarenal glands secrete epinephrin in times of great excitement, that there is an increased liberation of sugar from the liver so that glycosuria may result, that there is an abolition or prompt lessening of muscular fatigue, and that there is a very much more rapid clotting of blood. It is known also that epinephrin causes a redistribution of blood in the body so that it is sent away from the alimentary canal, whose activities are inhibited, to the heart, the lungs, the central nervous system and active skeletal muscles. It is known, also, that epinephrin causes dilation of the bronchioles, and it is known that it increases the number of red blood corpuscles per cubic millimeter — an increase which Lamson has shown occurs also to a marked degree in case of emotional excitement.

These changes, as true of man as of the lower animals in times of great emotional stress, are significant when the conditions which would give rise to the emotions are considered. Fear is associated with the instinct to flee; rage with the instinct to fight. These are the emotions and instincts underlying the struggle for existence. They are also the emotions and instincts into which all other instincts may be readily turned when they are thwarted. The internal changes are all directed toward increasing the efficacy of the organism for physical struggle. The increased blood sugar provides a source of muscular energy. The altered distribution of blood and the increased number of red blood corpuscles arrange for carrying an abundance of oxygen to the active structures. The dilated bronchioles allow ready ventilation of the lungs when oxygen is greatly needed and carbon dioxid is being produced in large amounts. The provision for lessening muscular fatigue is directly useful in muscles likely to be employed in continued action. The rapid coagulation of blood tends to preserve that precious fluid in case of injury to blood vessels. The organism in which these changes most promptly occur has the greatest reinforcement of its abilities and is most likely to be favored in physical struggle. These arrangements for reinforcement account for the great power and endurance which are exhibited in times of intense excitement.

Other glands than the suprarenal are not so readily studied because of the difficulty of recognizing their secretions. It has long been known, however, that physiologic activity is accompanied by the presence of an electrical difference which may be observed by connecting an active part with an inactive part of the body through a sensitive galvanometer. Justification of this method of studying glands can be obtained by applying it to the submaxillary gland. It has been found that the electrical change begins before the external secretion appears, disappears as secretion stops, and is not related either to flow of fluid in the ducts or a change of blood flow in the capillaries. Since the only feature that cannot be abolished without abolishing the electrical change is secretion, the electrical effect is a true indicator of a secretory process. When this method, therefore is applied to the thyroid gland, the positive testimony of the galvanometer is evidence of thyroid secretion.

The electrical method shows that the thyroid gland is subject to impulses from a part of the sympathetic division of the autonomic system, that is, the cervical sympathetic. The secretion comes promptly — after a latent period of from five to seven seconds. The vagus nerve is without control, and pilocarpin, as a stimulator of vagus endings, is likewise without control. The influence of the sympathetic is not due to anemia, for

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* From the Laboratory of Physiology in the Medical School of Harvard University.

* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

shutting off the blood supply has no such effect as is produced by sympathetic stimulation.

Control by the sympathetic implies that epinephrin may be effective in stimulating the thyroid. This, in fact, is the case, for a marked electrical change is produced when epinephrin (0.1 c.c. of 1 : 100,000) is injected intravenously into a cat. Furthermore, the action current of the thyroid appears if the nerves to the suprarenal gland are stimulated, an effect which does not occur if the suprarenal glands have been previously removed and which is delayed if the return of blood from the abdominal cavity is delayed, until the blood is again allowed to flow.

Thus a hormone relation between the suprarenal and the thyroid is clearly demonstrated. This electrical evidence, which was obtained in cooperation with Mr. McKeen Cattell, has been confirmed by the observations of Dr. Robert L. Levy. He has found that both stimulation of the cervical sympathetic trunk and injection of stimulating doses of epinephrin greatly augment the effects of small doses of epinephrin in raising blood pressure. This increase of efficacy of epinephrin is not produced if the thyroid glands have previously been removed.

The proof that the thyroid responds rapidly to sympathetic stimulation and that it is effective in combination with suprarenal secretion shows that there is another bodily change to be added to those already mentioned as occurring in times of great emotional excitement.

In the course of this work two questions have arisen: First, why are organs which are disturbed in times of emotional stress not disturbed at other times? It seemed probable that they were protected from interference by a high neuron threshold interposed between the central nervous system and the visceral cells. Consequently only when great excitation is present in the central nervous system is this threshold crossed and the changes in the viscera brought to pass. The second question is, Why, in certain pathologic cases, is there apparently frequent or continuous disturbance of the same viscera? It seemed possible that this might be due to a wearing down of the high threshold here or there from frequent or great emotional experiences. Thus the situation would be like a break in a dike, and only a slight disturbance in the central nervous system might then be needed to result in a pouring through of impulses at the low point and consequently a fairly frequent or continuous disturbance in the viscus innervated by this region. Thus dyspepsia, tachycardia and possibly persistent glycosuria, reported as having an emotional origin, might be accounted for.

To test the effect of continuous stimulation, the phrenic nerve was fused with a peripheral portion of the cut cervical sympathetic. This operation, done with the aid of Dr. C. A. L. Binger, resulted in some animals in tachycardia, increased excitability, loose movements of the bowels, exophthalmos on the operated side (in one case) and, as Dr. Reginald Fitz showed, in great increase of metabolism (in one case an increase of 130 per cent.). These phenomena have disappeared on removal of the thyroid gland on the operated side. The suprarenal glands in two animals that have died of the disease have been greatly enlarged.

The changes thus produced resemble in many respects the symptoms of exophthalmic goiter and support the view that this disease may be primarily due to overactivity of that part of the nervous system disturbed in emotional excitement — possibly, as suggested above, a local stimulation in the cervical region. Two vicious circles may be operative: one through the nervous system due to increased excitability from increased thyroid secretion and resulting thus in increased nervous stimulation of the gland; the other through the blood stream, due to increased suprarenal activity from overaction of the thyroid and stimulating the thyroid in turn in the manner indicated above.

The evidence previously presented shows that besides any routine function, the suprarenal gland has an emergency function brought out in times of great excitement. It is not unreasonable to suppose that the thyroid gland likewise has an emergency function evoked in critical times, which would serve to increase the speed of metabolism when the rapidity of bodily processes might be of the utmost importance, and besides that, augmenting the efficiency of the epinephrin which would be secreted simultaneously.

ABSTRACT OF DISCUSSION

Dr. A. J. Carlson, Chicago: I have been very greatly interested in this line of thyroid work. I should like to ask whether these records of the electric response of the thyroid were in animals under anesthesia. I should like to know if, on continued stimulation of the cervical sympathetic for half an hour, whether the secretion and the electrical response continued for that half hour or possibly longer. Does the electric response continue, in the case of the salivary glands, as long as the secretion? In other words, I am not certain that the electric response is the true measure of the duration or extent of the secretory activity. I do not know, possibly Dr. Cannon can tell us, whether parallel experiments have been made on the kidneys, an organ undoubtedly controlled through chemical stimuli. On the introduction of a diuretic which acts for an hour or an hour and a half, do we get a continued proportional electric response from the kidney? I asked the question regarding the continued anesthesia because as I recall Dr. Elliott's work on the suprarenals, he makes the statement that by repeated injections of the same strength and amount of epinephrin one gets absolutely identical vasomotor responses. There seems to be a contradiction here between Elliott and Cannon. I am not certain that the changes in the suprarenals after the thyroid nerve anastomosis are in any way related to hyperactivity of the thyroid. After complete thyroidectomy (young rabbits), we invariably get a hypertrophy of the suprarenals to two or three times their normal size. My colleague, Dr. Bensley, who has had the privilege of examining some of the thyroids of Dr. Cannon's cats, tells me that the histologic picture of those thyroids is not that of hyperplasia. On the contrary they appear to be atrophic.

Dr. Emil Goetsch, Baltimore: During the past year I have been in the habit of testing out the sensitiveness to epinephrin of patients suffering with thyroid trouble, not only those suffering from hyperthyroidism but also from hypothyroidism, colloid goiter, and adenomatosis, and acute toxic hyperplasia. It has been uniform in my experience that in the hyperthyroid cases, especially in the early stage, in which we think that there is a very marked hypersecretion of the gland, and hence a hyperthyroid condition of the blood, in all these cases the reaction to a very small dose of epinephrin when given hypodermically is extremely acute.

The clinical picture is also markedly exaggerated. All the symptoms which we regard as typical of marked hyperthyroidism become very much exaggerated. An equivalent dose of epinephrin given to a patient with colloid goiter is almost without effect whatever. Similarly the effect on a normal person is slight.

Then, too, as indicating the degree of hyperthyroidism present, it is interesting to note the effect of the epinephrin after operation. When one does a lobectomy (on one side or both sides), the greater the amount of the gland removed the less the reaction to the epinephrin afterward. This, I think, is an additional fact to corroborate Dr. Cannon's experimental work. In other words, the greater the degree of hyperthyroidism present, the greater we find the reaction to hypodermic administration of epinephrin.

With reference to the sensitiveness of the sympathetic in hyperthyroid conditions, it is interesting to note the effect of epinephrin on the eye. When 2 drops of a 1 : 1,000 solution are instilled into the conjunctival sac, there is almost complete blanching of the vessels of the conjunctiva, whereas in a normal person there is none of this even after repeated amounts have been put into the eye. In hyperthyroidism, there is a marked dermographia, a sympathetic reaction on the part of the skin to a scratch, or any other mechanical irritation. If one injects intradermally from 1 to 2 minims of a 1 : 1,000 solution of epinephrin there is a marked blanching in an area of considerable size, which is almost like a necrosis, surrounded by a very large areola of a bright reddish blush. This central vasoconstriction with the peripheral dilatation lasts from an hour to an hour and a half, and it is interesting to watch the reaction between the central white and the peripheral reddening. In a normal person this same reaction shows a very slight central blanching, and a very slight peripheral dilatation, and in about twenty minutes to half an hour the reaction is entirely gone. We see then that there is a very marked reaction locally to an intradermic injection of a minute dose of epinephrin in cases of hyperthyroidism, whereas in colloid goiter or even in normal cases this reaction is very slight.

Dr. Walter B. Cannon, Boston: One of the first difficulties we had was with anesthesia. Urethane gave an admirably quiet preparation, but we could not get responses from the thyroid if we gave the usual dose of urethane for anesthesia. We could not get the characteristic response if we used very deep ether anesthesia. So we used only so much ether as would result in a quiet preparation. We tried to get rid of an anesthetic altogether by destroying the central nervous system to a very large degree, but that lowered the blood pressure to such an extent that we thought probably we were making the animal more abnormal by that procedure than by light ether anesthesia. The question was also raised as to whether the electric change is really concomitant with activity, i. e., whether it is not a brief momentary appearance at the beginning of the activity, disappearing though activity continues. No very exact studies have been made of that matter, but I may say that a dose of pilocarpin, which has the effect of producing a prolonged secretion of the submaxillary gland, causes a concomitant electric difference that persists during the entire period, and promptly disappears when atropin is given.

The histologic appearance of the overstimulated thyroid gland has been mentioned. We have not obtained the characteristic hyperplasia of the thyroid that is observed in most cases of exophthalmic goiter in man. Dr. Homans, however, who worked with the Bensley technic, has studied these preparations, and says that the cells look like those of the islands of Langerhans, after partial extirpation of the pancreas, when apparently there has been an overdemand made on them, that is, there is "hydropic degeneration." It seems possible that what has occurred in these cases is a very much more acute condition than is usual in exophthalmic goiter—a stimulation of the thyroid which has not allowed any sort of hypertrophy or compensation, an activity of the cells so great that they have poured out their secretion so vigorously that they have actually been used up in the process. Certainly, the animals go to pieces with extraordinary thoroughness. They show no signs of infection. They have no characteristic rise in temperature, they eat enormously, and yet they continue losing weight until they become so wasted away that they are mere skin and bones. The eye, which may be prominent at first, becomes actually sunken into the head because of the disappearance of the fat about the eyeball.

I was unaware of enlargement of the suprarenals in cases of removal of the thyroid. Certainly, in these cases there has been no removal of the thyroid, and we have much evidence of increase in the activity of the gland. There is other evidence than that I have presented, which indicates that thyroid material causes hypertrophy of the suprarenal. It seems reasonable to expect, therefore, that overactivity of the thyroid or increase of thyroid material in the blood will result in an increase of the suprarenal size.

SOME CLINICAL STUDIES OF THE PROBLEMS OF CEREBRAL TONE *

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During the last five or six years some important additions to our knowledge of muscle tonicity and the more generally inclusive topic of cerebral tone have been made by clinicians and pathologists. The clinical bearings of cerebral tone, which have usually been left for the discussion of psychologists, are becoming more and more recognized by neurologists, who are finding in their study some matters of practical value in diagnosis and treatment, especially the former.

In many forms of cerebral and spinal disease, as, for instance, in hemiplegias, diplegias, jacksonian spasms, perseveration, catalepsy, catatonia, atonic and spastic paraplegias, disseminated sclerosis, tabes, amyotonia, dystonia and Thomsen's disease, the presence and pathogenesis of muscle tonicity are of especial interest.

In a large majority of the cases of permanent hemiplegia — hemiplegia persisting as a marked loss of power for more than six months — the general picture as to contracture or spasticity is that well known to neurologists, and such as has been described in numerous treatises on nervous diseases.

Under the designations "early and late contractures," certain interesting phenomena of tonicity have been discussed by nearly all writers of neurologic textbooks and by many contributors to current neurologic literature. The so-called early contractures in hemiplegic cases are usually observed in apoplexy of marked severity, as, for instance, that in which a hemorrhage breaks through the cerebral substance into the lateral ventricles. These early contractures, as indicated by Oppenheim, are usually attributed to irritation of the pyramidal fibers. Developing within a few hours, if death does not supervene, as not infrequently happens, these may disappear after a short period, that is, in the course of a few days. The musculature of the paralyzed side of the body in these early contractures is affected generally, the spasticity not assuming the usual forms observed in the so-called late contractures.

Late contractures which have received much attention since almost the earliest days of the study of hemiplegia usually come on after a period ranging from two weeks to as many months. Sometimes they do not begin to be noticeable until three months after the apoplectic attack, but development as late as this is comparatively rare. The condition as to tonicity may be fairly regarded as permanent after the lapse of six months. It is generally held that permanent contracture increases with degeneration of the motor centers and tracts. While this is correct, it is now believed that it is not a sufficient explanation of such contractures, to say that they are due to secondary degen-

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

eration. In this connection it might be recalled that a number of competent observers have reported cases of hemiplegia and diplegia with necropsies and microscopic examinations, in which lesions of the pyramidal fibers were absent, although in some instances these fibers were of finer caliber than is normal.

Some revision of the descriptions usually given of cases of permanent contracture is desirable. The unusual differences as to spasticity and flaccidity (hypertonia and hypotonia) exhibited by different cases have received comparatively little attention. The excellent description given by Oppenheim[1] of the state of permanent contracture usually observed in hemiplegia is correct so far as it goes, but there is no particular stress put on exceptional cases. Oppenheim says:

> The arm is usually in the following position: the upper arm is adducted, the forearm bent at a right or acute angle, the hand flexed and pronated, the fingers flexed either in all the joints or in the interphalangeal joints only. A contracture of the arm in the position of extension is rare. When the contracture is slight, the fingers can be extended. The leg is in the position of extension, the foot usually in the equinovarus position. Flexion contracture of the legs is very uncommon (cases of Prochátzka, David-Gallavardin, etc.), and occurs only under unusual conditions. The contracture seldom extends to the facial, and most rarely of all to the hypoglossus.

This description would answer in a general way for the cases of my series, but in a study of the question of spasticity and flaccidity it is not sufficiently explicit. It fails, for instance, to indicate that in some cases varying conditions of flaccidity and spasticity may be present in the same contractured limb.

A particular study of forty cases of hemiplegia was made. In the present preliminary contribution I shall not attempt to give any tabulated summary or elaborate consideration of the facts of tonicity exhibited by these patients, merely calling attention, for the purpose of awakening discussion, to some exceptional conditions.

In some cases of hemiplegia of several months' or years' standing, an admixture of flaccidity and spasticity will be found in the same limb, a fact which has some significance, especially in the diagnosis of the extensions of the lesion and the mechanism of the production of aberrant muscle tonicity. As a rule, if one part of the limb is spastic, as for instance when the musculature causes flexion at the elbow, the whole extremity will be set down in the notes as spastic or hypertonic, and yet closer examination will show in not a few cases that this is not correct. One or two examples may be given:

In a case of left hemiplegia of five years' standing in the intervals between voluntary efforts which could be made with the partially paralyzed upper extremity, the arm remained in a position of slight flexion at the elbow and was flaccid. The hands and fingers could be fully extended passively and could be moved in any direction. In them there seemed to be an admixture of hypertonicity and flaccidity, the former more so in the metatarsophalangeal joints. The case was evidently one both of loss of power (true motor paralysis) and irregular innervation. In this case the lower extremity was much more paralyzed and spastic than the upper, the hypertonicity being in proportion to the retention of power.

For many years I have been in the habit of noting the presence of flaccidity or extreme hypotonia in hemiplegic cases at different periods after the apoplectic attack. In most cases this hypotonia is marked at the time of the apoplectic onset and for a greater or less period (hours, days or weeks) afterward. It is not necessary for me to enumerate special observations, which would constitute a mere piling up of well known facts. One type of case not infrequently seen is illustrated by a patient recently observed:

This patient, a woman of middle age, suddenly became a left hemiplegic. Paralysis of the limbs was total and flaccid or flail-like. It continued without change as regards tonicity for a period of about twelve weeks, and then began to give evidences of oncoming spasticity, slight in degree, this gradually increasing and spreading, but never becoming marked, at least during an observation extending over several months. I have observed other cases, especially at the Philadelphia General Hospital, in which total flaccidity continued for several weeks or months and was then gradually replaced by spasticity or an admixture of spasticity and flaccidity.

Permanent flaccidity or total toneless paralysis, that is, absolutely atonic hemiplegia, is comparatively rare, and doubtless in different cases requires special explanation.

> A woman, aged 52, was examined seven months after the apoplectic attack. The left upper extremity was absolutely flaccid or atonic and powerless. The patient could not move the arm, forearm, hand or a single finger. When the limb was dangled, the hand assumed a wrist-drop position with the fingers somewhat flexed, this being due to the weight of the paralyzed hand. Tonic innervation was not present in this extremity. The arm as compared with the other arm was somewhat larger, this probably being due to lost vasomotor tone. The left lower extremity, like the left upper, was completely toneless and powerless. The leg lay rotated outward at the hip and was a helpless mass in any position in which it was placed. The whole lower extremity, like the upper, was somewhat swollen. No plantar reflex and no knee jerk could be obtained. Sensation appeared to be somewhat impaired, but not markedly.

The notes on the following case were made only three months after the oncoming of the paralysis, and of course the conditions as to flaccidity and hypertonicity may have changed later. However, the case is instructive as showing the continuance of complete flaccidity in the upper extremity for at least the time named, while a spastic condition was present in the lower limb. In both the upper and lower extremities the motor paralysis was absolute.

> The patient, a woman, aged 47, was paralyzed on the left side of the body without unconsciousness. The left side of the face dropped. The left upper extremity was completely powerless and toneless. Sensation was retained in this extremity, and muscle and tendon jerks were plus. Wrist clonus could sometimes be elicited. The left lower extremity was kept somewhat extended and was rigid at the knee. It was not possible to throw the leg into different positions, as in the preceding case. Sensation was retained and a Babinski response was present. It was difficult to bend the leg at the knee, although this could be done by the exercise of considerable force.

Quite recently I observed a case of total flaccid left hemiplegia. The toneless paralysis was comparatively of recent origin, but so complete as to be worthy of special attention. A fuller report of the case will probably be made later.

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[1] Oppenheim, H.: Text-Book of Nervous Diseases for Physicians and Students, translated by Alexander Bruce, ii, 687.

The most important symptoms in this case were intense and frequently recurring pain in the head, nausea and projectile vomiting at times; papilledema in a comparatively early stage, and on the focal side, complete atonia or flaccid paralysis of the left upper and lower extremities with some paresis of the face of cerebral type, jacksonian epilepsy beginning in the left side of the face, astereognosis, impairment of cutaneous and muscular sensibility, and somewhat increased deep and superficial reflexes without, however, a Babinski response. The patient showed also considerable mental hebetude.

Necropsy in this case showed an abscess occupying the greater part of the parietal lobe. It extended to the motor region, but as far as Dr. William G. Spiller could determine at the time of the gross examination made by him, it did not extend into this region. In extent the abscess was from above downward about 2 inches, from before backward about the same, and from within outward about an inch and a half in diameter. The lower level of the abscess was just below the upper portion of the callosum, and it reached close to but did not involve the cortex.

This case is of particular interest in connection with the question of the part played by sensory impulses in the development of cerebral tone. Hypotonia or flaccidity is one of the commonplace observations in cases in which the sensory pathway from the periphery to the cortical areas concerned with sensation are largely destroyed. One needs but to recall the common condition present in ordinary advanced tabes and destructive lesions in various positions along the sensory pathway, as in the tegmentum, thalamus and parietal lobe which have been recorded in cases of flaccid palsies, these being in most cases associated with more or less anesthesia. The stimuli which reach the frontal lobe from the periphery and are the constant feeders of cerebral tone are by such lesions cut off, and tonic innervation suffers.

Now and then a case is encountered in which the tonic innervation is of such special form as at once to attract attention. In most cases after several years' standing the upper limb will be strongly contractured in flexion at the elbow with flexures also at the wrist and fingers. Occasionally, however, a case is seen in which the entire upper extremity is in a condition of hypertonicity, and this so generally expressed in the extensors and flexors alike that the limb continues in an extended position.

For example, in a middle-aged hemiplegic whose paralysis was of about four years' standing, the arm was extended and hypertonic. The hand was contractured and somewhat flexed at the carpus and extended at the metacarpophalangeal joints.

Perseveration or "tonic innervation" is the subject to which neurologic attention has been directed largely through the observations and discussions of Liepmann, and Kinnier Wilson and Walshe.[2] The latter have defined this term "as the inability owing to a central lesion to relax innervation in any muscular group or groups." The term was invented by Liepmann, who first described it in connection with a case of apraxia.

Wilson and Walshe describe three personal cases:

In the first two "tonic innervation" or perseveration was present in the limbs of the left side, especially in the upper extremity. In the same cases evidence was present of involvement of the corticospinal pathway in the form of hemiparesis and slight spasticity. In both of these cases the symptoms were left sided. The general symptoms of brain tumor were present. In both cases operation was successfully performed, and endotheliomas of large size removed, the operations resulting in complete relief from the perseveration, but leaving marked postoperative hemiplegia. Apraxia was not present in either case.

In the third case, "tonic perseveration" and marked motor apraxia were exhibited associated with paresis and spasticity of moderate extent, indicating implication of the pyramidal system. The perseveration in this case was illustrated, especially in the inability of the patient to relax after grasping objects or closing the hand, but the tonectic phenomena were also well shown in movements of all parts of both the upper and lower extremities, although much more decidedly in the upper. The tumors revealed and removed by operation in the first two cases were so situated as to involve the superior and middle frontal convolutions and their subcortex from a point just in front of the central fissure forward. In the third case operation was not performed, and the exact nature of the lesion present was not determined.

Besides the case of Liepmann, Wilson and Walshe refer to other cases of Steinert, Van Vleuten, Kleist, Kurt, Goldstein, Kroll, Coriat, Rhein, Macfie Campbell, and Pick.

In true "tonic innervation" the volitional act is the disturbing element. The fundamental defect in "tonic innervation," according to Wilson and Walshe, is not of a psychic but of a psychomotor nature.

They emphasize the fact that "tonic innervation" and apraxia are separate and independent symptoms, although they may occur together.

An important fact in connection with the study of "tonic innervation" or perseveration is that which is indicated in the statement of Wilson and Walshe "that the corticospinal system for the limb in which 'tonic innervation' is found is not functionally normal: at the same time the involvement must not be too great. As a corollary," these writers say, "the remark may be made that tonic innervation is not dependent on, nor does it proceed *pari passu* with, hypertonicity of pyramidal origin."

Wilson and Walshe make an interesting comparison and draw analogies between "tonic innervation" and myotonia congenita or Thomsen's disease and myotonia atrophica, holding that "as far as the actual symptom of inability to relax a contracted muscular group is concerned, no clear or unequivocal distinction can be drawn between its manifestation in the latter of these conditions as opposed to the former." My own observations which cover cases of each of these different forms of aberrant tonic innervation are confirmatory of this view. I am firmly of the opinion that the phenomena in Thomsen's disease and in myotonia atrophica are not myogenic, but of central (cerebral and spinal) origin.

In conclusion I shall give in detail the notes of a most instructive case of perseveration:

A. L., a white male, aged 37, unmarried, a marine, while located in the Panama Canal Zone, had an attack in July, 1912, of hemiplegia or hemiparesis accompanied by aphasia. The attack was not connected with any injury and came on while the man was at luncheon. He remained in the Ancon Hospital about six months, during which time he relapsed several times with fresh cerebral attacks, probably hemorrhagic in character. His hemiplegia almost entirely cleared up; the aphasia only in small part. Dr. W. E. Deeks, who conveyed these facts in a letter, also stated that he had a pyelonephritis due to a *Bacillus pyocyaneus* infection. He had at the time when he was first seen by me jacksonian epileptic seizures involving chiefly the right arm. When the examiner offered to shake hands with him he refused, intimating by pantomime that he was afraid he would injure the proffered hand. His reason for this was quickly seen when he was offered the handle of a percussion hammer. This he grasped tightly, and it could not be dislodged from his hand for some time. He was then told to make a fist, and when told to relax the hand he could not do so, and the examiner was unable with his two hands to unclasp the fingers.

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[2] Wilson, S. A. Kinnier, and Walshe, F. M. R.: The Phenomenon of "Tonic Innervation" and Its Relation to Motor Apraxia, Brain, 1914, xxxvii, Part II.

Examination of the upper extremities showed that on the right side the triceps and biceps reflexes were increased, being normal on the left side. Plantar stimulation caused plantar flexion on both sides. On the right side plantar stimulation caused a reflex of defense, but not extension of the great toe. Pain, touch, heat and cold senses were normal. In walking, the right foot dragged slightly. Station was unaffected with the eyes open or closed. Mentality was good. He was a motor aphasic, having a few short expressions only.

An eye examination was made by Dr. H. M. Langdon, who reported that the pupils were equal, regular, and reacted to light and accommodation; 9/10 normal vision on illiterate card; media clear; disks normal in color and outline; no changes in the fundi; no hemianopsia, and cranial nerves normal.

Wassermann examination proved negative, as did also the general investigation of the blood and examination of the urine.

Shortly after he was admitted to the nervous ward of the hospital, Dr. William G. Spiller happened to be in the ward when this patient had an attack of jacksonian spasm, preceded and accompanied by phenomena of perseveration. He dictated at once the following account of the seizure:

"When first seen by me the hands were firmly clasped together, and it required much effort to separate the fingers even of the left hand. So soon as the hands were separated the left hand was found to be in a normal condition. There was no spasticity of this hand, and yet while the hands were clasped it required effort to raise the left fingers, from which it seemed that there was also spasticity in the left hand. It is remarkable, however, that immediately after the left hand was released there was no spasticity in this hand. The right hand remained in strong clonic spasm. In a few minutes the right fingers could be moved voluntarily very slowly and to a very limited degree. During the early part of the attack the right lower limb was not affected, but five or ten minutes after the beginning of the observation the right lower limb presented a tremor involving all parts of the limb, but not causing displacement of the limb at any joint. The right upper limb then presented clonic spasm involving the whole limb and lasting possibly two or three minutes. This then yielded to a tonic spasm. The right hand seemed to be more involved in the tonic spasm than any other part of the limb. The attack lasted fully twenty-five minutes, and at the end of this time there was fine tremor of the whole right upper limb and whole lower limb. At this time weak movements could be made voluntarily of the whole upper limb."

Although the general symptoms of brain tumor were absent, in the light of the cases of Kinnier Wilson it was thought that possibly a tumor or cyst might be present in the left midfrontal region, and it was believed that an operation could at least do no harm and might give some relief. Dr. Charles H. Frazier operated, Jan. 27, 1915, making a left frontal osteoplastic flap. No tumor or meningitis was discovered, but the brain presented a somewhat unhealthy appearance with lack rather than excess of pressure and slightly sunken outlines. It was probable that the patient had suffered from an attack of infectious encephalitis with repeated small hemorrhages. The symptoms presented after the operation were practically the same as those before, with the exception that there seemed to be less dragging of the right leg.

The following is a summary of notes made about three months after the operation:

The patient's station and gait were good. He was quite firm and steady and did not tend to drag either foot. Examining the right upper extremity and comparing it with the left, the patient had all movements of all parts of the limb—shoulder, arm, forearm, wrist, hand, etc. The left upper extremity, like the left leg and left side of the body generally, was practically normal as to power, testing him for strength by duplicated active movements. Astereognosis was not present.

He could say a few things such as "No ma'am," "Can do it," "Yes," "No," "This here," etc.

When tested for apraxia with a key, dumbbells, opening a knife, and sharpening a pencil, etc., he performed all the tests well with the exception of the dumbbells. In this test he was supposed to place the dumbbell held in his right hand on his left shoulder. In attempting to perform this he either placed the dumbbell behind his head or on the left side of his neck.

When the patient flexed the right forearm on the arm, not only the biceps went into powerful contraction, but also the triceps. During the examination the patient's right hand suddenly became flexed, and the muscles of the forearm, both flexors and extensors, became hard. This persisted for two minutes by actual timing, and during the attack he was unable to relax the innervation. At the end of two minutes the fingers slowly extended, and the muscles of the forearm relaxed. The muscles of the left arm and the lower extremities were not involved; neither was the face, and there was no disturbance of consciousness.

Directed to flex his forearm on his arm, the patient began and continued to do this with the appearance of great effort, the arm slowly flexing against resistance and with the apparent help of other muscular groups than those usually employed. On examination of the extensor muscles (triceps, etc.), it was found that these were in active tension and contraction, showing that the difficulty in flexion appeared to be due, in part at least, to the fact that the excessive tonic innervation was universal, or was both of the extensors and flexors of the forearm. In other words, the extensors were not in the relaxed condition usually found when strong flexion of the arm occurs.

Many years ago (1886) I recorded a case of myotonia which at that time I regarded as of hysterical origin, partly because the patient was cured or vastly improved as the result of treatment, this being the repeated applications of the actual cautery to the back of the neck.[3]

In 1891 I[4] published an account of two remarkable cases illustrating tonic innervation and tonectic phenomena of unusual interest.

One of these was probably an instance of Thomsen's disease, although I could not obtain any family history. All parts of the musculature of the body were liable to sudden "locking." The patient had many falls as the result of the sudden access of what might be termed universal active perseveration. In opening and shutting the hands, in opening the mouth, in rising from a recumbent or sitting position, and in numerous other ways, all of which are detailed, some of them with photographs, this patient presented in extreme degree the phenomena of tonic innervation usually induced by volitional effort, although coming on at times without apparent interference of the will.

In the same article in which this case is recorded I[4] published an account of another case of myotonia and athetoid spasm which is cited by Wilson and Walshe, who speak of it as difficult to classify, while regarding it as unique. These writers say that the indications all point to the lesion being of central origin. In their search for literature they overlooked the fact that subsequently an account of the necropsy on this patient was published by me.[5] Besides the myotonic and athetoid phenomena this patient had marked disturbances of sensation. The following partial summary of the findings at the necropsy shows that both an irritative and destructive meningoencephalic lesion extended over a large part of the convexity of both hemispheres, the pathologic conditions being most pronounced in the parietal region:

The calvarium was dense and heavy. The dura was unusually adherent and nowhere translucent. The pacchionian depressions were not unusual. Over the central part of the lateral surfaces of both hemispheres, that is, chiefly over the superior and inferior parietal gyres, the dura was adherent to the pia. The pia was deeply injected, thickened, and infiltrated with plastic lymph, and in numerous places were more or less firm attachments to the brain substance; but the injection, infiltration, exudation and adhesions were much more marked in the posteroparietal regions than elsewhere.

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[3] Mills, C. K.: A System of Practical Medicine by American Authors, edited by Drs. William Pepper and Louis Starr, v, 241.

[4] Mills, C. K.: Myotonia and Athetoid Spasm, International Clinics, April, 1891, Series 4.

[5] Mills, C. K.: Jour. Nerv. and Ment. Dis., December, 1891.

Beneath the area of meningitis, both the cortex and the subcortex were softened, giving the appearance of a sunken subcortical or subpial cyst. On the opposite (left) side of the brain in a nearly corresponding but somewhat smaller area was a similar belt of inflammation and softening. Subsequent incisions on both sides showed that the softening included the whole of the gray matter, and involved to a considerable extent the white, but did not invade the ganglia or capsules; it was confined to the supraventricular corona radiata.

The vessels at the base were somewhat stiffened, but no other brain lesions were discovered.

As indicated in the previous notes of a series of cases of hemiplegia observed, variations in the degree and character of the permanent contractures, or the entire absence of contractures, were matters of paramount interest. Numerous theories as to the occurrence of persistent contractures in hemiplegia have been advanced and discussed, but none of these have proved entirely satisfactory. Some of the older observers simply contented themselves with the statement that the contractures were due to the secondary degeneration following lesions of the corticospinal motor system, or that they were dependent on irritation of the neurons of this system remaining by the products of the degenerated fibers. In most of the theories advanced, the incompleteness of the destruction of the pyramidal apparatus has been given as a partial explanation of the contractures. With complete destruction of the pyramidal tracts, as in total transverse paraplegia and rare cases of total hemiplegia, flaccidity or atonia are the striking manifestations, as was illustrated in some of the cases studied for this paper. It has been held, in other words, that the contracture was in a degree proportionate to the amount of paralysis present.

In the consideration of such questions as contracture and aberrations of muscle tonicity in general, the result of organic lesions (hypertonia, hypotonia, dystonia, perseveration) attention is too strictly confined to the pyramidal motor system. It is true, of course, that through the corticospinal motor apparatus and its musculature, the phenomena of muscle tonicity are exhibited, but it does not follow that tonus is primarily a pyramidal quality. The whole subject of aberrant muscle tonicity is much simplified by the recognition of the existence of a tonectic apparatus, that is, an apparatus for maintaining tonic innervation, extrapyramidal and therefore structurally distinct from the pyramidal system, although necessarily connected with it. In a previous paper[6] I have endeavored to present this view.

Tone is necessary for the rhythmetization of movement both voluntary and automatic. Tone, at least in the human being, is not a spinal or cerebellar attribute, but belongs to the cerebral cortex, becoming more cortical, as Crocq has shown, as we ascend from animals lower in the scale, the frog, the dog and the ape, for instance, to man. That the cortex of the cerebrum is the seat of tone is not a new idea. It has been held by many, the views of those expressing the theory, however, being somewhat diverse. In most instances the pyramidal motor cortex seems to be regarded as the rendezvous and storehouse of the tone derived from sensation and idea. The cerebral tonectic apparatus, I believe, is structurally separate from the motor projection systems. It has special cortical areas of representation, and these are connected by fiber systems with the sensorimotor executive apparatus on which tonectic excitations exert their influence. Regarding the frontal cortex from the central fissure to the anterior pole of the brain as subdivided into a prefrontal, a midfrontal and a postfrontal (motor) region, the cortical tonectic zone is chiefly midfrontal. The striatum is an association or integration region where are regrouped the excitations from the differentiated cortical centers for tone. Wilson holds that higher (cerebral) centers concerned with tone must be conceded, and that there is increasing evidence that muscular tone depends to some extent on the reaction between the "basal ganglia" and the cortex and especially the intermedioprecentral cortex.

The midfrontal or intermedioprecentral region is the cortical seat or rendezvous of tone, the place to which stream the affects or tone impulses of the sensory centers of the cortex. Separate cortical tonectic centers constitute together a cortical tonectic zone. This area is not necessarily topographically entirely segregated from the pyramidal motor cortex. Each motor center probably has its separate outlying cellular tonectic annex or dependency, these centers of tone lying in the main anterior to the motor centers proper.

I need not further recall the data and views expressed in this paper on muscle tonicity. Admitting its validity and turning to the question of persistent contracture or any other phenomenon of aberrant muscle tonicity, as perseveration, the explanation of the conditions presented becomes comparatively simple. In the first place, if tonic innervation is supplied to the pyramidal system and exhibits itself through the activities of this system, it is clear that for normal rhythmetization of movement the pyramidal system itself must be intact. Pyramidal lesions, according to their location and extent, will interfere with normal tonic innervation. A complete transverse lesion of the spinal cord or of the internal capsule will block the transmission of tone-maintaining impulses to musculature innervated below the seat of the lesion. This would seem to be the simple explanation of the cases of flaccid or toneless paraplegia from transverse spinal lesions, and of at least some of the cases of flaccid hemiplegia from completely destructive capsular lesions.

When, as most frequently is the case, the lesions of the cord or of the internal capsule are incomplete, the tonectic apparatus remaining intact, innervation will be irregular or aberrant in its manifestations. Like the motor cortex, the pyramidal tract itself has its functional subdivisions, and according to the retention or loss of the fibers of these subdivisions, will be the residual spasticity or flaccidity (hypertonia and hypotonia). Herein lies the explanation of many of the irregular phenomena of muscle tonicity exhibited in permanent contracture.

The hemiplegic musculature may be variously affected in other ways than simply by lesions of the pyramidal tracts. The withdrawal from the sensory pathway of the peripheral stimuli which contribute to cerebral tone by destructive lesions situated anywhere in the sensory pathway will eventually influence muscle tonicity. This is exhibited in the phenomena of hypotonia presented by advanced cases of tabes, or again as in one of the cases cited in this paper by a large destructive lesion of the parietal lobe.

Lesions of the tonectic cortex (chiefly the midfrontal cortex) or of the striatum, will give aberrant tonectic manifestations. The phenomenon of perseveration is particularly interesting in this connection. The cases so far recorded with necropsy support would seem to show that for its exhibition extrapyramidal lesions are usually to be sought for — lesions of the midfrontal (intermedioprecentral) cortex, of the striatum, or possibly of the ruber or thalamus. Usually in well marked examples of perseveration such as are referred to in this paper and have been recorded by Wilson and others, some involvement of the pyramidal system is indicated, although this is generally of moderate extent, the lesions being chiefly extrapyramidal. It was noteworthy in the series of cases studied for this paper that perseveration was rarely present, which is probably best explained by the fact that, in most of the cases of the series, destruction of the pyramidal tracts, while not complete, was large in extent. It is probable that in a few of the cases in which the contracture was exhibited, not in the usual irregularities of spasticity and flaccidity, but in a generalized excessive tonic innervation, the lesion present was in part at least extrapyramidal as well as pyramidal.

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[6] Mills, C. K.: Muscle Tonicity, Emotional Expression, and the Cerebral Tonectic Apparatus, Neurol. Centralbl., 1914, No. 24.

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ABSTRACT OF DISCUSSION

Dr. William J. Hickson, Chicago: In making a diagnosis of hemiplegias and diplegias in the feebleminded, I used the blood pressure apparatus in over 100 cases and invariably found marked changes in the registration even where it was very hard to make a clear cut diagnosis of spastic or flaccid paralysis. In regard to flaccid paralysis, for over a year I had opportunity to work with a well known authority and saw the outcome of his cases on which he was at that time specializing, and after all the work and manual training carried out in handling that sort of thing these patients were invariably worse; at the end of a year or two they had this tonicity which Dr. Mills has so well illustrated.

Dr. Julius Grinker, Chicago: I have in mind the various cerebral palsies of long standing, that show, in old cases, a certain degree of flaccidity combined, perhaps, with the movements that are called athetoid. In many of those cases the lesion was found either in the cortex or the subcortex. At the present time I have under my care a case similar to the one that Dr. Mills used as a basis for his hypothesis. A young man of about 19 came to me complaining of the symptoms of paroxysmal hypertonic contraction of the toes, preventing him from walking, for when he attempts to walk there occurs a sudden dorsal flexion of his big toe first in one foot and then in the other. He, too, presented the symptom of perseveration, or persistent muscular contraction in the muscles of the lower extremities. In recommending operative treatment in this case, I had in mind the probability of a cerebral lesion of obscure origin as to onset. It occurred to me that perhaps the operation of cutting certain posterior roots in the lumbosacral cord might benefit the patient. Dr. Elsberg of New York operated on the boy about four months ago and he is much improved. While the question of therapeutics is not relevant to this discussion, yet the fact that the patient is improved would tend to confirm my diagnosis of cortical or subcortical lesion. I could not believe that I had a lenticular lesion in that case. Dr. Mills has thrown much light on my case, and I believe there are many other cases of disordered motility which his theory will explain.

Dr. Foster Kennedy, New York: I saw Dr. Grinker's patient. I, too, advised operation, but I did not believe the patient had had an encephalitis. So far as I could ascertain, the onset of the extraordinary rhythmic involuntary contractions of his leg muscles developed very slowly and progressively over a number of years, and I did not feel that they could be due to any encephalitic process; but on the contrary I believed there was a distinct identification with those cases which Dr. Hunt speaks of as progressive torsion spasm of the pelvic muscles. Cases of obscure muscular tonicity of such character, without apparently any definite cerebral symptoms, occur quite gradually and are progressive in type. I am very much interested in the fact that operation was beneficial in that case.

Dr. J. Ramsay Hunt, New York: There can be no question but that the corpus striatum is a lesser motor mechanism which has to do with the control of associated and organic movements. And one of the essentials of that control is the control of tonus, because, as we have seen in Wilson's writings, if it is destroyed there is not only a paralysis, but a loss of control of tonus. With destruction of the cortex or pyramidal system, which is a much greater system, there is a loss of tonus. From our present knowledge therefore we cannot dissociate the loss of tonus from the loss of control. Dr. Kennedy has referred to my subject of progressive torsion spasm. It would seem that this is a disease of a lower tonus mechanism, even lower than the corpus striatum. This is evident when we stop to consider that as the nervous system has gradually developed in the course of evolution, there must and should be such a center as would serve to control tonus in automatic and associated movements. And it seems to me that there is good reason for believing that this mechanism is undergoing degeneration in such a disease as progressive torsion spasm.

Dr. Charles K. Mills, Philadelphia: The whole subject of tonus has been pretty thoroughly studied in the lower animals and up to man, as for instance by observers such as the Belgian, Crocq. My own views I tried to express—perhaps not so clearly—in the introductory remarks to my paper. About one thing I desire to be quite definite. I do not believe that in strictness tonus is a fundamental quality of the pyramidal system. If we are discussing a question like muscle tonicity, however, it is of course perfectly evident that muscle tone so considered can only be exhibited through a neuromuscular apparatus of which the pyramidal cortex and the pyramidal tract are a part. There is a tonectic system, both cortical and ganglionic, distinct from the pyramidal apparatus. The tone, however, must, so to speak, be delivered to the pyramidal system. In the cortex are differentiated tonectic centers and the striatum, or a part of it, is a structure, one of whose functions is to associate cerebral tone so that it may be applied to synergized movements. In man the centers concerned with tonic innervation are primarily cerebral and cortical. These centers of tone are charged by the inflow of sensation from the periphery, and also by the influx of ideational impulses, these being themselves primarily derived from sensation. As to the question of pelvic dystonia, as far as the very few cases I have seen are concerned, I do not believe the phenomena can be explained on any purely pyramidal theory, although it is always to be remembered that tonectic phenomena are expressed through the pyramidal system and its neuromuscular connections.

Appetite.—Appetite, as we know it, cannot be separated from our memory of past experience with food, that is, the taste, smell and appearance of food. In fact, it appears to be essentially pleasant memory processes of these past experiences, and the "urge" in appetite may be only a special case of the general desire for pleasure. If this is the case, there can be no urge for food in the absence of past experience with food on the part of the individual, and as this is lacking in the newborn, the appetite urge must also be wanting. Hence it is not the factor that guides the newborn individual for the first time to abolish the pangs of hunger by ingestion of food. However, it is conceivable that appetite contains an elemental urge for food as an inherited mechanism and thus not dependent on individual experience, and that when the individual has such experience with food, memory processes of this experience fuse with or overshadow the inheritance factor, so that the two cannot be dissociated in consciousness. This inherited appetite urge, if it exists at all, is probably essentially a positive chemotrophism (smell, taste), although birds hatched sufficiently mature to seek their own food probably select or seek the food by vision rather than by smell.—Control of Hunger in Health and Disease, A. J. Carlson.

USEFUL DRUGS *

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Nearly ten years ago the Council on Pharmacy and Chemistry of the American Medical Association took up the discussion of the practicability of selecting a list of drugs on which teachers of pharmacology and therapeutics in medical schools might base their routine instruction, with which students and medical practitioners generally might be expected to be familiar and to which state examining and licensing boards might largely or entirely confine their examinations in materia medica subjects. The Council later secured the cooperation of the National Confederation of State Medical Examining and Licensing Boards, of teachers of pharmacology and therapeutics in practically all of the larger medical schools, and of a number of medical men in this country and abroad who were interested in the subject in a practical way. On the basis of the data secured from the criticisms and suggestions received from these various sources, a list of drugs was prepared. This list was further discussed, revised and finally adopted by the Council on Pharmacy and Chemistry and published in 1913, under the title "A Handbook of Useful Drugs."

The immediate object of the compilation was to have a selected list of drugs for use in medical schools and as a basis for examinations by state medical examining and licensing boards; the ultimate object was to develop a thorough knowledge regarding the uses and limitations of a few drugs rather than a smattering knowledge of many. A number of medical colleges have already adopted this little book as a text, and have found it very satisfactory. At least twelve examining boards, including Delaware, the District of Columbia, Hawaii, Kentucky, Louisiana, Michigan, Minnesota, New Jersey, New Mexico, Rhode Island, Virginia and West Virginia are now basing their examinations on the list of "Useful Drugs," and other boards will undoubtedly adopt the list in the near future.

The prospective publication of the ninth revision of the Pharmacopeia of the United States of America suggested to the Council on Pharmacy and Chemistry of the American Medical Association the desirability of preparing a revised edition of "Useful Drugs" to embody the requirements and standards of the new Pharmacopeia for the articles that are included in the list of useful drugs.

In connection with this proposed revision of the book an effort was also made to correct the composition of the list with a view of making the book represent as completely as practicable the present day status of drugs and preparations generally recognized as representative of the best in our available materia medica.

To secure the cooperation of men qualified to express an opinion on the subject, the Council directed that a circular letter and a dosage list of the articles included in the first edition of "Useful Drugs" be sent to teachers in medical schools and to a limited number of other practitioners who, it was thought, might be sufficiently interested to cooperate in a practical way.

The replies that were received to the inquiries included in the circular letter have been helpful in a number of ways, and it is expected that the revised edition of "Useful Drugs" will reflect, even more than did the first, the best and most reliable of the available drugs and preparations that are offered to medical men at the present time.

Several teachers in commenting on the list of articles in "Useful Drugs" have expressed the hope that the Council in the very near future might see its way clear to issue a still more restricted list.

From a practical point of view it would appear that a comparatively small book which students can carry to their classes and which they could use to refresh their memories would have many points of advantage and would go far toward developing a more complete and more comprehensive knowledge of the drugs and preparations used as medicines.

Physicians and others who can remember the very deplorable conditions that existed in this country some ten years ago, when the work of the Council on Pharmacy and Chemistry was comparatively new, will appreciate the need for thorough and systematic training in regard to the action and uses of drugs.

The reason formerly given for the lack of practical knowledge of the nature, properties and uses of drugs was that the very large number of drugs described in textbooks involved so much detail that it was practically impossible to pass to the student a working knowledge of these drugs in the short time that was available for his instruction in this particular branch.

For many years, therefore, a frequently uttered and admittedly valid criticism on the medical profession was that the newly graduated physician did not have even a superficial knowledge of the possibilities and limitations of the substances that he essayed to use in the treatment of disease.

To bring about some degree of improvement in the conditions as they existed a decade or more since, the Council thought it desirable to discourage the use of the vast number of drugs in which most of the modern critical clinicians have little confidence.

It is generally agreed that while imperative drugging or the ordering of medicines in any and every malady is no longer regarded as the chief function of the physician, the use of drugs is nevertheless more firmly established at the present time than ever before, and the well trained critical clinician of today is characterized by a firm faith in a few good, well tried drugs, and little or none in the great mass of medicines, both actively nauseous or practically inert, that are still in widespread use.

It is generally recognized among well informed practitioners that to secure uniform results from the use of drugs the physician must be assured that the preparation he is using complies fully with the requirements that have been established as necessary to secure the results that are to be expected. From this point of view the endorsement of the list of useful drugs as here outlined would offer possibilities for a decided improvement in the nature and purity of the drugs and preparations used in the treatment of disease. From the available reports on conditions existing in the drug trade at the present time, it is evident that the average pharmacist cannot well be expected to examine systematically or control all of the thousands of articles carried in stock by him as medicines. A more widespread recognition of the possible uses of the drugs included in the list of "Useful Drugs" would make it possible to develop the systematic control of a limited number of articles and thereby assure physi-

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

cians and others that the articles included in this list will uniformly comply with the official requirements.

As further argument for restricting the number of drugs to be generally discussed in textbooks or in medical schools, it may be reiterated that many of the available textbooks on pharmacology and therapeutics are mere compilations containing false statements, unproved theories and unverified clinical evidence representing the guess work of ancient uncritical observers. Many drugs have been and still are vaunted in textbooks as valuable in a variety of conditions for which scientific investigation and carefully controlled clinical observation have long since proved them to be totally worthless. Many other drugs have been shown to be of value only in an extremely limited number of conditions, and the Council feels that the sooner writers of textbooks realize this fact and enter into the spirit of the new era, the better for the public and for scientific medicine generally.

In compiling the list of useful drugs, particular attention was given to the reports of pharmacologic research and the application of scientific methods in the study of the physiologic action of drugs.

The list of useful drugs as now constituted is elastic, and there is no reason why new and valuable additions to the available materia medica should not be promptly included in the list, provided laboratory studies and the observations of critical clinicians agree that the new drug really represents a decided improvement or is in effect a specific for any given disease.

The list of useful drugs as now compiled is intended to include only such drugs and preparations as are generally used or are accepted as having a well established value either as medicine or as a necessary vehicle for more active substances. For practically all of the drugs and preparations now included in the list of useful drugs, methods of assay are available so that the purity and strength of the substance can readily be determined and, as suggested above, physicians can, if they will, secure practical uniformity by insisting that the pharmacist apply the comparatively simple tests that are included in the Pharmacopeia or other books of standards in which the composition and properties of the several articles listed in "Useful Drugs" are further described.

In round numbers, the present list of useful drugs includes 450 titles, of which 220 may be classed as drugs and chemicals, 175 preparations of these drugs, 42 as definitions of forms of drugs, and 13 as cross references.

The following articles included in the first edition of the book have been deleted from the present list: spiritus aetheris compositus calcii hypophosphis, calcii phosphas praecipitatus, cannabis indica, extractum cannabis indicae, magnesii sulphas effervescens, oleum rosae, tinctura cannabis indicae, resina, sparteinae sulphas, viburnum prunifolium and fluidextractum viburni prunifolii.

The drugs and preparations added to the list include: atophan and novatophan, chenopodium oil, emetine hydrochloride, hypophysis and solution of hypophysis, novocaine, picric acid, sodium biphosphate, staphylococcus vaccine and typhoid vaccine.

These additions and deletions have been endorsed by a number of practitioners, but the Council on Pharmacy and Chemistry would be pleased to have comments and criticisms from all who are in any way interested, so as to make this list all that it really should be: a truly representative reflection of the best practices in American medicine at the time of its publication.

CONCLUSION

1. Among the advantages to be derived from a general endorsement on the part of medical practitioners of the principles represented by the compilation designated "Useful Drugs" are:

(*a*) A proper knowledge of the possibilities and limitations of drugs as factors in the treatment of disease on the part of all ordinarily well informed persons.

(*b*) The thorough and systematic training of medical students in regard to the action, nature, properties and uses of drugs that are included in the list.

2. Training as here suggested would be a guarantee that coming generations of physicians have at their command a materia medica sufficiently comprehensive to meet all requirements. It would also insure more rapid and at the same time more rational progress in matters relating to the treatment of disease by the development of competent and critical observers.

3. The widespread use of a limited number of drugs would make possible the efficient control of all widely used drugs and preparations on the part of the pharmacist and thereby insure to physicians and their patients a supply of drugs and preparations of uniform nature and purity.

4. A thorough knowledge of the possibilities and limitations of drugs in the treatment of disease would naturally entail a proper appreciation on the part of the lay public of the fact that medicines to be really useful as medicine are physiologically active, and that misapplied they may disarrange normal metabolism and thus bring about untoward results.

ABSTRACT OF DISCUSSION

Dr. O. T. Osborne, New Haven, Conn.: On going critically through "Useful Drugs," I find very little to criticize. Last year the Connecticut Medical Society instructed its examining board to use this book for the state examinations on drugs. A radical step was taken this last year by the Yale Medical School in allowing the students to write prescriptions in English. Latin is not now required for entrance into most medical schools, and the mistakes in Latin on prescriptions are frequent and ridiculous. Also, if we decry the secrecy of proprietary mixtures, it is hardly advisable to be mysterious in prescription writing. For instance, let "aqua gaultheriae" be written "wintergreen water." The State Examining Board of Connecticut will accept these English prescriptions.

Dr. N. P. Barnes, Washington, D. C.: About five years ago I recommended to the American Therapeutic Association a form of proved drugs of proved value, standardized and classified. The association did not take it up, but I am glad to see that this section took it up. I am glad to hear what Dr. Osborne said about prescription writing. We spend too much time on prescription writing. We hammer at this year after year—the combining of four or five drugs in a prescription written in Latin. One of my students copied a prescription from a book. I do not know whether he copied it correctly or not, but he failed. It has only been a few years since we could educate doctors, as the majority went through in a two-year course. I think the question now is not so much to educate the public as to educate the medical profession in the matters of therapeutics. Any man you meet on the street can give you therapy—the whole public is full of it—you can get remedies suggested for anything that ails you from any person you meet. When I go into families I can tell how good a physician the family has had before. When you see a family well informed on hygiene and sanitation you can depend on it the family physician before me was a good doctor. After all, it is the matter of educating the profession. After we get through teaching how to write prescriptions we should follow the students into the clinics because there is where they have the demonstration of their knowledge. The other day in a hospital in Washington one man wrote for 2 ounces of sodium sulphate in 4 ounces of elixir! Think of it.

DUODENAL CULTURES IN TYPHOID FEVER AS A MEANS OF DETERMINING COMPLETE CONVALESCENCE *

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Some statistics[1] regarding typhoid fever will show the object of this work:

1. Of every 10,000 apparently perfectly healthy residents, 2.3 are typhoid carriers.
2. Fifty-five per cent. of all typhoid cases are due to carriers either directly or indirectly; 17 per cent. are due to direct contact with carriers; in exact numbers, Gaehtgens[2] found that out of 386 cases, seventy-seven, or 20 per cent., could be traced to chronic typhoid carriers.
3. Park[3] has estimated that one in every 500 adults who never knowingly had typhoid is a typhoid carrier.
4. Of every hundred typhoid cases, from three to six become typhoid carriers.

Naturally, it must be remembered that typhoid carriers may be either permanent or temporary. Thus one can apply the expression *omnis typhus ex typho.* The ideal of prophylaxis in typhoid is therefore detection of typhoid carriers.

It should be the duty of hospitals and physicians taking care of typhoid patients to be certain on discharging their patients that the latter are not typhoid carriers. The usual way of determining this, when it is done at all, is by examination of urine and stool. The examination of the urine for typhoid bacilli is simple, the disadvantage being that as a general rule only a small percentage of cases continue to show typhoid bacilluria; usually the excretion of the bacteria is by the feces.

The examination of the feces is under ordinary circumstances attended with marked difficulty. The overgrowth by colon and other bacteria makes it necessary to have special mediums, of which great numbers have been advised. But even then success is difficult and not assured. The varied opinion and mode of procedure that different institutions all over the country have adopted for the discharge of their typhoid patients with special regard to urine and stool examination is indicated by statistics of Dr. F. S. Graves of the University of Louisville Medical Department. A year ago Dr. Graves sent the following question to the various institutions: Are repeated routine examinations made of (*a*) the urine and (*b*) stool from typhoid patients before their discharge from the hospital?

Answers were received from twenty-four of the leading hospitals in this country. Of these, only nine institutions examined the urine and stool of their typhoid patients before discharging them from the hospital. Eleven institutions disregarded such examinations entirely, five definitely stating that the technical difficulties associated with the inaccuracies of the findings in stool examination did not warrant the time spent.

One institution intended to take up the examination.

One examined these excretions only when the occupation brings the patients in contact with foods.

One examined the urine and not the feces.

One discharged patients even with bacteria in the urine, if these persistently remained there.

Thus is seen the difficulties which all have with the stool examinations.

The gallbladder or bile is the source of entry of the bacteria into the intestines, and numerous observers have attempted in various ways to get larger collections of bile for such examinations. For example, massage of the liver and then examination of the stool have been advised.

Foster and Moritz[4] gave cholagogue cathartics and then examined the stool.

Weber[5] advised cultures from the bile by means of the Volhard oil breakfast.[6] From 250 to 300 c.c. of sterile olive oil are introduced through a sterile tube after lavage of the stomach with sterile water. The oil is removed from the stomach in half an hour through a sterile tube. This incites a bile entrance into the stomach. In three cases of typhoid fever, the bile showed typhoid bacteria (Kiralyfi[7]).

I attempted the direct examination of the bile removed from the duodenum, as thus the difficulties from the great number of contaminating bacteria present in the stool are excluded, no special mediums are essential, and the bacteria are present in great numbers.

The bile was collected in the following manner:

Just before retiring, the patient swallowed the Einhorn duodenal tube. Next morning he received a fluid breakfast to assure the passage of the tube into the duodenum and stimulate the secretion of bile. About one and one-half hours afterward, the tube and duodenum were washed out with sterile water or saline solution by injecting 8 to 10 ounces of sterile water or saline solution through the tube, and in half an hour to an hour. aspiration with a sterile syringe brought forth large quantities of bile. I was surprised in several instances to be able to get as much as 20 or 30 c.c. of pure, clear bile. With the gravity duodenal tube of Palefski, it would not be necessary to introduce the tube the night before, as the heavy weight of this tube traverses the stomach rapidly, and enters the duodenum in from one to two hours.

Cultures of the bile were made in plain broth and on ordinary agar plates. Growths were identified as usual by fermentation tests and specific agglutination. At the same time that the bile was thus examined, cultures of the urine and stool were also made as controls. It was interesting to find that out of twelve typhoid convalescent patients thus examined, we were able to detect two in whom the bile still contained numerous typhoid bacteria, but the urine and stool examinations proved negative. The typhoid bacteria were present in almost pure growth.

Repeated examinations in both of these cases in two weeks showed the bile also free of typhoid bacilli.

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* Read before the American Association of Immunologists, Washington, D. C., May 11, 1916.

[1] Forchheimer: Vaccines and Serums, v, 224; Ergebn. inn. Med. u. Kinderh., 1913, xi, 203.

[2] Gaehtgens: Deutsch. med. Wchnschr., 1909, xxxv, 1337.

[3] Park, W. H.: Typhoid Bacilli Carriers, The Journal A. M. A., Sept. 19, 1908, p. 981.

[4] Foster and Moritz: München. med. Wchnschr., 1908. lv, No. 1.

[5] Weber: München. med. Wchnschr., 1908, liv, 2443.

[6] Volhard: München. med. Wchnschr., 1907, liv, No. 9.

[7] Kiralyfi: Berl. klin. Wchnschr., 1912, xliv, 1985.

While these patients were only temporary carriers, still, spread of the infection was possible if proper precautions were neglected.

In one case the bile and stool showed no typhoid bacilli, while the urine showed a profuse typhoid growth. This finding persisted on several examinations, proving the existence of a typhoid cystitis. It finally cleared up. It is not the object of the duodenal cultures to replace the examination of the urine. A typhoid infection of the urinary tract may persist for months without any infection of the bile or gastro-intestinal tract. A bacteriologic examination of the urine, therefore, is always essential. It is the aim, however, to replace the stool examination by the much simpler and apparently more accurate examination of the bile.

Gaehtgens[8] has shown that typhoid bacilli decrease in numbers in the intestinal tract as we pass downward from the duodenal opening of the bileduct to the rectum, and that they are to be found most constantly in the gallbladder. Flutterer[9] in 1888 first called attention to typhoid bacilli in the gallbladder, and now it is definitely known that the infection may be perpetuated in the gallbladder for many years following convalescence.

Kaspar[10] was able to detect typhoid bacilli in the bile removed from the stomach after a test oil breakfast seven years after an attack of typhoid fever.

Thus the idea of cultivating typhoid bacilli from the duodenal contents, rather than from the stool, was considered long ago, on account of difficulties experienced with stool examinations. In a series of cases, Kayser[11] found no typhoid bacilli on three repeated examinations of the stool, whereas later tests proved the individuals to be carriers.

In 1912, Dr. Hess[12] passed a duodenal catheter on a baby 22 months old, suffering from typhoid fever, in the beginning of the third week; a small amount of bile-containing fluid was aspirated from the duodenum, and from this fluid typhoid bacilli were cultivated in very large numbers. In that paper Dr. Hess suggested that this simple procedure might be of value in the diagnosis of typhoid carriers.

MacNeal and Chace[13] recovered typhoid bacteria from the duodenum in a case of relapse from typhoid. Einhorn[14] reported a case in which I recovered typhoid bacteria from the duodenum of a typhoid carrier. Whether or not examination of the duodenal contents can be of aid also in the early diagnosis of acute typhoid fever is an interesting topic for further study.

CONCLUSION

Cultures from duodenal contents (bile) removed by means of the duodenal tube seem to be a more reliable and simpler method for the detection of typhoid bacilli than stool examinations.

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[8] Gaehtgens: Berl. klin Wchnschr., 1912, xlix, 296.
[9] Flutterer: München. med. Wchnschr., 1888, p. 315.
[10] Kaspar: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvi, No. 5.
[11] Kayser: Arb. a. d. k. Gsndhtsamte, 1906, xxiv, 173.
[12] Hess: Jour. Infect. Dis., July, 1912, xi, 71.
[13] MacNeal and Chace: Tr. Am. Gastro.-Enterol. Assn., 1913, p. 26.
[14] Einhorn: Tr. Am. Gastro.-Enterol. Assn., 1913, p. 52.

A Measure of Greatness.—A great clinician is remembered either by his original contributions to scientific medicine or by the effect of his mind and personality on his time and on the pupils he has formed.—Armand Trousseau: A Master Clinician, Fielding H. Garrison.

THE RELATION OF DIET TO BERIBERI

AND THE PRESENT STATUS OF OUR KNOWLEDGE OF THE VITAMINS

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The title of this paper is very broad, and as a comprehensive discussion of it would carry me far beyond the limits assigned to papers of this character, I shall necessarily confine myself to certain phases of the subject.

At the present day, there is a general consensus of opinion to the effect that beriberi is caused by a dietary deficiency, or that it is a disease resulting from faulty metabolism, and is directly caused by the deficiency of certain accessory food substances that have been called vitamins. In a general way this opinion is based on the following facts:

1. The complete failure of the adherents of the infection and intoxication theories to prove their case.
2. The carefully planned and controlled human feeding experiment of Fraser and Stanton,[1] in which they demonstrated beyond all cavil that beriberi can be experimentally produced in men by too exclusive feeding on overmilled or highly polished rice. This experiment was later repeated by Strong and Crowell[2] in the Philippines with a similar result.
3. The long series of animal experiments which have been repeated with substantially the same results in all parts of the world and by which it has been equally demonstrated that various animals, but particularly birds, when fed on diets that will produce beriberi in man suffer with a disease which in some instances is identical in symptomatology and pathology with human beriberi, and in other instances is so similar that we must believe that it is essentially the same disease.
4. The instances in which beriberi has been eradicated from various institutions or groups of men by certain simple but radical changes in the dietary. Every sanitarian should be familiar with the practical results of this character reported by Van Leent,[3] Vorderman,[4] Takaki,[5] Fletcher,[6] Highet,[7] Heiser,[8] Theze,[9] Chamberlain[10] and others.

Inasmuch as I have written at some length concerning this evidence elsewhere,[11] I shall not go into it further here, but will briefly mention some of the work that has led us to our present knowledge of the beriberi vitamins. Eijkman's discovery that fowls develop polyneuritis, a condition resembling if not identical with beriberi in man, when fed on an exclusive diet of polished rice, formed the entering wedge, and gave us an experimental animal. Eijkman also made numerous other additions to our knowledge, including the fact that the addition of rice polishings to the diet would prevent the disease. The next great step was made when Fraser and Stanton[12] showed that the protective substance was dissolved out of rice polishings by a 0.3 per cent. hydrochloric acid solution, and remained in solution even when sufficient alcohol was added to precipitate out the phytin. Chamberlain and Vedder[13] then showed that the protective substance was water soluble, alcohol soluble, but insoluble in ether, that it was dialyzable, adsorbed by animal charcoal, and that an extract of rice polishings containing only those substances soluble in both water and alcohol would cure infantile beriberi with marvelous rapidity. With the exception of the demonstration that infantile beriberi was curable by an extract of polishings, the work referred to above was all based on feeding experiments in which various extracts or substances obtained from rice polishings were administered to fowls subsisting on a diet of polished rice, and in which the *protective* power of the extracts was determined.

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[1] Fraser and Stanton: Studies from the Institute for Medical Research, Federated Malay States, 1909, No. 10.
[2] Strong and Crowell: The Etiology of Beriberi, Philippine Jour. Sc., 1912, vii, 271.
[3] Van Leent: Arch. de méd. nav. October, 1867, p. 241; Communication sur le beriberi, Cong. Internat. d. Sc. Med. Amst., 1880, vi, 170, etc.
[4] Vorderman: Onderzoek naar het verband tusschen den aard der rijstvoeding in de gevangenissen op Java en Madoera en het voorkomen van beri-beri onder de geïnterneerden, Batavia, 1897.
[5] Takaki: Three Lectures on the Preservation of Health Amongst the Personnel of the Japanese Navy and Army, Lancet, London, 1906, i, 1369, 1451, 1520, etc.
[6] Fletcher: Rice and Beriberi, Jour. Trop. Med. and Hyg., 1909, xii, 127; Lancet, London, 1907, i, 1776, etc.
[7] Highet: Beriberi in Siam, Philippine Jour. Sc., 1910, v, 73.
[8] Heiser, V. G.: Practical Experiences with Beriberi and Unpolished Rice, Philippine Jour. Sc., 1911, vi, 1237; Practical Experiences with Beriberi and Unpolished Rice in the Philippines, The Journal A. M. A., April 29, 1911, p. 1238.
[9] Theze: Note sur le beriberi a poulo-condore, Ann. d'hyg. et de méd. col., 1910, xiii, 16.
[10] Chamberlain: The Eradication of Beriberi from the Philippine Scouts by Means of a Simple Change in Their Dietary, Philippine Jour. Sc., 1911, vi, 133.
[11] Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913.

At this point in a brilliant series of researches, Funk[14] succeeded in obtaining from rice polishings a crystalline base which would promptly cure fowls that had already developed polyneuritis. Funk believed that he had succeeded in isolating this substance in a state of chemical purity, that it belonged to the pyrimidin group, and he even gave it an empiric formula, and coined the name "vitamin" for it. Vedder and Williams[15] found that, using Funk's method, they were able to obtain a crystalline substance which promptly cured fowls, but they were unable to obtain a sufficient quantity in pure form to subject it to accurate chemical analysis. At about the same time, Edie and his co-workers[16] obtained a similar curative substance but gave it a different formula, and Suzuki, Shimamura and Odake[17] by a different method obtained another vitamin of still different chemical composition. The careful chemist who reads these papers might come to the conclusion that the very existence of such a substance as the so-called vitamin was doubtful. However, the fact that such a substance exists is as well-proved as any natural fact can be. All of the foregoing investigators have succeeded in obtaining from rice polishings a chemical substance which in doses of a few milligrams was capable of curing birds suffering with polyneuritis induced by a diet of overmilled rice. But it is now evident that these investigators, and particularly Funk, were a little premature in announcing the chemical formula of the pure vitamin. Evidently none of them were working with pure vitamin, a fact which was admitted[18] by Drummond and Funk in a later article, who there state that they cannot isolate the pure vitamin, but that it is apparently decomposed during the fractionation and that all trace of it is lost. It should therefore be plain that while Funk's work gave a tremendous impetus to this investigation, neither he nor any of the foregoing workers succeeded in isolating pure vitamin, and that its chemical formula remains unknown. Williams,[19] however, now began an entirely new line of work. Guided by the information obtained in the previous analytic work on rice polishings outlined above, he succeeded in preparing, synthetically, substances that would cure polyneuritis in fowls. These substances display a remarkable dynamic isomerism which has a most profound influence on their antineuritic properties. The curative form of each compound readily undergoes at ordinary temperature a rearrangement of its atoms resulting in the formation of a physiologically inert substance. By the application of dry heat, the noncurative form can be readily reconverted into the curative one. Although the synthetic substances in which this physiologically important isomerism was first discovered were hydroxypyridins, it now seems possible that the antineuritic properties are not peculiar to them but are inherent in the type of isomerism of which they are capable. Later unpublished work of Williams and Seidell has furnished further evidence that a similar isomerism exists in the vitamin of yeast, and is primarily responsible for the instability of these compounds which has so far prevented their isolation.

The substance isolated from yeast which appears to display this isomerism is the well known purin base adenin. Just how narrowly defined the group of naturally occurring substances of this type may be remains for future investigation. Nothing is yet known as to the exact identity of the vitamin as it occurs in rice polishings or as to the chemical relation existing between vitamins obtained from various sources.

It is quite evident that this work indicating the importance of isomerism affords an idea which is quite as new and startling as the conception of the vitamin was three years ago. The study of dietetics from the point of view of the vitamins has only just begun, but it is evident that there are many of these accessory food substances which play an important rôle in metabolism, and that this fact must be taken into account in planning diets in institutions, and in interpreting the relation of diet to such diseases as pellagra.

The exact rôle which these vitamins play in metabolism has not yet been elucidated, and any opinions which have been expressed must be in the nature of tentative hypotheses. With regard to the antineuritic vitamin, I have proposed the hypothesis that this chemical substance acts as a building stone of the complex structure of the nervous tissue, without which it cannot be repaired.[11] When a deficiency in this vitamin exists, the nervous tissue becomes first exhausted and then degenerated until finally the symptoms of polyneuritis appear in fowls or dry beriberi in man. This theory is based on experimental observations. Thus Vedder and Clark[20] found that the mitochondria in the nerves of fowls showed definite changes after only seven days on a diet of polished rice, and long before the fowls showed any clinical symptoms of polyneuritis, and these changes were progressive the longer the deficiency lasted until evident degeneration could be demonstrated. Chromatolysis and changes in the tigroid substance of the cells of the cord, similar to that observed in pigeons which have been exhausted by long flights, may also be demonstrated in birds which have developed polyneuritis.

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[12] Fraser and Stanton: The Etiology of Beriberi, Studies from the Institute for Medical Research, Federated Malay States, 1911, No. 12.

[13] Chamberlain and Vedder: Contributions to the Etiology of Beriberi, Philippine Jour. Sc., 1911, vi, 251, 395; The Cure of Infantile Beriberi by the Administration to the Infant of an Extract of Rice Polishings, Bull. Manila Med. Soc., 1912, iv, 26.

[14] Funk: On the Chemical Nature of the Substance Which Cures Polyneuritis in Birds, etc., Jour. Physiol., 1911, xliii, 26; ibid., 1912, xlv, 75, etc.

[15] Vedder and Williams: Concerning the Beriberi Preventing Substances or Vitamins Contained in Rice Polishings, Philippine Jour. Sc., 1913, viii, 175.

[16] Edie, Evans, Moore, Simpson and Webster: The Anti-Neuritic Bases of Vegetable Origin with a Method of Isolating Torulin, Biochem. Jour., 1911-1912, vi, 235.

[17] Suzuki, Shimamura and Odake: Ueber Oryzanin, etc., Biochem. Ztschr., 1912, xliii, 89.

[18] Drummond and Funk: The Chemical Investigation of the Phospho-Tungstate Precipitate from Rice Polishings, Biochem. Jour., 1914, viii, 598.

[19] Williams, R. R.: On the Chemical Nature of the Vitamins, read before the Second Pan-American Scientific Congress, January, 1916, and not yet published.

[20] Vedder and Clark: Polyneuritis Gallinarum, A Fifth Contribution to the Etiology of Beriberi, Philippine Jour. Sc., 1912, vii, 423.

More recently Funk[21] and Braddon and Cooper[22] have published experimental work indicating that the antineuritic vitamin is concerned in some way in carbohydrate metabolism. This conclusion is based chiefly on the fact, which they claim to have demonstrated, that the rapidity of the onset of polyneuritis depends on the amount of carbohydrate eaten. In other words, if a definite but deficient amount of antineuritic vitamin is furnished, the fowls receiving 100 gm. of rice daily will develop the disease sooner than the fowls receiving 50 gm. of rice daily. I believe this observation to be erroneous. I shall not go into this subject in detail here, as I hope to publish the results of my experiments at another time. It is sufficient now to state that fowls will develop polyneuritis on diets containing absolutely no carbohydrate, such as exclusive diets of sterilized egg, or sterilized meat. In the light of this fact it is difficult to understand how the vitamin can be concerned in carbohydrate metabolism. The antineuritic vitamin is the only one of the accessory food substances concerning which there is sufficient evidence to even theorize concerning its action in the body, and it is certain that much more experimental work must be performed before we shall have any adequate conception as to the physiologic action of the vitamins.

The study of beriberi, scurvy and other deficiencies has led us to a working hypothesis that there are a number of different accessory food substances or vitamins and that each deficiency disease is caused by the absence of its particular vitamin. The question may naturally be asked, Why assume the existence of so many vitamins in our present state of ignorance concerning the chemistry of these bodies? May it not be a single substance acting differently under different circumstances and in different animals? I have elsewhere[11] stated the reasons which lead me to believe that dry beriberi and wet beriberi in man are caused by the deficiency of two distinct though possibly chemically related vitamins. With regard to scurvy it may be pointed out that men or monkeys fed on rice will develop beriberi, but if fed on bread will develop scurvy. It seems reasonable to suppose that there must be two vitamins concerned, the deficiency of one producing scurvy and deficiency of the other producing beriberi, and that the scurvy preventing vitamin is present in rice. Further, Funk and McCallum[23] and others have shown that diets which produce neither beriberi nor scurvy in rats may still be deficient in accessory food substances so that young rats are unable to grow on them. Indeed, McCollum and Davis[24] have shown that this failure to grow is due to the deficiency of two substances, one water soluble and one soluble in butter fat, both of which must be present before growth can proceed. From all of these facts and many others, it seems that we must assume that there is a whole group of accessory food substances or vitamins, and that further investigation will be necessary to determine the relation of these various substances to each other.

Much criticism has been expended on the term "vitamin." Most of this criticism is from chemists who point out that the termination "amin" indicates a definite chemical structure and that since the chemical structure of these accessory food substances is not definitely known, the term is probably a misnomer. To me this appears a splitting of hairs. Perhaps the term is not chemically exact, but neither is the use of the word "vaccine" etymologically correct. Most vaccines have nothing to do with a cow. The term "vitamin" is simply a convenient expression to use in place of the elaborate phrase "accessory food substance," and it will probably continue to be used because of its convenience. Vitamins are certainly necessary to life, and to that extent the term is etymologically correct and expresses a fact in one word which is lacking in the phrase "accessory food substance."

Finally, I wish to discuss briefly the application of some of the information obtained with regard to beriberi and scurvy, to other possible deficiency diseases. The deficiency in the dietary that causes beriberi is not by any means limited to rice, for it has been shown repeatedly that too exclusive diets of ordinary white flour, canned goods that have been sterilized, and most carbohydrate foods such as sugars and starches, tapioca, sago, hominy and certain kinds of cornmeal will produce polyneuritis in fowls and beriberi in man. Beriberi has been reported repeatedly in communities, asylums, prison camps, etc., where the diet has consisted largely of such foods. For this reason we may expect to find the disease more often than is generally supposed in the United States. I have already pointed out[25] the instances reported by Bondurant, Bradfield, Sams and Parker, and Wood[26] has recently reported the presence of beriberi in Carolina. It may be of interest to note that Jürgens[27] has recently reported what is probably wet beriberi in the prison camps of Europe, but describes it as the edema disease.

Rice, so far as known, has not been shown to produce scurvy in man or animals, but with this exception practically all of the articles named above have been definitely associated with outbreaks of scurvy. Salted meats are also notorious scurvy producers. Thus a diet of hard bread and bacon has often produced scurvy among soldiers when fresh vegetables and fruits were inaccessible, and similar diets produced scurvy with great regularity among sailors on long voyages before the compulsory use of lime juice.

It is noteworthy that where pellagra is prevalent in the United States, the sufferers from that disease are living very largely on articles that have been demonstrated to produce either beriberi or scurvy or both, namely, flour, cornmeal, canned goods, salt meat, etc. It is quite possible that these people have been protected from scurvy and beriberi because they have eaten a sufficient quantity of other foods that protected them against those diseases, such as fruit and beans, but left them susceptible to a third deficiency that produced pellagra. Dietary deficiency as a cause of pellagra has been dismissed summarily many times, simply because the investigator was ignorant of or misinformed with regard to the facts that the study of beriberi has developed.

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[21] Funk: Die Rolle der Vitamine beim Kohlenhydrat-Stoffwechsel, Ztschr. f. physiol. Chem., 1914, lxxxix, 378.

[22] Braddon and Cooper: The Influence of Metabolic Factors in Beriberi, Jour. Hyg., 1914, xiv, 331; Brit. Med. Jour., 1914, i, 1348.

[23] Funk and McCallum: Studies on Growth, Jour. Biol. Chem., 1915, xxiii, 413, etc.

[24] McCollum and Davis: The Nature of the Dietary Deficiencies of Rice, Jour. Biol. Chem., 1915, xxiii, 181.

[25] Vedder, E. B.: Some Further Remarks on Beriberi, Am. Jour. Trop. Dis. and Prev. Med., 1914, i, 826.

[26] Wood, E. J.: The Question of the Existence of Beriberi in the United States, read before Association of American Physicians, May 9, 1916.

[27] Jürgens: Edema Disease Among Prisoners of War, Berl. klin. Wchnschr., Feb. 28, 1916; abstr., The Journal A. M. A., April 15, 1916, p. 1278.

For instance, it is obviously absurd to assume that pellagra must be an infection or an intoxication because of its peculiar pathology. The degenerations in the nervous system in pellagra resemble certain known intoxications, but so does the degeneration of the nervous system in beriberi. Indeed, because of this fact, beriberi was for many years supposed by some to be an intoxication. It is hard to believe that the profound changes seen in the bones in scurvy can be due to the deficiency of any substance found in fruit juices, yet it has been proved that this is the case.

Again, if pellagra is a deficiency disease, as I believe it is, it has an extremely long depletion period. If Goldberger and his associates produced pellagra in their human feeding experiment, the depletion period on the diets used may be placed at at least five months. This long period that must elapse between the adoption of a deficient diet and the appearance of pellagra may easily mislead us in the interpretation of epidemiologic data, and it makes it very difficult to find a suitable experimental animal in which pellagra may be produced, for the simple reason that many animals, fed on presumably pellagra producing diets, will die of some other deficiency disease. I have myself fed four monkeys on diets similar to those observed among pellagrins, but these monkeys all died of scurvy.

The errors and pitfalls into which an observer may fall in trying to elucidate a deficiency disease are many, but for the future I think it will not be disputed that the investigator of pellagra should be fully informed with regard to the literature on other deficiency diseases.

CONCLUSIONS

As there are many conditions under which it is difficult for certain people and institutions to procure a rich and varied diet, I should like to repeat and emphasize the simple dietary rules which I have elsewhere formulated[25] for the prevention of deficiency diseases:

1. In any institution where bread is the staple article of diet, it should be made from whole wheat flour.
2. When rice is used in any quantity, the brown undermilled, or so-called hygienic rice, should be furnished.
3. Beans, peas or other legumes, known to prevent beriberi, should be served at least once a week. Canned beans or peas should not be used.
4. Some fresh vegetable or fruit should be issued at least once a week and preferably at least twice a week.
5. Barley, a known preventive of beriberi, should be used in all soups.
6. If cornmeal is the staple of diet, it should be yellow meal or water-ground meal, that is, made from the whole grain.
7. White potatoes and fresh meat, known preventives of beriberi and scurvy, should be served at least once a week, and preferably once daily.
8. The too exclusive use of canned goods must be carefully avoided.

I am sure that the strict application of these rules will eradicate scurvy and beriberi, and believe that they would be equally efficacious in eradicating pellagra from the United States.

721 Thirteenth Street, N.-W.

SYPHILIS WITH NEUROLOGIC SYMPTOMS SIMULATING OTHER CONDITIONS

SOME CASES AND THEIR TREATMENT *

D. A. HALLER, M.D.
AND
I. C. WALKER, M.D.
BOSTON

Since the introduction of the Wassermann reaction as a diagnostic test of syphilis, we have come to recognize more and more the protean manifestations of this disease and to realize that types of disease which before the introduction of the Wassermann reaction were regarded as being due to other causes may be caused by syphilis. At least, we failed to recognize the relationship of various types of disease to syphilis on account of the failure to obtain any very definite history of syphilitic infection or of symptoms in the past suggesting syphilis. The etiologic relationship to syphilis of these cases would pass unnoticed but for the positive Wassermann reaction. Such cases emphasize strongly the importance of carrying out in a routine way Wassermann reactions in practically all cases as is done on the medical service and on the neurologic division of the surgical service of the Peter Bent Brigham Hospital.

With the recognition of the incidence of syphilis and of the probability that syphilis may be the cause of the symptoms in a given case, the inauguration of antisyphilitic treatment is often followed by excellent results. There are, however, cases with neurologic symptoms and with a positive Wassermann reaction in which it cannot be said whether or not syphilis is the cause of the symptoms, inasmuch as these cases do not respond favorably to antisyphilitic treatment. In such cases it may be that there is a chronic cerebrospinal lesion of nonsyphilitic nature and coincident syphilis, or it may be that we are dealing with a case in which syphilis has produced permanent chronic changes from which recovery is impossible following antisyphilitic treatment. The following cases illustrate the association of syphilis as a probable cause of various neurologic symptoms, inasmuch as there was a positive Wassermann reaction, and an amelioration of symptoms occurred following antisyphilitic treatment.

Case 1 (Peter Bent Brigham Hospital Medical No. 1533).—A woman, aged 29, entered the hospital, Aug. 5, 1914, complaining of trigeminal neuralgia. A diagnosis of trigeminal neuralgia was made. There was no history suggestive of syphilitic infection or of antecedent syphilitic disease. Four years previous she had had a sudden onset at night of pain back of the angle of the left jaw; this was repeated on three successive nights. Following this there developed a typical picture of trigeminal neuralgia. Later there was a paralysis of the left side of the face, and subsequently the right side of the face became involved with attacks of sharp, cutting pain.

Physical examination was negative except for a moderate ptosis of the left eyelid and a greater fulness of the left side of the face and limitation of all voluntary movements of the right side of the face. The blood serum gave a strongly positive Wassermann reaction. The spinal fluid showed a slightly increased globulin, a cell count of 27, and a negative Wassermann reaction. She was treated with fourteen intravenous injections of salvarsan, a total of 4.1 gm. in four months. This was followed by intramuscular mercury for three months. Following the first four treatments with salvarsan there was steady improvement. Gradually the pain and tenderness along the right side of the face disappeared

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* From the Medical Clinic of the Peter Bent Brigham Hospital.

and the attacks of pain on the left side became less frequent, less severe and shorter in duration. After twelve treatments she was entirely free from pain and she has continued so for a year. The Wassermann reaction in the blood serum became negative and is negative at the present time.

Case 2 (Peter Bent Brigham Hospital Medical No. 851).—A woman, aged 46, entered the hospital, Jan. 27, 1914, and a diagnosis of trigeminal neuralgia was made. There was no history of venereal disease and no evidence of antecedent syphilitic infection. Three years previous she began to have attacks of pain and a feeling of pressure through both temples and eyes, but this was worse on the right side. Six months before entrance she developed pain and soreness in the right arm and right side; this lasted for one week. During the last ten days she had had paroxysms of excruciating pain in the right upper jaw, and more recently in the right lower jaw. This pain was knifelike and jumping in character.

Physical examination, except for the pain, tenderness and swelling in her gums, was negative. The blood serum gave a strongly positive Wassermann reaction. The spinal fluid gave a negative globulin test, a negative cell count and a negative Wassermann reaction. Following twelve intravenous injections of salvarsan, a total of 4.1 gm., there was entire relief of all symptoms. Three months later there was a slight return of pain, but three more doses of salvarsan relieved this, and the blood serum Wassermann reaction became negative. The patient has remained entirely free from all symptoms for six months.

Case 3 (Peter Bent Brigham Hospital Medical No. 1259).—A man, aged 43, entered the hospital, May 18, 1914, complaining of attacks of unconsciousness. A diagnosis of idiopathic epilepsy was made. Four months previous he had had a typical epileptic convulsion lasting for twenty minutes. Three months previous he had noticed attacks of numbness in his left hand, arm and face; the numbness usually started in his thumb and gradually involved his left hand, arm, shoulder and left face. These attacks lasted only a few moments. During the past two months he had had frontal headaches coming on usually in the early morning and lasting for an hour.

Physical examination was negative except for slight inequality of the pupils. The blood serum gave a positive Wassermann reaction. The spinal fluid showed 16 cells per cubic millimeter and a questionably positive globulin test and a positive Wassermann reaction with 0.5 c.c. He was given three intravenous injections of salvarsan, a total of 1.5 gm., and also inunctions of mercury. Two years have elapsed since treatment was stopped, and there has been no return of symptoms.

This case is cited as an example, although not typical, in order to call attention again to the fact that syphilis probably accounts for a certain number of cases of epilepsy. We have had nine typical cases of epilepsy, all of which were in young adults. Three were treated with salvarsan alone, and the remaining ones with mercury intramuscularly. In all of these cases the attacks were greatly diminished in frequency, and in some the attacks stopped. In one case the epileptic attacks were diminished from eighteen a year to four; in another case a year and in still another more than a year has elapsed without an attack. That epilepsy may in some cases be due to syphilis is further evidenced by the fact that some patients with congenital syphilis have epilepsy from birth. We have seen three such cases. The spinal fluid in the cases of epilepsy gave a negative Wassermann reaction, but in the congenital cases it was positive.

Case 4 (Peter Bent Brigham Hospital Medical No. 2825).—A boy, aged 3 years and 6 months, entered the hospital complaining of headache and vomiting. A diagnosis of epidemic cerebrospinal meningitis had been made, and treatment with antimeningococcus serum had been given previous to admission to the hospital. There was no history of syphilitic infection and there were no symptoms suggestive of syphilis in either of the parents or in the child. Both parents gave a negative blood serum Wassermann reaction. The child had had no previous illness, except scurvy at the age of 1 year. During the six months previous to admission to the hospital, the child had had some discomfort about the right ear. For two months previous he had had headaches of varying intensity with occasional vomiting. One month previous he had had some retraction of the head of three days' duration. One week previous he had had an increase in severity of all these symptoms. Four days previous the symptoms had presented a picture of meningitis, and antimeningococcus serum was given intraspinally. Following this, two lumbar punctures had been performed; but at no time were any organisms found in the spinal fluid. On admission to the hospital, the child showed evidences of an acute meningitis. His temperature was 103 F. and his pulse was 180 per minute. There was retraction of the neck and a double Kernig's sign. There was slight photophobia, and the pupils were moderately dilated. He moaned continuously and screamed with pain whenever an attempt was made to move him. The white blood count was 29,000 per cubic millimeter. A differential count showed 70 per cent. polymorphonuclears, 18 per cent. small mononuclears and 12 per cent. large mononuclears. The Wassermann reaction in the blood serum was strongly positive. The spinal fluid was purulent and contained 9,800 white cells per cubic millimeter; the differential count showed 62 per cent. lymphocytes, 26 per cent. polymorphonuclears and 12 per cent. endothelial cells. The Wassermann reaction in the spinal fluid was positive with 0.1 c.c.

The child was under observation for eleven days without treatment and without any change in his condition except for temporary relief following lumbar puncture. Treatment was then begun with intraspinal injections of salvarsanized serum at frequent intervals, and an occasional dose of salvarsan was given intravenously. The child improved rapidly and returned to normal except for partial deafness. In four months the Wassermann reaction in the blood serum became negative, and in the spinal fluid it became negative with 2 c.c. The spinal fluid showed a cell count of 5 per cubic millimeter and a negative globulin test. One year has elapsed since treatment was begun, and the patient continues free from symptoms.

We have observed and treated two other very similar cases in young adults, but in them the diagnosis was evident. In the foregoing case, however, the correct diagnosis was not suspected, and we consider it of unusual interest.

As mentioned at the outset, we have had other cases which showed positive Wassermann reactions in the blood serum and in the spinal fluid and which presented syndromes strikingly like well defined neurologic conditions. Although syphilis was probably the etiologic factor, it could not be proved because the destructive process had progressed too far for antisyphilitic treatment to be of any but questionable benefit. These cases resembled conditions among which may be mentioned amyotrophic lateral sclerosis, spastic paraplegia, multiple sclerosis and pseudotumor cerebri and cerebelli. In the cases detailed, we consider syphilis to be the cause in each case both because of the positive Wassermann reactions and because of the improvement following antisyphilitic treatment.

Philosophy.—The philosophers rule the world, and they have always ruled it since philosophy began. The man of action may not know what those ruling ideas and purposes are. Nevertheless they are there and they are ruling. They may be the product of a good philosophy, or they may be the product of a bad philosophy; but of some philosophy they are certainly the product. Ideas direct conduct.—Nicholas Murray Butler.

THE ETIOLOGIC RÔLE OF SCAR TISSUE IN SKIN CANCER *

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CINCINNATI

French authors have described under the term "carcinoma épithéliale cicatrisans," a form of epithelioma that takes its origin from preexisting scar tissue. Epithelioma with derivation from scar tissue is not an infrequent clinical occurrence and the literature of all countries is replete with examples of that character. It has come within my province, and the experience is doubtless common to many dermatologists, clinically to observe and histologically to examine a number of these cases. My investigations have led me to believe that they possibly shed some light on the still unsolved and more or less obscure cancer problem.

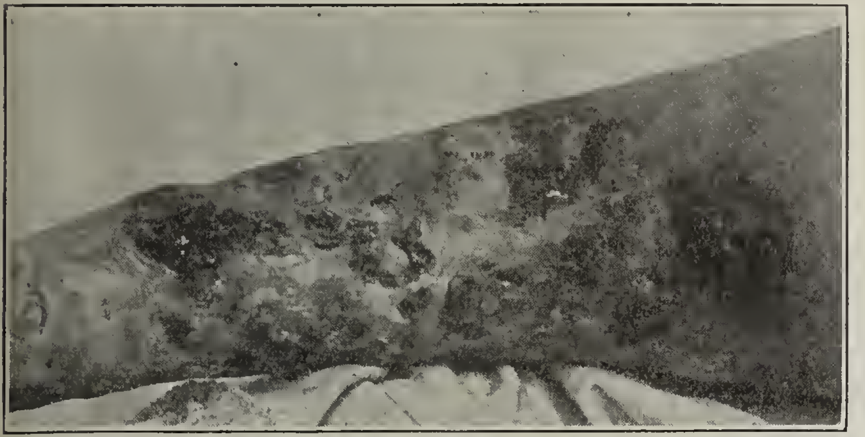
Fig. 1 (Case 1).—Carcinoma épithéliale cicatrisans following extensive burn of the leg.

Strictly interpreted, carcinoma épithéliale cicatrisans embraces those forms of epithelioma or skin cancer which spring essentially from old healed-out scar tissue, clinically dissociated from the process (burn, injury, syphilis, tuberculosis, etc.) which originally produced it. The cicatrization must represent a past process, no longer in a state of active formation. Skin cancer, which frequently implants itself on chronic cicatrizing dermatoses, such as lupus, tertiary syphilis and lupus erythematosus, cannot be included under this special group, unless it can be conclusively demonstrated that the cicatrizing agent had completely and definitely disappeared before malignancy became established.

If cutaneous malignancy, which occasionally implants itself on the various cicatrizing forms of chronic dermatosis, be definitely excluded, carcinoma épithéliale cicatrisans becomes a well defined and easily recognized clinical entity. It would embrace the chronic resistant, indolent ulcerations which slowly enlarge in circumference and increase in depth, presenting glistening indurated everted edges, which spring from long standing and extensively cicatrized areas. It differs but little from superficial epithelioma situated elsewhere, except for its cicatricial surroundings and its somewhat ill-defined and less clinically clean cut character. In its earlier forms it is easily mistaken for ordinary abrasions and simple ulcerations. The histologic findings are always characteristic and easily complete the picture in doubtful cases. The lesions are often multiple, particularly in cases in which the cicatrization is very extensive. Nature, for a goodly period of time, makes a strong effort to inhibit the process. Ulcerations and repair go hand in hand; ulceration, however, if unchecked by successful measures, eventually gains the ascendancy, and all the secondary changes incident to cutaneous malignancy in severe and grave form gradually assert themselves.

Carcinoma épithéliale cicatrisans develops in its most exemplified form from the thoroughly healed out cicatrices of old extensive burns. The writer begs to report two cases of such character, situated on the lower extremities, an area that is markedly immune to all forms of cancerous degeneration of the skin. Gottheil[1] has called particular attention to the fact that malignant degeneration of the skin is exceedingly rare over the lower extremities, compared with that of the face or other more favored areas. He has been able to enumerate only ten well defined cases, in addition to two of his own, in the literature. Epithelioma of the lower extremities doubtless occurs much more commonly than one would be led to believe by the relatively infrequent reports. It is also probable that systematic biopsy of many chronic indolent leg ulcerations would disclose many additional cases. Nevertheless, when we consider that leg ulcers are exceedingly commonplace, that they usually persist for many years, in neglected form, and they are constantly subjected to all kinds of insult and injury and receive, at best, very poor, careless and indifferent attention, their apparent immunity to malignant change appears incongruous. A similar lesion situated over a more favored area, the face, for example, will degenerate into well defined malignancy with commensurate less insult, injury and neglect, and within a small fraction of the elapsed time. This, however, is far from true with indolent ulcerations over the lower extremities, when they are established on deep, extensive scar tissue. In my experience the latter type are exceedingly refractory, and though they may persist for a considerable period of time and show some tendency to undergo spontaneous repair, they ultimately take on an intense malignant character. It has also been my experience, and is doubtless not an uncommon one, that cutaneous malignancy, regardless of its location, whether on leg,

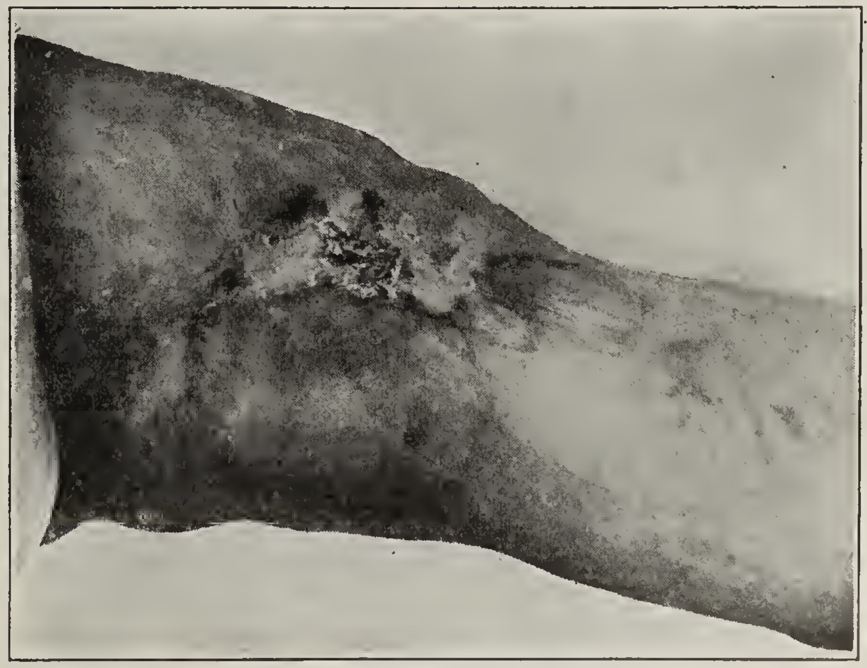
Fig. 2 (Case 2).—Carcinoma épithéliale cicatrisans following extensive burn of the leg.

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* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Gottheil, W. S.: Cancerous Degeneration in Leg Ulcer, The Journal A. M. A., July 6, 1912, p. 14.

face, or elsewhere, when implanted on cicatrized or even a partially cicatrized basis, lupus, lupus erythematosus, leukoplakia, Roentgen-ray atrophies, etc., is relatively much more severe in clinical character than on epidermis more normal in nature. These are a few of the clinical variations for which the still obscure cancer problem should in the future find some form of satisfactory explanation.

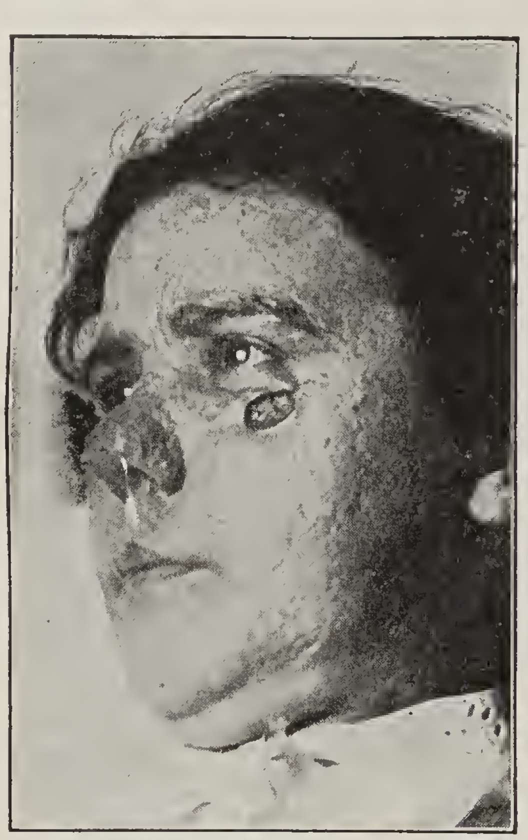

Fig. 3.—Epithelioma emanating from a smallpox cicatrix, when the patient was about 14 years of age.

Case 1.—J. W., aged 60 years, an intermittent inmate of the Cincinnati General Hospital for six years, was readmitted to the Cincinnati General Hospital Feb. 8, 1911, and died Jan. 4, 1913, from an intercurrent lobar pneumonia. Necropsy was refused. He was physically well developed, 5 feet 8 inches in height, weighed 168 pounds, and was in good general health on the date of his last admission to the hospital. He denied past venereal infection and was serologically negative. The heart, liver, lungs and kidneys were normal. The patient stated that when engaged in trundling a wheelbarrow on a plank over a vat of boiling brine, while employed in a saltworks in Michigan in 1888, he slipped and fell into the boiling liquid and sustained a severe third degree burn of the left leg, from the ankle to the middle third of the thigh. The foot was partially protected by a close-fitting shoe. The resulting burn seriously threatened his life and maintained him bedfast for one year. Convalescence was not fully established until two years had elapsed.

On examination, the entire left leg from the middle third of the thigh was the site of a somewhat smooth, glistening white cicatrix, without a vestige of intervening normal skin. The cicatrix was firm, hard, resistant, closely bound down to the underlying tissues, and entirely devoid of the normal folds and furrows, hair and follicles. The underlying musculature was markedly atrophic and the knee ankylosed. The left leg from the middle third of the thigh to the left foot was markedly reduced in size, compared with the right. The cicatrix was abundantly traversed with cicatricial bands; the contractures held the knee fixed in partially flexed position. The leg, with the exception of minor abrasions and superficial excoriations, remained healed a considerable number of years. For the past ten or twelve years it became the seat of multiple, painful ulcerations, which have steadily increased in size, multiplied in number, and for the past six years have incapacitated the patient for active service and enforced an intermittent hospital residence. On the date of the last admission to the Cincinnati General Hospital the left leg from the thigh to the ankle was the site of twenty or more irregularly disseminated indolent ulcerations (Fig. 1). Many of the ulcerations were small and shallow and apparently of simple character. A number, however, were rather large, with firm, glistening everted edges, extensively infiltrated and painful to touch and pressure. Secretion was relatively moderate and the tendency to crust formation was marked, unless carefully protected. The inguinal glands were enlarged and moderately painful, but only commensurate in degree with the associated lymphatic infection. During the patient's six years' residence at the hospital a number of these ulcerations were extirpated for surgical effect and secondarily submitted to microscopic examination. Areas were removed from others for biopsy. The microscopic result was uniformly a spinous-cell epithelioma. Various therapeutic measures, Roentgen ray, arsenical paste, carbon dioxid snow, in addition to occasional surgical extirpation, were employed, but for the most part with negative results. The lesions, once established, usually persisted, increased in size and multiplied in number. The patient's general condition gradually became more impaired and weakened and, save for the intercurrent pneumonia, the ultimate result could not have been interpreted other than definitely unfavorable.

Case 2.—Mrs. F. B., aged 48, native of Germany, incurred severe and extensive burns over the lower extremities when 2 years of age, from blazing skirts, which caught fire from an open hearth. The severest and most extensive burns were situated on the right leg; convalescence was slow and tedious, covering a period of almost two years, patient being bedridden a large portion of the interim. An indolent ulceration manifested itself when the patient was 10 years of age and was unsuccessfully extirpated in the Memel City Hospital, Germany, when the patient was 12 years of age.

The patient first came to the writer's notice in 1906. Two large indolent, painful ulcerations were situated over the outer aspect of the right leg, below the knee, in close proximity to each other. They were well in the center of the field of greatest cicatrization. The ulcers were diffusely infiltrated, borders glistening and everted, and with base and edges somewhat crust covered. In addition to the ulcerations and a few smaller excoriations, the upper two thirds of the right leg and the lower third of the right thigh in almost their complete circumference were the seat of extensive cicatrization. The limb over this area was greatly shrunken and normal folds and furrows, hair and follicles, were completely obliterated. The overlying epidermis was glistening white, and richly traversed by numerous cicatricial bands and cords which limited somewhat the free movement of the knee.

In 1911 the patient was removed to the Cincinnati Jewish Hospital and the larger, more painful ulcer was freely extirpated. The biopsy showed a deeply infiltrating, actively proliferating spinous-cell epithelioma. After a somewhat retarded convalescence the extirpated area healed without recurrence. The upper lesion, however, took on renewed activity, and on Dec. 8, 1914 (Fig. 2), it covered a relatively large area and was typically epitheliomatous in appearance. Shortly after, the patient passed from personal observation.

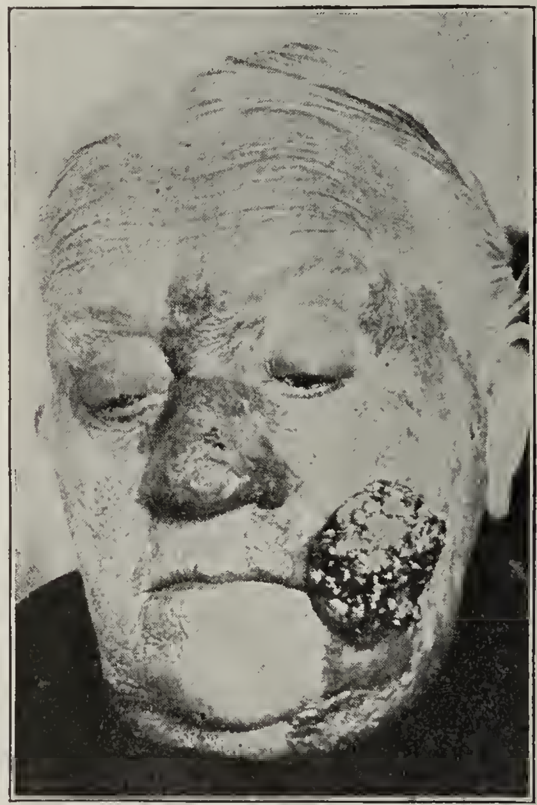

Fig. 4.—Spinous-cell epithelioma emanating from a cicatrized center of a long standing patch of lupus vulgaris.

GENERAL CONSIDERATIONS

The chief interest in the report of these cases is the clinical fact that cancer is prone to implant itself on scar tissue; that cicatricial tissue, as compared with normal, is particularly predisposed to this transitional change. This predisposition on the part of scar tissue is strongly evidenced by the fact that the transitional change readily takes place over areas that are strongly disposed against malignant change when scar tissue is not richly in evidence. Epithelioma having scar tissue for its etiologic basis represents a distinct clinical group. Not that it differs essentially in nature and clinical appearance from skin cancer induced by other causative factors and situated on epidermis more normal in character, but because it permits a more intelligent and systematic classification of clinical types in respect to that which is most fundamental, etiology. There are histologic and possibly therapeutic reasons for a separate grouping of this character.

Such a grouping would serve to call to our particular attention that scar tissue, even though well healed out and of long standing, is not without its dangers. It is unquestionably below par and vulnerable to malignant change. The scar resulting from gastric ulcer attests amply. We are not, however, to assume that every scar, rather than every pigmented mole or senile keratosis, is a grave menace. A comparatively small scar is probably at most an insignificant menace, whereas a very large, extensive cicatrix is without doubt a graver menace; but cicatrices, regardless of their size, character and distribution, are not without some significance. This is particularly true if we include in the group of carcinoma épithéliale cicatrisans all forms of skin cancer which not only spring from scars resulting from burns and injuries, but from cicatrizing dermatoses, such as lupus, syphilis, lupus erythematosus, Roentgen-ray, and leukoplakia, whose predisposing influence can probably be attributed more to the resulting cicatrix than the affection which produced the cicatrization.

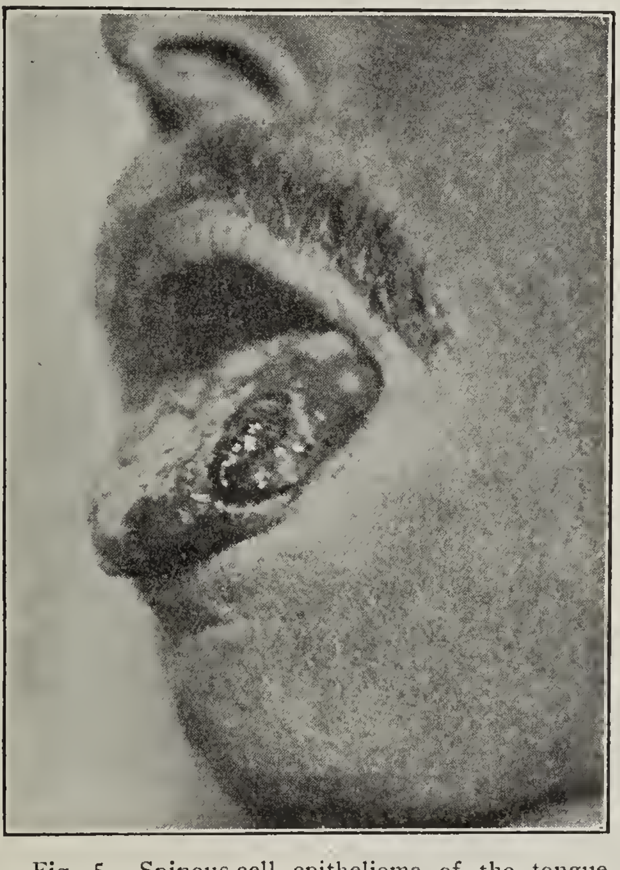
Fig. 5.—Spinous-cell epithelioma of the tongue emanating from old cicatrized areas following long standing syphilis.

HISTOLOGIC CONSIDERATIONS

The histology of carcinoma épithéliale cicatrisans is not without some special interest. I have extirpated and examined histologically a number of ulcerations taken from the reported cases. The histopathology was invariably a spinous-cell epithelioma. Squamous or spinous-cell epithelioma has also been the uniform histologic picture of epitheliomas implanted on some of the cicatrizing forms of dermatoses, namely lupus, lupus erythematosus, leukoplakia oris, and Roentgen-ray atrophies. This histologic result, though of some interest in the latter affections, possesses much more significance and importance in carcinoma épithéliale cicatrisans. In the latter instance the skin cancer is derived from and implanted on an area which has been extensively and severely burned. Hair, follicles and all specialized structures have been destroyed and removed. The only epithelial structure extant is the epidermis, and the resulting growth from this structure seems invariably to be a spinous-cell epithelioma. Cancer of the skin, generally speaking, can be divided into two large groups, which preserve for themselves certain clinical and histologic features. They are the spinous and basal cell forms. Clinically, the spinous-cell type grow more rapidly, metastasize more freely, recur more promptly after removal, and respond less readily to therapeutic measures. Briefly stated, they show relatively more malignant character. The basal-cell type, as a rule, develop slowly, persist in simple, unchanged form for years, rarely metastasize and are extremely slow in manifesting ulcerative and destructive changes and glandular involvement, and respond promptly and readily to therapeutic measures. They embrace, for the most part, the rodent ulcer type and spring usually from small excrescences or senile keratoses. The spinous-cell type generally spring, as already intimated, from cicatrizing processes. It is also the predominating type in cancer of the mouth, tongue, and lips, and inasmuch as small abrasions over these areas are not uncommon, fissures from cold, lacerations from the teeth, together with the secondary changes incident to lupus, syphilis, etc., cicatricial tissue can well be the predisposing factor.

Basal-cell epitheliomas consist uniformly of small, somewhat elongated cells, with large deeply staining, oval nuclei, indiscernible cell wall, with scanty non-granular protoplasm. They usually preserve a somewhat adenomatous arrangement, conforming somewhat to the general structure of hair follicles or sweat glands and their orifices, from which they probably take their remote origin. I take exception to currently entertained opinion that they often, as implied by their name, take their remote origin from the basal cells of the epidermis. They are usually well walled off by a zone of inflammatory reaction; nest formation and cornification are not in evidence. They frequently undergo cystic and colloid degenerative changes.

Spinous or so-called prickle or squamous cell epitheliomas consist of large, rounded cells with small oval nuclei; they show a more rapid cell proliferation, more active mitotic changes, extend downward more rapidly and form epithelial pegs more abundantly. The cells, except in the squamous epitheliomas of mucous membranes, retain their prickles for a given period, but they are soon lost in the secondary keratinization and degeneration. Nest formation is usually constant.

Scientific opinion is still very much at variance in regard to the origin and histologic character of the various conceded clinical and pathologic types of skin cancer. Opinion appears fairly uniform in regard to spinous or the so-called squamous and keratinizing forms of skin cancer. It is almost universally conceded that it derives its origin from the epidermis. Some maintain, however, that it is derived solely from the spinous or squamous layers. Others grant, in addition, that they may readily revert to a basal-cell type. The writer sincerely believes that this clinical and histologic form of epithelioma springs from the epidermis, irrespective of its specialized layer, basal, spinous, or squamous; that it conserves its special type in conformity with the general rules of tissue in malignancy, irrespective of stage, location or environment. If basal cells of the epidermis can produce basal-cell epitheliomas, then a certain proportion of carcinomata épithéliale cicatrisans should belong to that type. This has not thus far conformed to my experience. Moreover, experience indicates that the predominating form of skin cancer implanted on the cicatrizing dermatoses belongs essentially to the spinous type; however, this latter class is not so conclusive, inasmuch as glandular elements and specialized structures of the skin are often conserved and usually somewhat in evidence in many of the chronic forms of cicatrizing dermatoses.

Furthermore, I am firmly of the opinion that the basal-cell epitheliomas of Krompecher spring essentially from hair follicles (trico-epithelioma) sweat glands and follicles (cylindroma), and other specialized structures of the skin; but not from the basal cells of the epidermis. This form of epithelioma may encroach on the epidermis and stimulate it by its abnormal presence to overgrowth and more active proliferation, as in chronic ulcerations and other inflammatory processes, but a distinct clinical and histologic borderline between these two well-established forms of cutaneous malignancy is definitely preserved in all cases.

CONCLUSIONS

1. Carcinoma épithéliale cicatrisans, or cicatrix epithelioma, is a well defined clinical group of skin cancer.
2. Carcinoma épithéliale cicatrisans embraces a group of skin cancer scarcely second in clinical importance and histologic and scientific interest to rodent ulcer, nodular and papillomatous epitheliomas.
3. Scar tissue is essentially below par in general resistance and predisposes to secondary cancerous degenerative changes.
4. Chronic cicatrizing dermatoses (lupus, lupus erythematosus, syphilis, leukoplakia, etc.), as well as deep extensive scars and atrophies from new growth, trauma, and Roentgen-ray, doubtless favor cancerous changes.
5. The predominating histologic type of skin cancer on scar tissue is a spinous-cell epithelioma.
6. Epithelioma derived from scar tissue must trace its origin from the epidermis.
7. Spinous-cell epithelioma is derived from the epidermis and any of its layers.
8. Basal-cell epithelioma is derived from the sweat glands or sebaceous glands and their ducts, from the hair follicles, and from the specialized structures of the skin. It is not derived from the epidermis or its basal layer of cells.

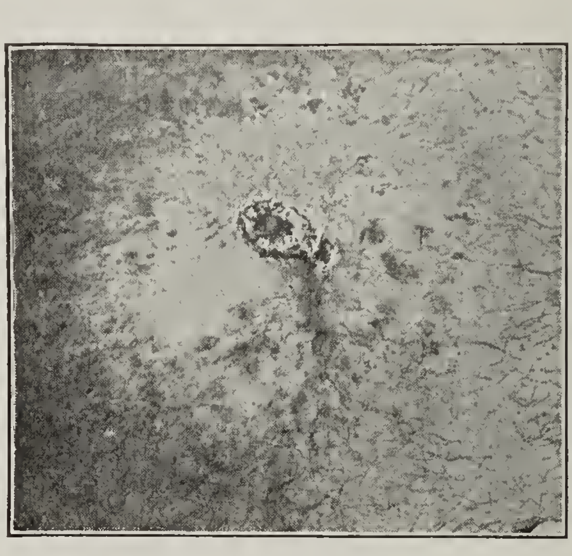

Fig. 6.—Epithelioma of the umbilicus emanating from an extensive atrophic scar following severe Roentgen-ray burn.

Annual Loss from Sickness.—There were in the United States, according to the census of 1910, 33,500,000 people who were engaged in remunerative work. Making an estimate from all available statistics, including those kept in Germany, it appears that there are probably, among the working people of the United States, 13,400,000 cases of sickness annually, entailing a total loss of time of 284,750,000 days. The losses in wages placing the average at the low figure of $2 a day, and omitting Sundays, would be $488,142,852. These enormous totals show what immense economic disturbance and financial waste from loss of time alone is inflicted by sickness. This necessarily causes an incalculable amount of destitution and misery from lack of necessaries of life, aside from the terrible direct physical suffering from disease. In addition to all this, sickness compels the expenditure of immense sums for physicians, medicines and hospital bills.—Welfare Insurance, Rufus M. Potts.

THE TREATMENT OF MALIGNANT DISEASE ABOUT THE MOUTH BY COMBINED METHODS *

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PHILADELPHIA

I should like to refer to the recent review of 556 articles on tumors of the mouth by Blair,[1] and then confine my remarks to treatment.

As prophylactic measures, we, as physicians, should give close attention to the mouths of our patients. Their jagged teeth should be removed or treated. Pyorrhea ulcers should receive proper treatment. Leukoplakia demands cessation of smoking and the elimination of syphilis, and if the lesion then existing does not disappear, or develops fissures or thickening, I believe it should be thoroughly destroyed by electrothermic coagulation. Smoker's stomatitis, of course, demands cessation of smoking. An ulcer which develops in the mouth of a patient who has a positive Wassermann test should show distinct evidence of healing within a few weeks after active antisyphilitic treatment has been given, or should be regarded as highly suspicious of malignant disease, and treated accordingly. The patient should not be allowed to continue for months without improvement on a suspicious diagnosis of syphilis. Ulcers, fissures, crusts or warts that develop on the lower lip or at the angles of the mouth and do not disappear within three weeks should be thoroughly destroyed by electrothermic coagulation, and should receive Roentgen-ray treatment locally and on the glandular area under the jaw. The larger lesions should have a section removed for microscopic study, and then be immediately destroyed by electrothermic coagulation. Bloodgood has well stated that the removal of sections for diagnosis, and then delay in the radical treatment, only aggravates the disease and gives no advantage. I believe that careful attention to these prophylactic measures will accomplish many times more than all of the best methods known today, separate or combined.

METHODS OF TREATMENT

It will undoubtedly be many years before the medical profession and the laity will realize fully the importance of prophylactic measures. We shall have to contend, therefore, with malignant disease in all stages, and I have come to believe that no single method is sufficient for the treatment of this malignant disease. We have at our command at least four different methods for the treatment of malignant disease, especially as applied to the mouth. These are surgical removal, local destruction by means of electrothermic coagulation, deep roentgenotherapy, and the application of radium in the mouth.

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* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Blair: Tumors of the Mouth, Surg., Gynec. and Obst., February, 1916.

Every case of epithelioma about the mouth should have the disease destroyed locally by electrothermic coagulation, or thoroughly excised surgically. I have come to believe that the local destruction in the mouth or about the lips by means of electrothermic coagulation will give better results than excision, and generally with less loss of tissue; but I also would urge when palpable metastatic glands are present in the neck, that they be excised surgically even though the disease inside the mouth or on the lips is destroyed by electrothermic coagulation. Following this destruction or removal, deep roentgenotherapy should be thoroughly applied over the wound, and over the glandular area, making use of as much crossfiring as is possible. I am sure that this will give an improvement in the results over those cases in which surgery alone is depended on.

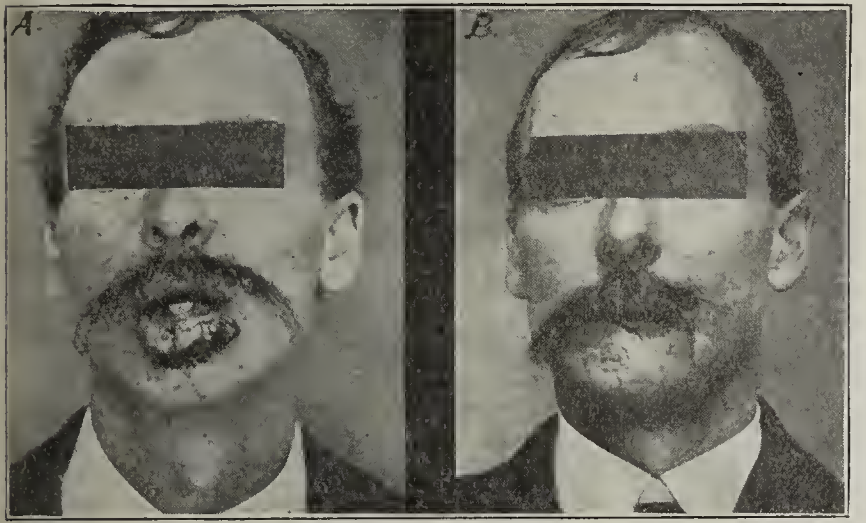

Fig. 1.—Epithelioma of the lower lip following a fever blister. (*A*) Began two years before. Had been treated by a plaster unsuccessfully. This was associated with enlarged submental and submaxillary glands. Treated at first for two months by fractional doses of Roentgen rays. It was then excised by Dr. Laplace, and treated the following day by Roentgen rays again. The patient is well today, thirteen years later. (*B*) Well after a year, and still well, 1916.

Surgery.—The surgical removal of malignant disease about the mouth has been so thoroughly reviewed recently by Blair and by Bloodgood that I need only refer to their writings. Their results show that when surgery alone is depended on, thorough local excision and complete dissection of the glands draining the diseased area give the best results.

Electrothermic Coagulation.[2]—As the name implies, there is produced a coagulation of the tissues by means of heat, and the heat is generated by the electricity. It differs, however, from the thermocautery for the removal of the disease, in that the heat is generated in the tissue, and is produced by the resistance offered to the flow of electricity through the tissues, while the thermocautery is merely transmitted heat and necessarily produces a more superficial effect. The effect can be thoroughly controlled by varying the relative sizes of electrodes so that one can make the conductive heat approximate a cone or cylinder. When one of the electrodes is a point, the greatest amount of destruction will develop at the point, and then will radiate in a more or less cone shape toward the opposite electrode, thereby giving a zone in which the tissues are heated to the destructive degree for malignancy, but in which healthy tissues will not be destroyed. We therefore obtain the same advantages that are given by the Percy method.

Technic: The technic of the electrothermic coagulation is similar to that described by Nagelschmidt, and in principle is identical. The d'Arsonval current is generally used, or a combination of the d'Arsonval and Oudin current. An instrument is necessary which will generate from 1,000 to 2,000 milliamperes of current. The amount of current will, of course, vary with the amount of destruction of tissue necessary. The amount of destruction of tissue needed with the depth is a matter of clinical judgment.

The two electrodes are used attached to the two poles. We, of course, know that the d'Arsonval current is alternating in character. The shape and character of the electrode will vary with the character of work required. For instance, if one desires to remove a considerable portion of the lip, I would use on the inside a ball electrode about three-eighths inch in diameter, and on the outside a needle point electrode. Then I would outline the area of the diseased tissue to be removed by allowing the current to flow from this point toward the ball electrode on the inside, and I would then coagulate the entire diseased tissue. At first I depended on the needle electrode actually to carve out the diseased tissue, but now I find it simpler to cut this away with a pair of curved scissors after coagulation, always cutting within the coagulated tissue. In this way there is no bleeding, and the edges are completely sealed off. The blood vessels and lymphatics are at no time opened, which I believe to be a distinct advantage in the prevention of metastasis and in ultimate cure of the patient. In destroying an extensive lesion in the cheek, I use a flat electrode 1 inch in diameter, on the inside, and a point electrode on the outside. In destroying a portion of the tongue, I have used two point electrodes. The electrodes are held in contact with the tissue. In destroying leukoplakia patches or superficial lesions, I commonly attach one pole to the Oudin current, and the other pole to the d'Arsonval. One must always be as sure as possible always to destroy the entire diseased area, for there is danger of rapid extension from the periphery if all the disease is not destroyed, unless it is possible to control this tendency by the deep roentgenotherapy. The tendency to the increased rate of growth in areas not removed by this process or by operation is probably due to increased congestion which is brought about by the subsequent reaction.

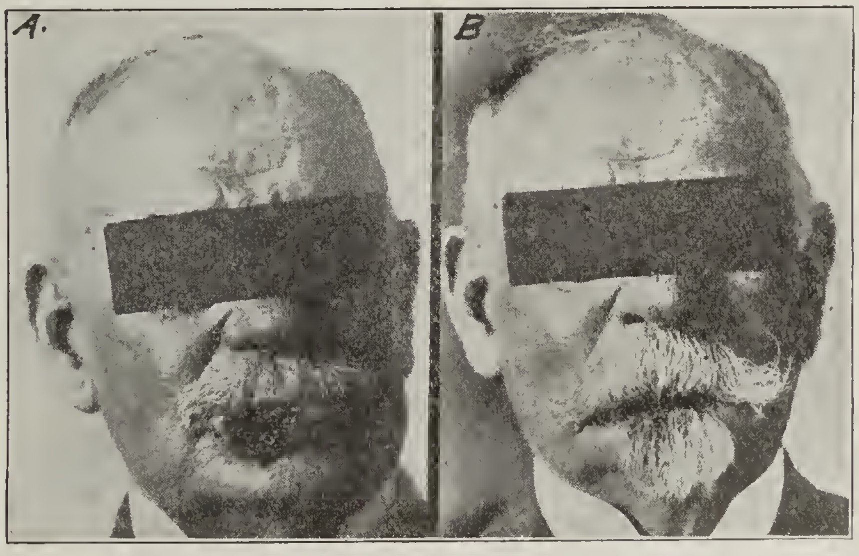

Fig. 2.—Epithelioma of the lower lip (*A*). Duration one year. Removed by electrothermic coagulation, Feb. 17, 1914, and followed by deep roentgenotherapy. (*B*) Thoroughly healed in about two months. Photograph taken July 27, 1914. Patient wearing, attached to his teeth, an artificial lip, to which is attached the beard.

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[2] Pfahler, G. E.: Electrothermic Coagulation and Roentgenotherapy in the Treatment of Malignant Disease, Surg., Gynec. and Obst., December, 1914, p. 783.

Cases Suitable for Electrothermic Coagulation: 1. Those cases in which the disease can be destroyed completely locally without regard to saving blood vessels or nerves, for in this coagulation process the blood vessels and nerves in the diseased area are destroyed in the same manner as the diseased tissue. It is, therefore, applicable to lip cases, epitheliomas on the inside of the cheek, the tongue, the floor of the mouth, and the alveolar process, but it is not suitable for use on the metastatic glands of the neck. 2. Those cases in which one can combine the local destruction of the disease in the mouth with the surgical removal of the diseased glands in the neck. 3. It is of doubtful utility in sarcomas, and I believe that sarcomas will give better results by deep roentgenotherapy alone than with the combination of these two agencies.

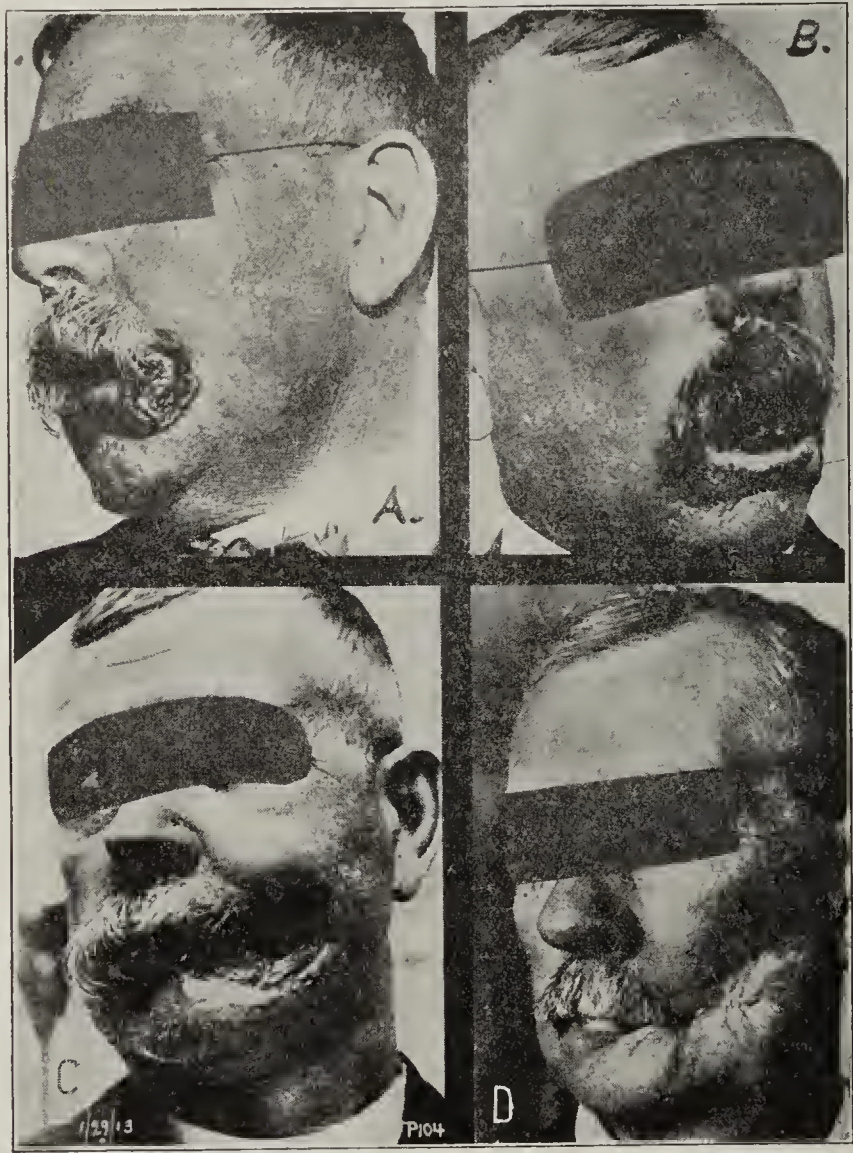

Fig. 5 (Case 8).—Extensive epithelioma involving the lips and inside of the cheek and the angles of the jaw (*A* and *B*). No glands palpable. Destroyed by electrothermic coagulation, Jan. 20, 1913, and followed by deep roentgenotherapy and radium. (*C*) shows the opening in the mouth nine days after the destruction. This opening closed to within ¾ inch by 1½ inches. January, 1914, (*D*) the mouth was closed by Dr. Laplace. The patient is still well, June, 1916.

Advantages of Electrothermic Coagulation: 1. The disease is destroyed by conductive heat which gives a zone of devitalization without actual destruction of healthy tissue, thereby saving local tissue when necessary. 2. There are no raw tissues to permit the transplantation of malignant cells. 3. There are no blood or lymphatic vessels opened up through which the disease can be disseminated during the operation. 4. One does not have hemorrhage to contend with, though, in tongue cases, there is some danger of a secondary hemorrhage. 5. There are no open wounds and no danger of local infection.

Disadvantages of Electrothermic Coagulation: 1. There is complete destruction of all the tissue between the two electrodes. Therefore, there is no chance of saving the blood vessels or nerves which are in close proximity to the disease. 2. There is necessarily considerable sloughing and foul odor associated during the first two or three weeks, but there is no danger of infection, and I have never had infection of the tissues develop in any case of electrothermic coagulation in any part of the body. There is considerable reaction during the first few days after the operation. 3. It leaves an open area which is healed by granulation, but at times this healing must be followed by a surgical plastic operation to close the mouth or correct some deformity. It is truly remarkable how a very ugly wound in the early stages will close in and develop rounded edges so as to become very insignificant. I have in mind the lip, cheek and tongue cases.

Deep Roentgenotherapy.— Object: The object of the roentgenotherapy is to control or destroy the outlying cells or metastases that may be missed in the coagulation process. Therefore, the treatment must be thorough and given with the understanding that disease may still be present; for if one is sure of having destroyed all of the malignant disease, there is no object in adding the roentgenotherapy. This treatment must always be given with the technic used for deep disease, for one should never leave any superficial or visible disease behind.[3]

Radium.— I believe that the place of radium in the treatment of malignant disease about the mouth is within the mouth and not on the outside. I can see no advantage of radium over Roentgen rays, and much disadvantage because so much less in quantity, and so less definitely controlled when applied externally. The Roentgen rays can be applied externally with more power and their direction and distribution perfectly controlled, while the quantity used is immensely greater than that obtained from any quantity of radium of which I know today. When the radium is applied inside the mouth, however, all these arguments disappear, for one is able to bring the radium in close contact ofttimes with the disease, and when filtered through at least 0.5 mm. of silver, and when one applies approximately 600 milligram hours of radium, a very decided, and I believe, beneficial effect can be added. I believe, however, that even when the radium is used within the mouth, there should be nothing lost, and much gained by adding the deep roentgenotherapy from as many angles as possible, applied externally. The advantage of radium is that we are adding this inside treatment. In other words, we are applying another crossfiring effect by means of radium. It is this combination which I use, and I believe the most practical.

CLASSIFICATION AND REPORT OF CASES

Time will not permit a record of all of the cases that we have treated by these combined methods. In doing this combined treatment, I am indebted to the surgeons who have referred the patients and cooperated with me in their treatment. I would mention especially Drs. Laplace, Deaver, Warmuth, Burns and Schwarz.

Epithelioma of the Lip.— Early in our work, we depended on the Roentgen rays alone in the treatment of small epitheliomas, but today we always destroy the lesions on the lip by means of electrothermic coagulation, no matter how early, for one can obtain more definite results, and can get them more quickly by thus combining the local destruction with deep roentgenotherapy applied locally, and in the glandular areas leading therefrom. I have treated many cases of extensive recurrence both locally and in the tissues of the neck. Generally speaking, such cases do not yield to roentgenotherapy or even to combined methods of treatment, and I will dismiss this whole group with this remark. I will refer only to the primary cases which had not been treated actively by other methods preceding our treatment, and which I have treated in my private office, for it seems impossible to keep control of dispensary cases. I have treated in my private practice:

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[3] For more details, see the Transactions, reprints, and Roentgen Therapy in the Treatment of Deep-Seated Malignant Disease, The Journal A. M. A., May 1, 1915, p. 1477.

1. Primary Cases Treated by the Roentgen Rays Alone: In this group there are eight cases. Of these eight, seven patients recovered, and have remained well from a few months to eight years. The eighth patient was a locomotive engineer who developed the epithelioma after being struck on the lip by a hot cinder. He recovered, remained well about a year, then was struck again by a hot cinder, developing a recurrence. He was operated on surgically and developed a second recurrence, from which he died.

2. Primary Cases Treated by Electrothermic Coagulation and Roentgen Rays: In this group there are fifteen cases. All of the patients have recovered, and so far as I am able to learn, have remained well to the present date, which is from a few months to seven years.

3. Primary Cases Treated by Surgery and the Roentgen Rays: In this group there are four cases. All the patients have recovered, and have remained well from two to thirteen years.

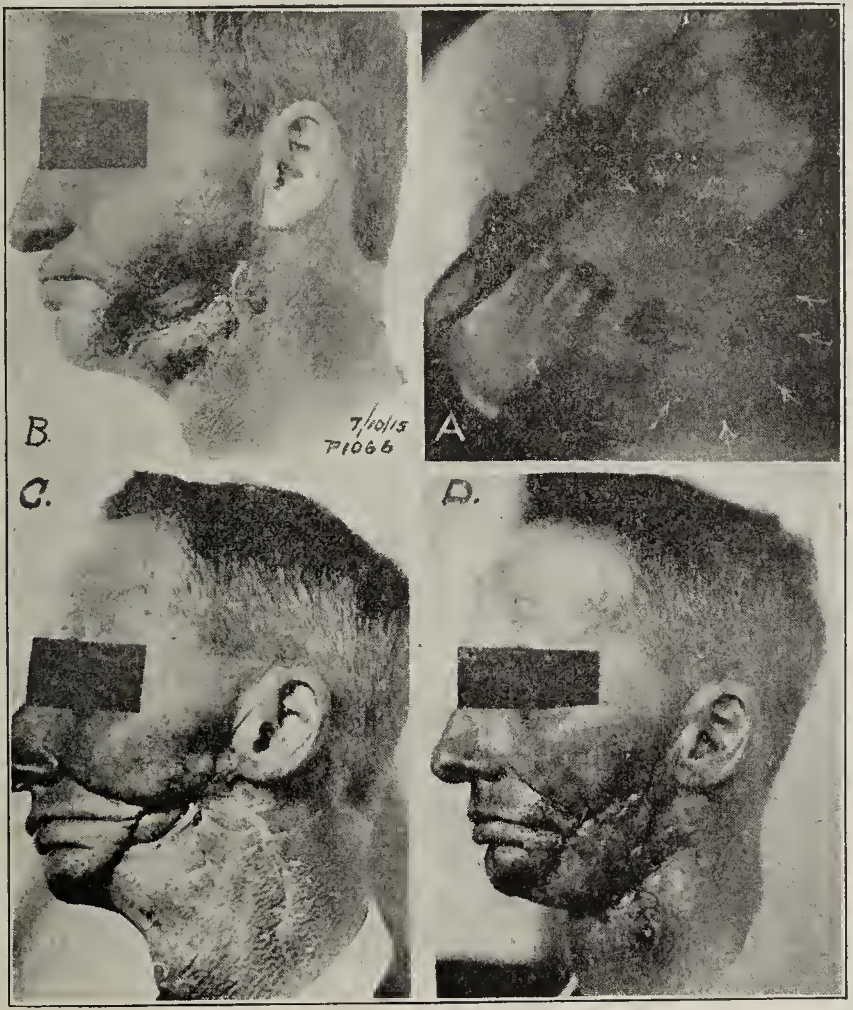

Fig. 6 (Case 7).—Extensive squamous cell carcinoma involving the cheek and the upper and lower jaw, with metastasis to the neck (*A*). The disease was destroyed, June, 1915, by electrothermic coagulation, together with the removal of the metastatic glands in the neck, and resection of the jaw, done by Dr. Laplace. *B*, the wound with a healthy appearance one month later; *C*, the wound, June, 1916; *D*, after a plastic operation by Dr. Laplace.

4. Local Recurrences Following Excision Treated by the Roentgen Rays: The three patients in this group have recovered. One has since died from intercurrent disease, but had remained well for several years. One other is well, after two years, and the third had, in addition to the local recurrence, a small metastatic nodule in the submental region. This disappeared under Roentgen-ray treatment, and he has remained well seven years since.

5. Recurrent Cases Treated by Roentgen Rays and Electrothermic Coagulation: The two patients have remained well approximately a year each.

It will be seen, from a study of this group of cases, that the results will compare favorably with any other single method of treatment, no matter how extensive it may be. It will be noticed, however, that these lip cases, for the most part, have been early cases, and there were no palpable glands, excepting in two cases in which palpable glands developed after operation. These disappeared under Roentgen treatment.

It will be justly argued that since microscopic studies were made in only a few cases, some of these cases may not have been malignant. This is a just criticism, and the only answer which I can make is that the patients should be treated in this early stage when there is no glandular enlargement, and as early as possible, when we may hope for 100 per cent. cures by simple measures instead of a local extensive excision by surgery and an extensive resection of the lymphatic glands of the neck. With reference to metastatic involvement, however, Bloodgood's[4] statistics show that in the cases in which the glands were dissected out, 37 per cent. were found to show metastatic involvement. Therefore, it is fair to assume that had at least some of the patients whom I have treated been operated on and the glands resected, there would also have been shown metastatic involvement. As to the probabilities of these lesions on the lower lip being malignant, I should like to refer also to Bloodgood's statistics up to December, 1913, in which he reviewed 200 lesions of the lower lip. Of these 200, fifteen, or about 7 per cent., were found microscopically to be benign. Therefore, the probabilities are that 93 per cent. of the cases that I have treated were also malignant. They all had the clinical appearances and history of malignant lesions, though some of them were early.

The next criticism, which is also a just one, is that some of the patients with these lesions have been well only a few years. Answering this, however, we all recognize that most recurrences will develop within the first six months, though a recurrence or metastasis may develop many years after the primary lesion.

Another criticism is that the number of cases treated is comparatively small. To this there is no answer excepting that the results obtained are sufficiently encouraging and represent, I believe, a distinct improvement on any single method of treatment which would prompt us into making more general use of combined methods in treatment, and particularly the use of Roentgen rays after electrothermic destruction or operation.

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[4] Bloodgood: Carcinoma of the Lower Lip: Diagnosis and Operative Treatment, Surg., Gynec. and Obst., April, 1914, p. 404.

It will be noticed that even in the cases treated surgically, none had a dissection of the glands from the neck, and while in the hands of a very competent surgeon this operation is perhaps not a serious matter, it is serious in the hands of many men who feel competent to remove the local lesion, but are not competent for these extensive neck dissections. By combining methods, such as I have outlined in this paper, we can save the patient the shock of a serious operation and the scars and the probabilities of implantation, etc., which are likely to follow operation.

Epithelioma of the Tongue.—1. Epithelioma Involving the Dorsum of the Tongue: In this group there are six cases. One patient, who had also metastatic involvement, did not recover. Four have recovered and are well after from one to four years. The sixth patient has been under treatment one month. The posterior two thirds of the left side of the tongue are involved; ulceration had taken place. He is being treated with radium placed in the fissure and deep roentgenotherapy applied both inside the mouth and externally, and has shown marked improvement at the end of a month. I will report briefly two of these cases:

Case 1.—Mrs. A. C., aged 52, was referred by Dr. Cleveland, Dec. 1, 1911, with an epithelioma on the left side of the base of the tongue, seven-eighths inch in diameter, elevated about one-eighth inch, with an indurated base, associated with enlarged glands in the submaxillary region on both sides, but more on the left. She had been treated previously by Dr. Schamberg for syphilis, but had recovered under treatment from all the other lesions, and a clinical diagnosis of epithelioma was made by Drs. Schamberg, Deaver, Burnstein and Gildersleeve, all of whom advised excision, which she refused. Under Roentgen-ray treatment she improved very promptly, and was shown at the dermatologic congress, Dec. 28, 1911; but Roentgen treatment produced no further improvement excepting that the enlarged glands in the cervical region had disappeared, and, July 19, 1912, the lesion on the tongue was destroyed by electrothermic coagulation. This was followed by Roentgen treatment, and today, so far as any of us can tell, she is well, four years after treatment.

Case 2.—Dr. X., woman, aged 48, referred to me by Dr. Kate Baldwin, Dr. William J. Taylor, and Dr. Robert Abbe, with an indurated ulcer about one-half inch in diameter on the posterior surface of the right side of the tongue, had also been seen by Dr. Charles Frazer. A section had been removed for microscopic study two weeks previously, and had been examined by Drs. Meine, Peckham, McFarland and Pearce. All reported carcinoma. The patient was seen by Dr. Abbe and the section examined by him, after which he advised against radium treatment. Dr. Taylor advised against excision. There was no evidence of metastasis. The diseased area was destroyed by electrothermic coagulation in the presence of Drs. Taylor, Baldwin and Cohen. This was followed by treatment with radium, the capsule being placed under the right side of the base of the tongue, and the patient was treated by deep roentgenotherapy inside the mouth and over the glandular area. She is perfectly well up to the present time.

2. Epithelioma Under the Tongue, and Involving the Floor of the Mouth: In this group there have been six cases. All showed extensive disease. All were destroyed by electrothermic coagulation locally, followed by deep roentgenotherapy. All healed primarily, but five developed recurrences, and three patients have died. Three are still under treatment.

Epithelioma of the Cheek.—1. Without Palpable Glands: In this group there have been three cases, all developed on the basis of leukoplakia. In only one was a section removed. This showed squamous cell carcinoma. This patient has only recently been treated, but seems to be doing well. The other two have remained well two and three years, respectively.

2. Epithelioma or Carcinoma Involving the Cheek, Gums, Jaw Bone, and the Submaxillary Glands: In this group, I have treated a number of recurrent cases, and generally speaking the results have as a rule been disappointing. In the primary group, in which combined methods of treatment were used, and in which there had not been previous destructive treatment, the results are much more encouraging, even though the disease is very extensive. Therefore, I shall confine the reports to this group of primary cases.

Case 3.—Mr. J. M. L., aged 59, seen in consultation with Dr. Laplace, Dec. 14, 1914, at which time he had an epithelioma on the inside of the left cheek 1½ inches in diameter, which had been developing during a year, also had a mass of metastatic glands under the jaw. Section showed squamous cell carcinoma. We gave him a course of preliminary treatment inside the cheek, outside the cheek, and over the glandular area, and the next day destroyed the disease inside the cheek by electrothermic coagulation, thus saving the cheek, which otherwise would have had to be excised, after which Dr. Laplace removed the metastatic glands. In two weeks, another course of deep roentgenotherapy was given, and four subsequent courses of deep roentgenotherapy, or six in all, were given, the last being April 10, 1915. So far as we can tell, he is entirely well today, and free from symptoms.

Case 4.—Mr. S. R., aged 68, was referred to me, May 28, 1912, by Dr. Laplace for postoperative treatment. May 27, 1912, Dr. Laplace removed an epithelioma which had been growing for a year, and had involved the inside of the left cheek, extended up along the alveolar process and on the palate. He was given postoperative treatment, and is well, June 12, 1916.

Case 5.—Mr. J. O., aged 57, referred to me by Dr. Laplace, March 10, 1914, for postoperative treatment; had had a growth involving the left side of the lower lip and extending on to the cheek for two years. He had always been a heavy smoker. There were present also metastatic glands in the left submaxillary region which had been excised. He was given active postoperative treatment, and was well, so far as we could tell, March 20, 1915. In June, 1915, he developed rather suddenly a tumor under the left jaw which was excised by Dr. Laplace, found to be cystic and believed not to be malignant. After this he was given two courses of postoperative treatment, with instructions to return at the slightest sign of any recurrence. He is probably still free from symptoms.

Case 6.—Mr. J. W., aged 75, was referred by Dr. Richard Barrington, Jan. 12, 1916, with an epithelioma involving the gum on the right side of the upper jaw in the region of the canine tooth, and extending through the cheek. This had followed a bruise by a piece of iron two years previously, and had not healed in the meantime. During the last six months, it had been painful. The indurated area was approximately three-fourths inch in diameter. The old teeth were extracted, the whole area was destroyed by electrothermic coagulation, making a hole in the cheek at least one-half inch in diameter, followed by Roentgen treatment, the wound healed up completely (even the cheek closing), and so far as we can tell, he is entirely well today.

Case 7.—Mr. T. G., aged 52, was referred to me, May 7, 1915, by Dr. Laplace, with an extensive carcinoma involving the entire left cheek, and with a vegetative tumor mass growing outward in the region of the lower left first bicuspid. April 15, 1915, Dr. Charles Frazer had removed the metastatic glands from the neck. The growth in the cheek had also been incised externally a few days before coming to me. There was induration in the neck tissues. I destroyed the whole side of the cheek by electrothermic coagulation. Later Dr. Laplace removed, at my request, the left half of the lower jaw which had been rendered lifeless. The cheek and tissues of the face healed, leaving an opening about 2 inches by 1 inch in diameter, and appeared to be healthy, but later a recurrence developed in the tissues of the neck posterior to the surgical operation, which I was unable to control, and the patient died, October, 1915. It is of interest to note that there was no recurrence at the site of electrocoagulation, but recurrence in the primary operative area.

Case 8.—Mr. J. L. P., aged 58, was referred to me, Jan. 20, 1913, by Dr. H. W. Dachtler, roentgenologist, Toledo, Ohio, and Dr. H. E. Deemer, Antwerp, Ohio, with an epithelioma at the left side of the angle of his mouth, about 1¼ inches in diameter, and involving half of the lower lip, a portion of the upper lip, and the whole inside of the cheek extending back to the angle of the jaw. The whole area was destroyed by electrothermic coagulation, followed by deep roentgenotherapy externally and radium inside at the angle of the jaw. Section showed squamous cell carcinoma. January, 1914, when we felt sure that all evidence of malignant disease had disappeared, at my request, Dr. Laplace did a plastic operation for the closure of his mouth with excellent results, and he is still well, after approximately three years.

Case 9.—Mr. W. E. R., aged 40, was seen in conference with Dr. Ernest Laplace and Dr. W. L. Shindle, June 10, 1915, at which time he had an epithelioma involving the entire inside of the left cheek, the gums on both the upper and lower jaw, the alveolar process of the upper jaw, and almost the entire half of the left lower jaw, with a mass of metastatic glands in the neck. It had been growing at least eight months. Microscopic section removed showed it to be squamous cell carcinoma. It was considered surgically inoperable by Dr. Laplace. As a result of our conference, Dr. Laplace resected the metastatic glands from the left side of the neck. We then destroyed the disease inside the mouth by electrothermic coagulation, then resected the left half of the lower jaw, and followed by deep roentgenotherapy externally, and into the open wound, with the radium capsule applied under the posterior surface of the upper jaw. In this way we were able to get entirely rid of the malignant disease. Section showed squamous cell carcinoma. Oct. 3, 1915, as part of the necrotic bone was separating from the upper jaw, a severe hemorrhage developed which could not be controlled until the external carotid artery was ligated by Drs. Shindle, Gass and Gill. Feb. 15, 1916, the patient returned free from malignant disease. The opening in the mouth had closed to an oval shape 1 inch by 1½ inches in diameter and by wearing a patch over this opening, the patient was able to eat all kinds of food, and he returned to his occupation as a traveling salesman. At this time Dr. Laplace sutured the two edges of the opening, but there was too much tension, and the tissues separated again. A second attempt was made, April 15, 1916, with similar result. He returned a few days ago still free from any malignant disease, and this time Dr. Laplace made an effort to close the wound by means of the transfer of a skin flap and has obtained a beautiful result. We are hoping for a complete success this time. We are, however, gratified at the good result in the fight on the malignancy.

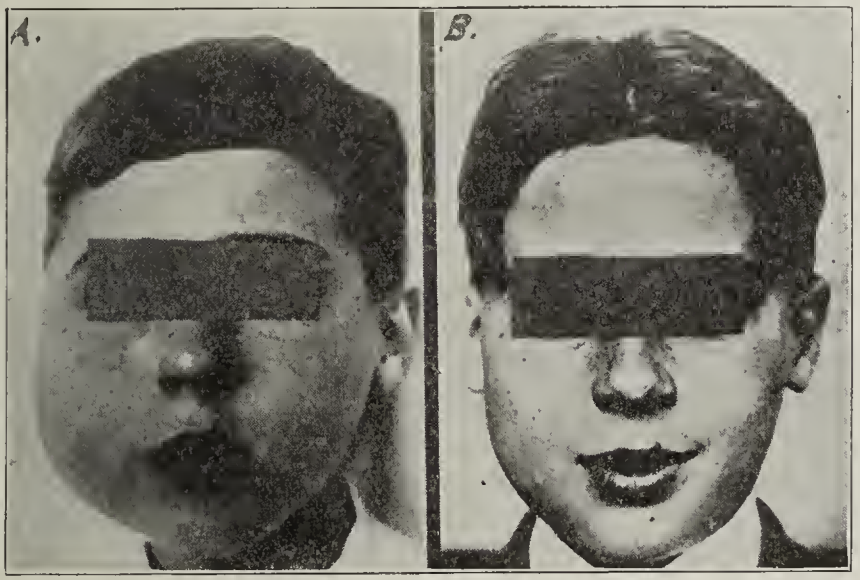

Fig. 8 (Case 16).—(*A*) Sarcoma involving all of the right lower jaw, part of the upper jaw, together with the soft tissues, Jan. 8, 1916, treated by deep roentgenotherapy (*A*); *B*, same patient apparently free from disease, May 8, 1916.

Case 10.—Mr. D. G., aged 48, was referred, Feb. 20, 1915, by Dr. Paul Traub, with an epithelioma involving the inside of the right cheek and the left alveolar border, with metastatic glands under the right jaw. Microscopic section removed showed this to be squamous cell carcinoma. This case was treated similarly to Case 9. The metastatic glands were removed by Dr. Stillwell Burns, the disease was destroyed inside of the cheek by electrothermic coagulation, followed by radium inside the mouth, and deep roentgenotherapy externally, with resection of a portion of the jaw. Today, so far as we can tell, he is free from malignant disease. He has a hole in the right side of his mouth about one-half inch in diameter, which will be closed later.

Case 11.—Mr. D. L., aged 48, was referred, July 8 1915, by Dr. J. F. Schamberg. Two years previously, Dr. Schamberg had treated him for syphilis until he was free from symptoms. About Jan. 1, 1915, he began to have evidence of disease in the left side of the mouth, for which he had two teeth extracted, February, 1915. When he saw Dr. Schamberg and myself in July, 1915, he had an epithelioma involving the entire inside of the left cheek, a portion of the alveolar process, and the upper surface of the alveolar process of the lower jaw, together with well marked metastatic carcinoma in the left submaxillary region. A clinical diagnosis of epithelioma was made by Dr. Schamberg. After conference with Dr. Stillwell Burns, he resected the metastatic glands from the left side of the neck, and at the same time I destroyed the malignant disease inside the mouth, followed by radium applications inside, and deep roentgenotherapy externally. Pathologic examination of the section removed showed this to be squamous cell carcinoma. He seemed to be getting well, but in February, 1916, there was evidence of recurrence in the cheek. I had made the attempt to preserve the cheek and destroyed only the disease inside. After this recurrence of the disease, I destroyed the entire left cheek by electrothermic coagulation, as well as the left lower jaw. Today most of the left side of the lower jaw has separated as a sequestrum. There is no evidence of malignant disease or metastasis. Later we are hoping to be able to close the mouth.

One other similar case was treated with ultimate failure, and two less advanced cases of epithelioma of the cheek have been treated with success.

Epithelioma of the Tonsil: Following are reports of four cases:

Case 12.—Mr. M. U., aged 80, referred by Drs. Reed and Laplace, Nov. 2, 1911, with carcinoma of the tonsil which was about the size of a thumb, indurated, adherent, and ulcerated, also had enlarged submaxillary glands. A section had been removed and examined by Dr. Hammond, state pathologist at Trenton, and pronounced epithelioma. Under Roentgen treatment applied internally by means of a Morton tube, and externally by deep roentgenotherapy the disease completely disappeared. The patient died Feb. 17, 1913, but was reported to be without recurrence.

Case 13.—Mr. A. P. U., aged 63, was referred to me, March 7, 1913, by Drs. Gleason, Warmuth, Murray and Dickerson (each separately), with epithelioma of the tonsil as an inoperable and hopeless case. The section showed squamous cell carcinoma. The disease was completely destroyed by electrothermic coagulation, followed by deep roentgenotherapy. April 29, 1913, he returned apparently free from all evidence of the disease, which opinion was confirmed by Drs. Gleason and Warmuth. He remained apparently well six months, until Oct. 13, 1913, when a small ulcer, one-quarter inch in diameter, developed in front of the anterior pillar of the fauces. I delayed in active treatment at this stage because I was uncertain whether the ulcer was due to roentgenotherapy or to the disease. It was a recurrence from which he died.

Case 14.—Mr. M., aged 41, referred, Oct. 7, 1912, by Drs. George W. Pfromm and M. P. Warmuth, with an epithelioma involving the right side of the soft palate, the alveolar process about the molar teeth, and the cheek. The whole area was completely destroyed, followed by roentgenotherapy. Dec. 6, 1912, the molar teeth were removed, and the disease about the alveolar process again destroyed. Up to the present time he has remained well. Dr. Warmuth considered this case entirely inoperable.

Case 15.—Mr. E. L., aged 43, was referred, Oct. 5, 1915, by Dr. H. M. Goddard with an epithelioma involving the right tonsil and extending on to the palate. The Wassermann test was negative. A section removed at the Jewish Hospital showed it to be carcinoma. It was considered inoperable. Another section was removed, and immediately the whole diseased area was destroyed by electrothermic coagulation, followed by radium internally, and the Roentgen treatment externally. Microscopic examination of the section removed showed squamous cell carcinoma. So far as any of us can tell today, there is no evidence of malignant disease present.

Sarcoma of the Mouth.—In this group I have had under treatment eleven cases. All have shown good results. In one there was metastasis to the spinal column and ultimately death. This patient had been previously operated on and had a recurrence. The others have recovered or are improving, but for brevity's sake, I will confine my report to one case, which I think should convince the most skeptical:

Case 16.—A boy, aged 11, brought to my clinic, Jan. 8, 1916, had been seen four months previously by Dr. John B. Deaver, and pronounced inoperable, after which he received Roentgen treatment at another hospital for two months without any apparent effect. He was then treated for another month at a different hospital, by means of the Roentgen rays, without any effect, after which he saw Dr. J. C. Da Costa, who advised against operation, and also advised that it be left alone. All had diagnosed sarcoma. Jan. 8, 1916, he had a tumor involving the entire right lower jaw, part of the upper jaw, and the soft tissues over the entire right side of the face, and extending up into the temporal region. Roentgenoscopy revealed total absorption by the disease of the lime salts from the right side of the lower jaw, with partial absorption of the upper jaw, and destruction of the outer wall of the antrum. The patient was given fifteen doses, January 18 and 19, crossfiring on this disease from fifteen different angles. When he returned in three weeks for the second course of treatment, the tumor tissue had been reduced to half, and there was distinct evidence of recalcification of the bone. He has had six similar courses of deep roentgenotherapy, and so far as we can tell at present he is free from disease, and there has been almost complete recalcification of the bone.

CONCLUSIONS

1. The cases forming the basis of this report, excepting those involving the lower lip, were almost entirely inoperable, and therefore every success is a distinct advance and every failure only a loss of time, energy and effort.

2. Any lesion about the mouth which does not show a tendency to heal within a few weeks should be looked on with suspicion of being malignant, and in case of doubt should be destroyed or removed.

3. I believe that early lesions about the mouth can be destroyed by electrothermic coagulation with less loss of tissue, and more success than by any other means.

4. Deep roentgenotherapy should be added to any other method of destruction or removal of malignant disease.

5. Combined treatment by surgery, electrothermic coagulation, radium and deep roentgenotherapy will cure some patients who are otherwise hopeless.

1321 Spruce Street.

RADIUM IN THE TREATMENT OF CANCER AND VARIOUS OTHER DISEASES OF THE SKIN *

FRANK E. SIMPSON, M.D.
CHICAGO

Although some do not admit that radium acts on the skin and other tissues in a manner different from Roentgen rays, I am convinced of the error of this view. There are both theoretical reasons and strong clinical evidence for the opinion that the effects of these two agents differ.

The rays emitted by radium are of three, and according to some of four distinct kinds, known as alpha, beta, gamma and delta rays. From the Roentgen-ray tube are given off rays that are similar to but by no means identical with the gamma rays or radium. The character of the rays emitted by the Roentgen-ray tube and radium being different, one would expect that the reactions in the skin would be different. And this is what we find to be the case when critical examination is made of the results obtained with both agents.

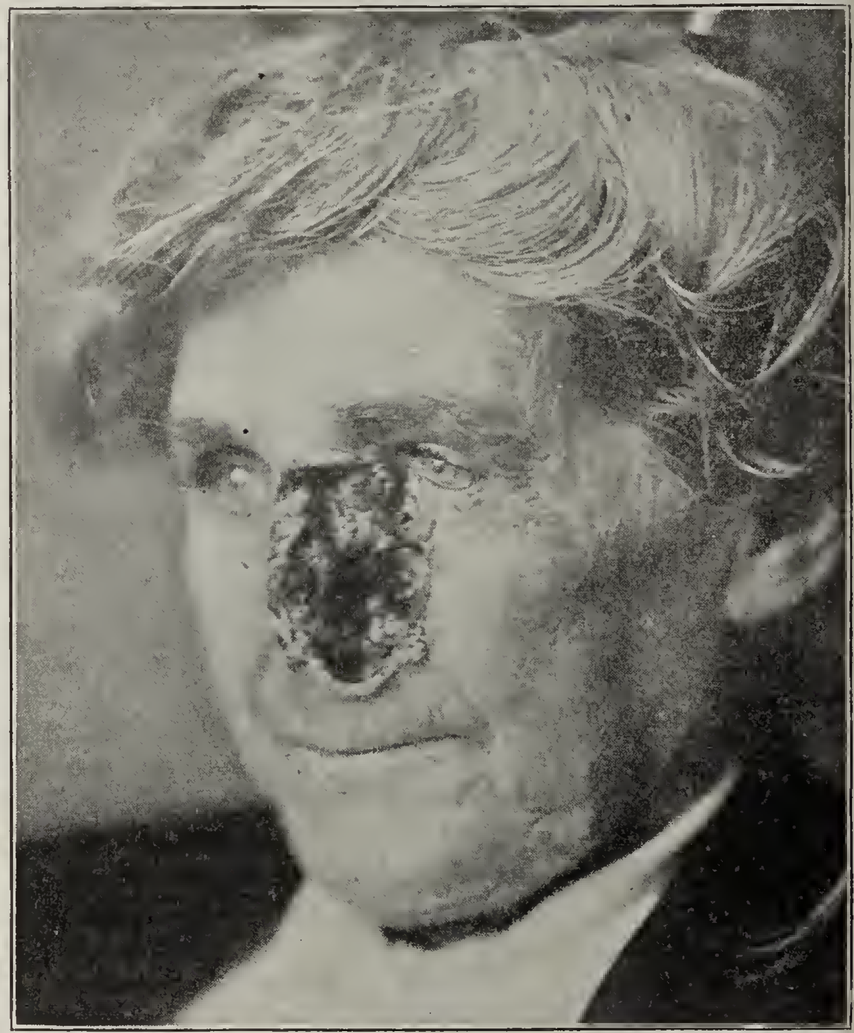

Fig. 1.—Epithelioma of nose, upper lip, cheek and eyelid. Photograph taken September, 1914.

The reactions in the skin differ in several important particulars, some of which may be briefly considered.

Both Roentgen rays and radium may produce in living tissue, first, a selective and, second, an inflammatory action.

By selective action is meant a retrogressive change in the tissues that goes on without visible macroscopic inflammation. The meaning of inflammatory action which is produced by Roentgen rays or radium is self-evident.

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* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

In the case of Roentgen rays the selective action is by far the more important. The depilation of the hair in ringworm of the scalp by Roentgen rays is a good example of the selective action of this agent. Here the hair is made to fall without the intervention of any visible inflammation.

All of the various methods for measuring Roentgen-ray dosage are directed toward the estimation of the so-called erythema dose. Few Roentgen-ray therapeutists are willing to push the dose, systematically and constantly, to a point at which destructive inflammation may occur. With radium the case is entirely different. While some pathologic tissues, as keloids, and vascular nevi, may be made to yield to the selective action of radium, erythema is much more frequently excited with therapeutic doses of radium than with Roentgen rays, and the dose may even be pushed to the point of destructive inflammation without doing harm, if proper precautions are observed.

This is one of the most important and interesting of the differences between therapeutic Roentgen rays and radium reactions.

In a word, Roentgen rays, while a splendid "selective," are, in general, a poor "destructive" agent, when good cosmetic effects are desired, because of the well known dangers and the uncertainty of the repair of the tissues.

Radium, on the other hand, is not only a useful "selective" but also a good "destructive" agent. This destructive power is one of its important uses because of the ease of its employment and the elegance of the reparative tissue.

The destructive or caustic power of radium must be used, however, with discrimination and care when fine cosmetic effects are desired. Only by long experience can the full value of its destructive effects be utilized. Too great dosage may result in sluggish ulcerations or later on in the production of telangiectasia, atrophy, etc., which detract very much from the cosmetic appearance of the tissues of repair.

From the foregoing may be deduced some of the general principles of radium therapy.

Radium shares the field with Roentgen rays in the treatment of a number of intractable disorders of the skin. In certain diseases, radium and Roentgen rays may be regarded as alternative agents, the choice depending on the convenience of the operator. Often a combination of Roentgen rays and radium is desirable. In some diseases Roentgen rays are much more convenient and efficient than radium, while in a certain restricted and peculiar field of dermatology radium holds an absolutely unique position. Among the disorders in which radium has been found of value are the following:

1. *Cancer of the Skin.*—I have now treated over 200 cases of cancer of the skin, and failure to bring about recovery has been rare.

Failure occurs as a rule only in the very extensive cases often previously treated by other methods. In some of these cases loss of tissue is so extensive that repair is almost impossible.

In other cases there seems to be a lack of power of vital reaction on the part of the tissues, which finally may refuse to respond at all. On the whole, however, radium is one of our most satisfactory agents in the treatment of skin cancers, and certain cases will yield which have apparently resisted all the usual measures.

The general rule that operable cancers should be operated on does not apply in my judgment to the majority of cases of skin epithelioma, particularly those of the rodent ulcer type. In many of these cases radium alone or combined with surgery is superior to surgery alone, the elegance of the cosmetic results and the relative infrequency of recurrence being among its advantages. Small epitheliomas can readily be healed with one-fourth or one-half strength applicators screened with 0.1 mm. of lead by giving an exposure of from six to ten hours in the course of three or four days.

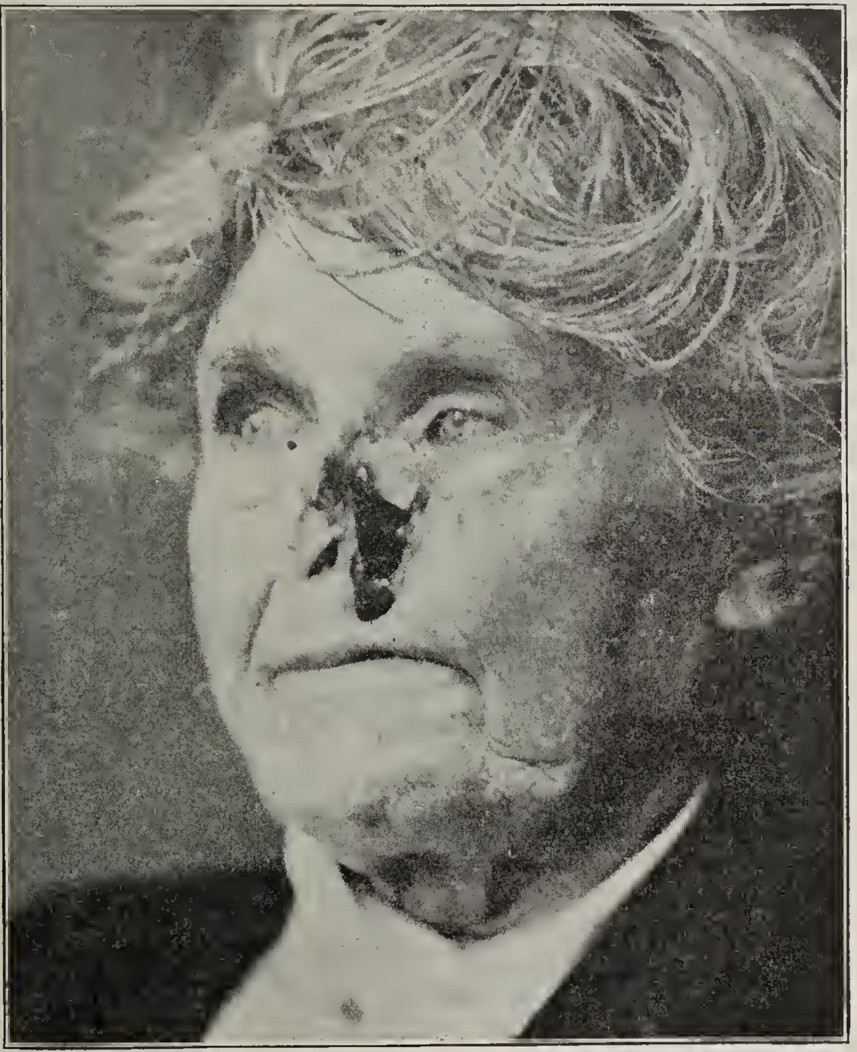
Fig. 2.—Patient in Figure 1, showing recovery after sixty hours' radium treatment. Photograph taken July, 1915.

With extensive epitheliomas I frequently use 150 or more mg. of radium element contained in a half-dozen or more tubes and disposed over the surface of the epithelioma.

It is very convenient to have at one's command tubes containing as much as 50 or more mg. of radium element. One of these can be inserted, for instance, into the external auditory canal or deep in the cavity of the orbit if the eye has been removed. Depending on the disposition of the tubes and the screening employed, healing of very extensive epitheliomas may be brought about in from three to twenty or more hours. With large quantities of radium, however, it is very important not to produce severe reactions or burns, as these are liable to be very painful and may heal very slowly.

2. *Cancer of the Mucous Membranes.*—Sometimes the result of the radium treatment of buccal, lingual and pharyngeal epithelioma is brilliant and at other times disappointing. In cancer of these structures, metastases may occur so early in the neighboring lymph glands that while the original lesion may be healed the general progress of the disease is merely checked. Prolonged and persistent treatment of the adjacent infected glands with gamma rays will often materially retard their growth.

The method of treatment of cancer of the mucous membranes presents problems that constantly tax one's ingenuity. It is often possible to attach to the teeth one end of a piece of silver wire, the other end being inserted into a piece of pure gum rubber tubing which carries the radium applicator.

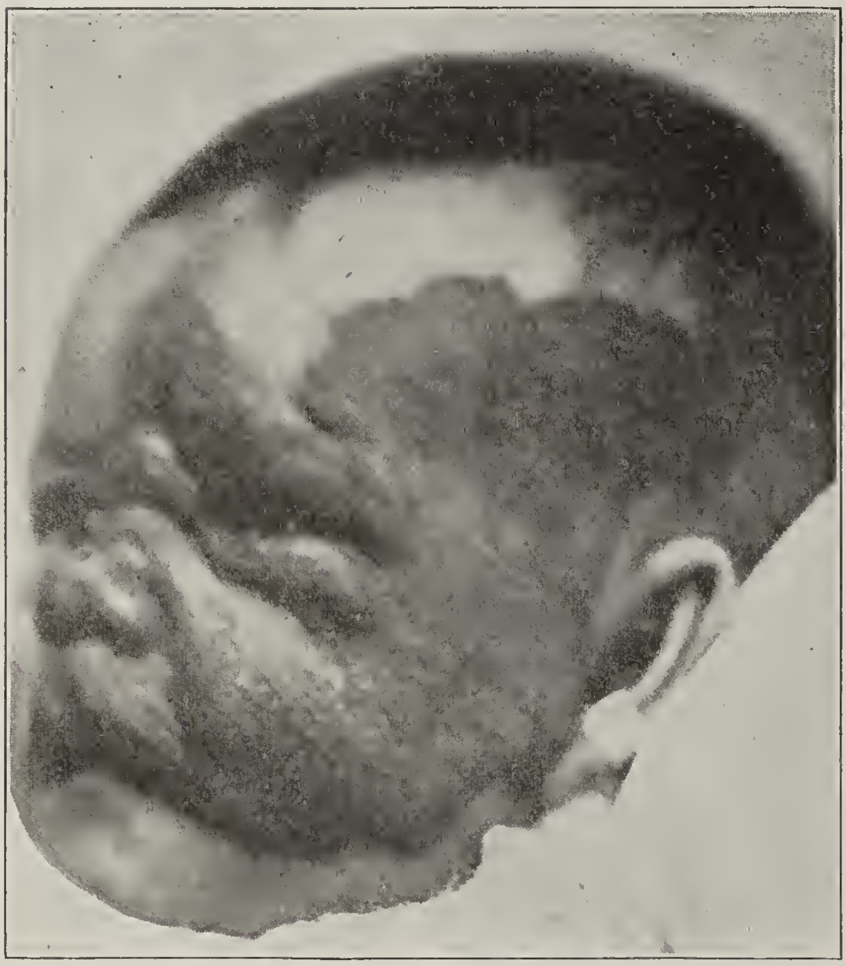

Fig. 3.—Vascular, deep purplish-red nevus, markedly elevated and rapidly spreading. Patient aged 6 weeks. Photograph taken September, 1914.

I have devised a number of simple appliances that serve more or less well the purpose of keeping the heavily screened radium in contact with the growth.

Several illustrative cases will show the method of dealing with certain of these epitheliomas:

Case 1.—*Epithelioma of posterior aspect of soft palate.*—This patient, aged 45, referred by Dr. E. H. Skinner and Dr. D. Walton Hall of Kansas City, Mo., was first seen Nov. 1, 1915. Diagnosis was clinical and microscopic. Treatment was carried out by passing 50 mg. of radium element screened with 1 mm. of silver through the anterior nares until it rested on the growth. A total exposure of fourteen hours was given. Improvement was almost immediately manifested, although it had previously been refractory to Roentgen rays.

Three months later the growth had completely retrogressed. The good result in this case was undoubtedly contributed to by deep Roentgen rays subsequently applied by Dr. Skinner over the growth and the regional lymph glands.

Case 2.—*Epithelioma of the buccal mucous membrane.*—Man, aged 60, referred by Dr. G. T. von Colditz, was first seen, Oct. 1, 1915. Diagnosis was clinical and microscopic. The growth was situated on the buccal mucous membrane opposite the root of the right lower bicuspid tooth. It was about 2 cm. in diameter, ulcerated and deeply infiltrated. The treatment consisted of a total of thirty hours' exposure in fractional doses with 50 mg. radium element screened with 1.5 mm. of silver.

December 17, the growth had nearly disappeared, but there was still to be felt some deep infiltration. The growth was then rayed with 75 mg. radium element screened with 1.5 mm. of silver for a total of twelve hours.

Feb. 21, 1916, nothing but a smooth supple scar remained. The patient was also vigorously rayed over the regional lymph glands of the neck to prevent metastases if possible. At the present time he continues in good health.

Case 3.—*Epithelioma (?) supervening on extensive leukoplakia.*—Man, aged 54, referred by Dr. A. B. Kanavel, was first seen, March 16, 1915. Diagnosis was clinical, as it was not thought advisable to remove material for a section. The patient exhibited very extensive leukoplakia of the entire left buccal mucous membrane. There was marked ulceration, especially posteriorly, and the affected mucous membrane was covered with a very foul secretion. The mouth could be opened with difficulty. The regional lymph glands of the left side of the neck were swollen to the size of hazelnuts, and were hard but not tender to the touch. Treatment consisted of "cross firing" the cheek and neck with 150 mg. radium element contained in various applicators and screened with 2 mm. of silver for a total of sixty hours. July 2, 1915, the mucous membrane of the cheek was entirely well and showed a smooth and supple scar, while the glands of the neck had entirely disappeared. When seen nine months later (April, 1916) the patient was in remarkably good health and had gained 30 pounds in weight.

This case is illustrative of six similar cases treated in the same manner and resulting in recovery.

3. *Vascular Nevi ("Birth Marks").*—The treatment of vascular nevi is an art in itself. In certain types of very extensive nevi the results from radium treatment are far in advance of those obtained by other methods. Radium has the advantage of being painless, while the cosmetic appearance is often very excellent.

There is a certain place, however, for other well known methods, and in individual cases radium may be supplemented or replaced by electrolysis, carbon dioxid snow and the Kromayer lamp, all of which give splendid results in selected cases.

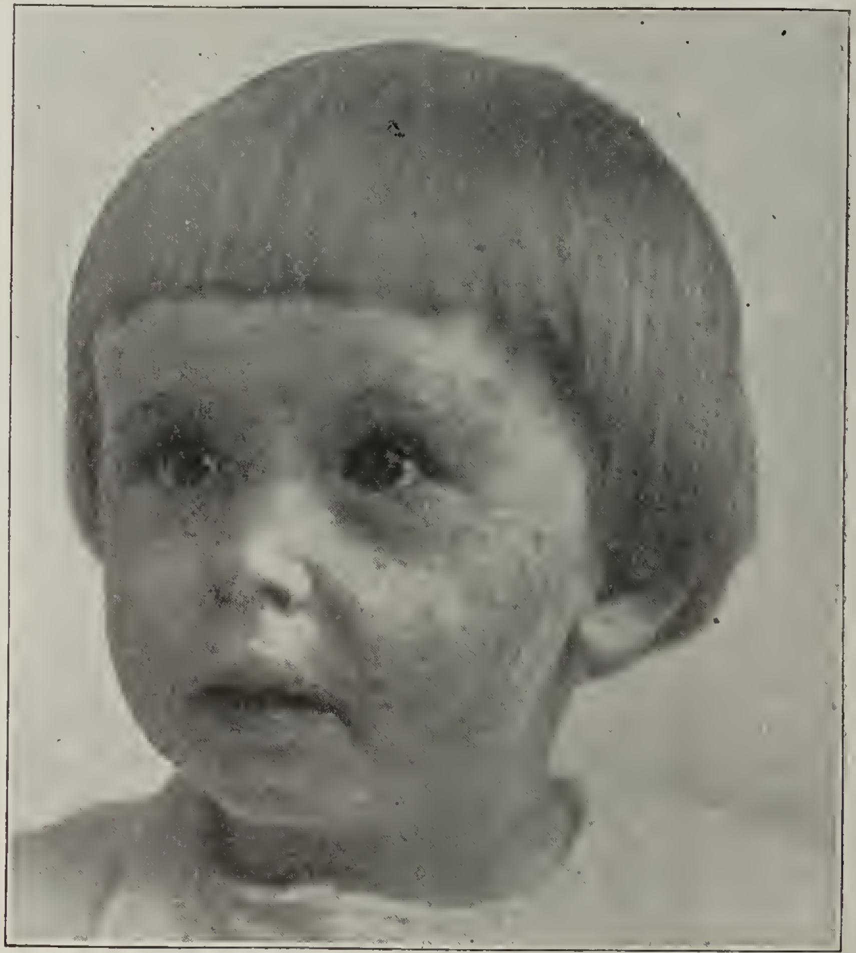

Fig. 4.—Patient in Figure 3, at age of 1½ years, showing results of radium treatment. Photograph taken March, 1916. Not retouched.

4. *Keloid.*—This condition still continues to yield excellent results from radium treatment. Pain is usually relieved and the cosmetic results are good.

5. *Tuberculosis.*—In certain cases of lupus vulgaris the results from radium treatment are excellent, but on the whole are probably inferior to those obtained with the Finsen light.

Unfortunately there seems to be no selective action on lupus tissue, and the caustic effect of radium must be invoked to destroy the patch. In lupus of the mucous membranes radium is sometimes of great service. In tuberculosis verrucosa cutis the results from the destructive action of radium are usually excellent.

6. *Lupus Erythematosus.*—In this intractable disease radium is often of the greatest value. While relapses may occur, as might be expected, persistent treatment often results in a favorable outcome. In my experience radium is a most valuable adjunct to our armamentarium, and in some cases has succeeded when other measures have failed.

7. *Sycosis Vulgaris.*—I now treat long standing cases of sycosis vulgaris which have resisted other measures by removing the hair with radium. Any slight atrophy of the skin that may be produced is greatly preferred by most patients to the unsightly appearance caused by the sycosis which usually renders it impossible for them to follow their occupations. In careful hands this method of treatment may be recommended.

8. *Lichenification of the Skin.*—This obstinate condition usually yields to radium. Treatment consisting of several ten minute exposures with unscreened quarter strength applicators is frequently successful in relieving itching, and is often followed by the disappearance of the lesions.

9. *Pruritus.*—Localized pruritus (pruritus ani, etc.) is often relieved by radium. Radium treatment is especially indicated in cases of pruritus ani in which no local lesion can be found to account for the pruritus. If situated externally, unscreened varnish apparatus may be used, and exposures of from five to ten minutes, repeated several times, are often successful.

When within the anal opening I usually employ tubes of from 25 to 50 mg. element, screened with 0.5 mm. of silver, and give three or four exposures of from fifteen to twenty minutes' duration. This course of exposures may be repeated in a few weeks. Usually great relief, and sometimes recovery is experienced after one or two such courses of treatment.

In addition to the conditions referred to above, a number of other diseases of the skin are greatly benefited and sometimes completely relieved by radium; but these will be commented on at some future time.

59 East Madison Street.

Preparedness.—Who knows what we are facing as a nation in the years to come? One thing we do know—there is to be a struggle for existence, and the nation that is physically sound at the core is the nation that will hand down its civilization to the centuries. To study where we are weak, to study how we can make each generation a little better than the preceding one, instead of drifting with the tide of so-called natural evolution and trusting to luck that we shall not meet the destructive fate of all previous civilizations; to find out the facts about ourselves and our children and proceed to do our duty by our bodies and theirs by applying the lessons of science in the art of living; to accumulate health and vitality instead of disease and degeneration—these things I look on as simple elementary measures in preparation for either war or peace.—Eugene L. Fisk.

LEUKEMIA CUTIS

WITH REPORT OF A CASE *

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MINNEAPOLIS

Since Biesiadecki[1] in 1876 first described the skin changes in leukemia, the subject has been of absorbing interest to dermatologists.

In a review of sixteen cases of acute, or subacute, leukemia cutis, Hazen[2] found that the cutaneous manifestations consisted of petechiae, nodules, vesicles, bullae, papules, maculopapules, pustules, hematomas and tumors. In twenty-six cases of chronic lymphatic leukemia, he found an occurrence of pruritus, prurigo, urticaria, bronzing, vesicles, pustules, localized infiltrations, nodules and tumors.

Arndt,[3] in a paper read before this section in 1914, prefers the name lymphadenosis to that of leukemia, and according to the blood changes, distinguishes an aleukemic form, if the blood is normal, a subleukemic form if the number of white cells is normal or very little increased but the proportion of lymphocytes is augmented, and a leukemic form when there is an absolute permanent, progressive increase of lymphocytes and the total number of leukocytes is augmented.

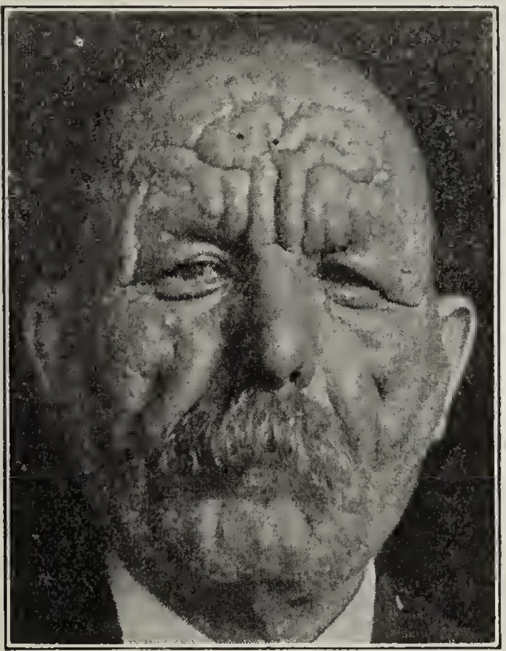

Fig. 1.—"Leonine" expression and the great amount of infiltration of the face and head, Nov. 12, 1914.

Leukemia cutis is further divided into a universal form and a circumscribed form. The universal form is very rare, and only four cases have been reported, according to Arndt.[3] The circumscribed form is much more common, and many cases have been reported.

The possibility of the occurrence of an aleukemic leukemia cutis is well recognized, as a reference to the articles of Hazen[2] and Arndt[3] will show. Hirschfeld,[4] in a recent article, reports a case of aleukemic myeloid leukemia and calls attention to the much more frequent occurrence of aleukemic lymphatic leukemia.

The case which I report is of interest for several reasons: It has been aleukemic in its course so far. In spite of repeated blood examinations, nothing abnormal has been found. Of interest also is the universal distribution of the infiltration, in view of the rarity of the universal form. Arndt[3] says that the universal form never shows tumors. My case showed no tumors, but did show some flat elevations on the back of the neck.

Finally, I have had the opportunity of observing the case from November, 1914, and of studying, microscopically, the results of treatment on the skin, having sections taken from the same place in 1914 and again in 1916.

In a careful search of the literature, I have found illustrations of but two cases that resemble mine.

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* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Biesiadecki: Med. Jahrb., Vienna, 1876, p. 233.

[2] Hazen, H. H.: Skin Changes in the Leukemias and Allied Conditions, Jour. Cutan. Dis., 1911, xxix, 521.

[3] Arndt, G.: Diseases and New Growths of Lymphatic Origin, The Journal A. M. A., Oct. 10, 1914, p. 1268.

[4] Hirschfeld, Hans: Die generalisierte aleukämische Myelose, Ztschr. f. klin. Med., 1914, lxxx, 126.

Schultz[5] reported one and Arndt[6] the other. Arndt's case was of the universal form.

Winfield[7] reported a case resembling mine in its onset and its intense itching, and also in the normal blood findings. The photograph of his patient shows, however, a striking difference in appearance to that of mine.

CASE REPORT

F. F., man, aged 48, weight 143 pounds, normal weight 160, American, referred by Dr. G. J. Thomas of the Mayo Clinic, was first seen by me, Nov. 12, 1914. The family history was negative. Personal history was negative, except for an attack of pneumonia many years before.

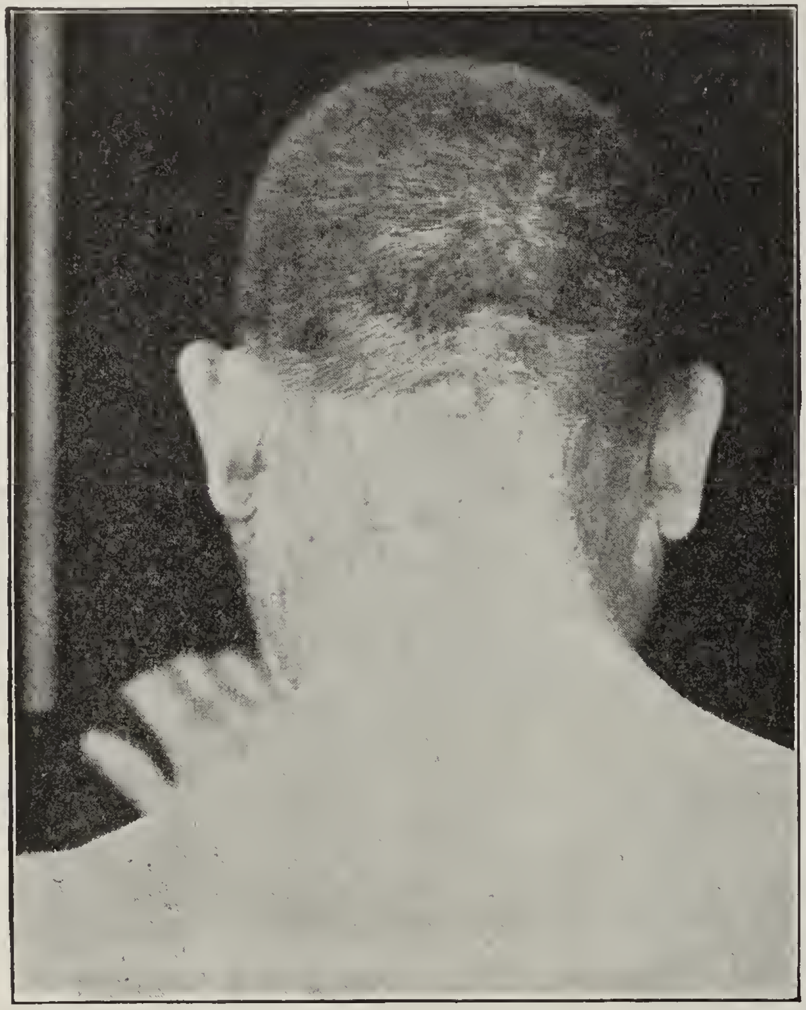

Fig. 2.—Infiltrations on back of neck, Nov. 12, 1914.

The present complaint began about two years before, as an itching spot on the forehead. It gradually involved the face and scalp, and then spread to the body and limbs. The chief complaint was the intense itching, loss of weight and weakness.

The face was swollen and edematous, and the folds were markedly accentuated. The skin, on close examination, looked verrucous, and in places raw from the continuous rubbing to relieve the itching.

The scalp was thickened over its entire extent, and the neck was thickened, but also showed some flat elevated lesions from the size of a pea to that of a marble. The skin of the body was leathery, and felt thicker than normal. It showed a number of small, discrete papules. These frequently had the tops scratched off.

The forearms and back of the hands looked lichenoid. The skin was dry, thickened and rough, and the follicles here showed considerable hyperkeratosis. Numerous small papules were scattered over the surface. The upper arm was thickened, but had fewer of the papules.

The skin on the shins was dry and showed numerous scratch marks. It was thickened and showed numerous papules. This condition was less marked on the thighs.

The posterior surface of the body was not so markedly involved, but was dry and rough and thicker than normal.

In recapitulation, the whole cutaneous surface was involved to some extent, being rough and thicker than normal, with the face and extremities showing the most involvement.

The cubital glands were enlarged. The femoral, inguinal and axillary glands were enlarged, but not markedly so. The urine was negative. The Wassermann reaction was negative. The spleen was not palpable, but the liver was enlarged. The patient had an inguinal hernia.

Numerous blood examinations have been made, and neither an actual nor a relative increase of the lymphocytes has been found. A slight anemia has been shown in all the examinations; the following is an example: hemoglobin, 75 per cent.; leukocytes, 6,000 per cubic millimeter; small lymphocytes, 15 per cent.; large lymphocytes, 20 per cent.; polymorphonuclears, 63 per cent.; eosinophils, 2 per cent.

A Roentgen examination of the chest at this time by Dr. Hugh S. Willson revealed a matted, fuzzy shadow filling the posterior mediastinum and extending over an inch on each side of the sternal line. There was evidently a hyperplasia of the glandular elements of the mediastinum. The aortic arch was very prominent and extended 1½ inches to the left of the sternal line.

Nov. 12, 1914, a small piece was cut from the face near the left ear. The tissue was prepared for microscopic study by Dr. G. M. Olson, and revealed thickening of the epidermis, and there was some parakeratosis and a very marked acanthosis. The dermis was filled with a dense infiltration. Prof. E. T. Bell of the University of Minnesota reported that it looked like lymphoid tissue, not merely lymphocytic infiltration. It had a reticulum like a lymph node. The cells were of one type, the small lymphocyte.

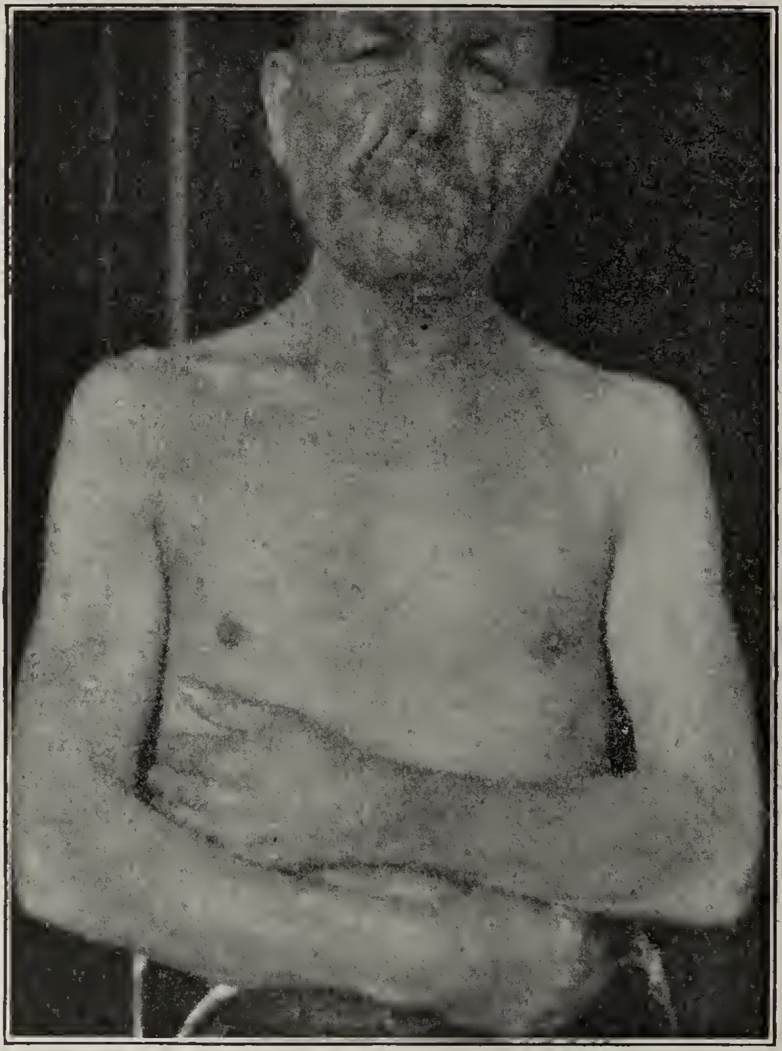

Fig. 3.—Thickening of skin on arms and hands, Nov. 12, 1914.

In spite of the negative blood findings, a diagnosis of leukemia cutis was made, and the patient was put at once on Roentgen treatment. This has been very patiently and thoroughly carried out for me by Dr. H. G. Irvine.

After the first eight treatments, the patient complained of extreme weakness. An examination of the urine revealed the presence of albumin and the patient was sent home to rest. He has returned at intervals ever since, and has been treated with the Roentgen ray in divided doses all over the body. Some of this treatment has been carried out with filters of aluminum, and other treatments were unfiltered. He has suffered no other relapse, and the albumin has disappeared. The itching has almost gone, and he can sleep nights except when he gets too warm.

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[5] Schultz, Frank: Die Röntgentherapie in der Dermatologie, Berlin, Julius Springer, 1910, p. 136.

[6] Arndt, G.: Zur Kenntnis der leukämischen und aleukämischen Lymphadenose der Haut, Dermat. Wchnschr., 1911, xviii. Ergänzungsheft, p. 1.

[7] Winfield, J. M.: Multiple Lymphoid Tumors of the Skin, Jour. Cutan. Dis., 1913, xxxi, 245.

March 30, 1916, the patient appeared, after an absence of several months. He had been operated on, February 8, for hernia. He lost some weight following this, but has gained again and now weighs 162 pounds. He looks fine and feels fine. The itching at present is manifest only around the eyes and on the body a little at night.

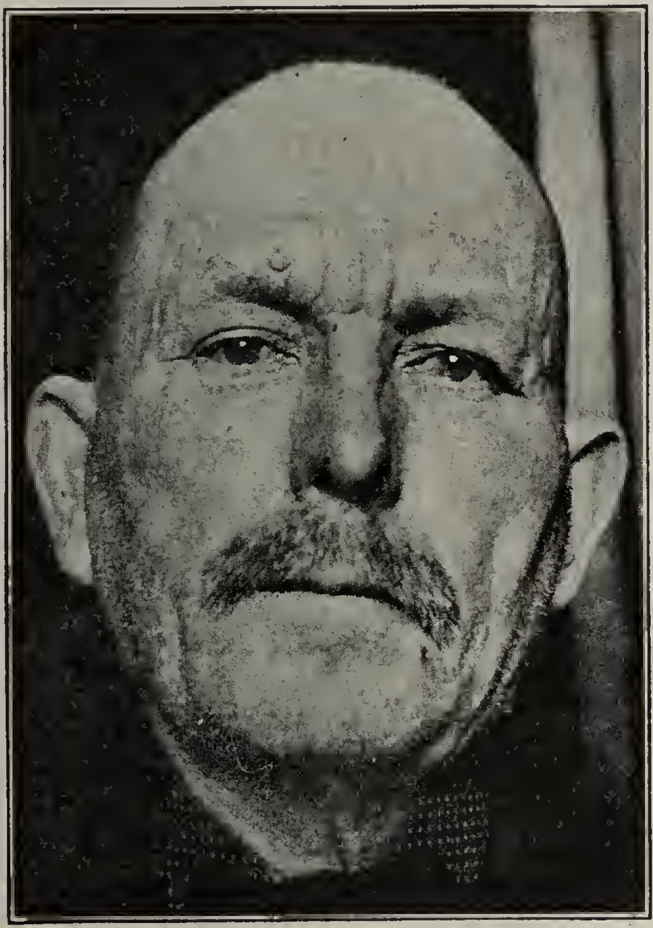

Fig. 4.—Results of treatment, April 1, 1916.

An examination, made March 30, 1916, showed the following:

Face: The deep furrows are gone, except a few on the forehead. The thickening over the entire face has largely disappeared. The infiltrations on the back of the neck are practically gone.

Body: The entire body surface still feels a little thicker than normal. The skin is leathery and harsh, but much better than in 1914. The body shows a few prurigo-like papules with the tops scratched off. A few slightly red, scaly patches show on the abdomen, arms and thighs. These are erythrodermic, or premycotic-like, in appearance.

Extremities: The thickening on the arms has largely gone. The lichenification on the backs of the hands and wrists is about gone. A few prurigo-like papules appear on the arms. The thighs show the prurigo-like papules and a few scaly patches. The shins and calves are very much improved, but show a number of prurigo-like papules and some redness, especially marked on the left calf.

The surface glands are not enlarged, except in the inguinal region, where they are palpable. The mouth and throat are negative.

A Roentgen examination by Dr. Willson showed very little change in the mediastinum since the first examination.

A biopsy on the face within one-half inch of the 1914 biopsy was made, March 31, 1916. A biopsy was also done on the abdomen, cutting out one of the scaly lesions.

The examination of the section from the face showed that the acanthosis has disappeared and the epidermis is normal. The infiltration in the dermis is markedly diminished, and is now located mainly about the hair follicles. It still consists of small lymphocytes.

The section from the abdomen showed a practically normal epidermis, but a dense infiltration around a hair follicle. This infiltration was of the same type of cell, the small lymphocyte.

COMMENT

In making the diagnosis of a case such as mine, with normal blood findings throughout, dependence must be made on the microscopic picture and the clinical manifestations on the skin.

The histologic picture is absolutely typical. It shows a pure lymphocytic infiltration of the skin, the type of cell being the small lymphocyte.

Mycosis fungoides shows a striking polymorphism of the cells, fibroblasts, small lymphocytes, lymphoblasts, Marschalko's plasma cells, giant cells and mast cells. In the flat premycotic infiltrations, we find numberless eosinophils according to Arndt.[6] A premycotic mycosis fungoides was the only other condition that I held to be necessary to bar out, and the microscope did this completely.

In reference to the etiology of the leukemias, the tendency to regard them as infections seems to be growing. Fraenkel and Much[8] found a bacillus in lymphatic leukemia. Bunting and Yates[9] isolated a diphtheroid organism in Hodgkin's disease, and on inoculation of monkeys produced a chronic progressive lymphadenitis and were able to isolate the organism in pure culture on the death of the animal. Simon and Judd[10] and Steele[11] isolated similar organisms in lymphatic leukemia. Wilbur[12] reports the demonstration of strepto-

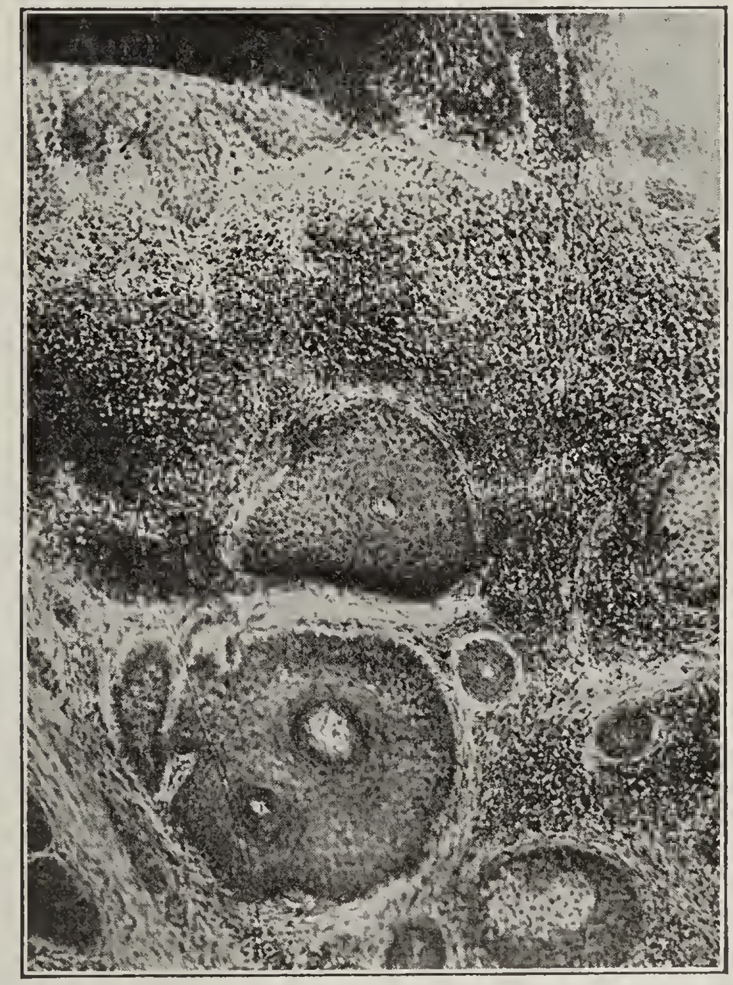

Fig. 5.—Section from face, Nov. 12, 1914; marked acanthosis and dense infiltration of small lymphocytes.

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[8] Fraenkel, E., and Much, H.: Ztschr. f. Hyg., 1910, lxvii, 159.

[9] Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, The Journal A. M. A., Nov. 15, 1913, p. 1803; Second Note, Feb. 14, 1914, p. 516.

[10] Simon, C. E., and Judd, C. C. W.: Acute Lymphatic Leukemia, The Journal A. M. A., May 15, 1915, p. 1630.

[11] Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, Boston Med. and Surg. Jour., 1914, cixx, 123.

[12] Wilbur, R. L.: Leukemia, an Infection? The Journal A. M. A., Oct. 9, 1915, p. 1255.

cocci in leukemia. Rhea and Falconer[13] also reported a diphtheroid organism in Hodgkin's disease. Bunting and Yates[14] recently reported the isolation of a diphtheroid organism in a case of leukemia and in one of lymphosarcoma. They maintain that there is a group of apparently related diseases in which this organism is found. They include in this group Hodgkin's disease, lymphatic leukemias, the pseudoleukemias (lymphosarcoma), Banti's disease and probably mycosis fungoides.

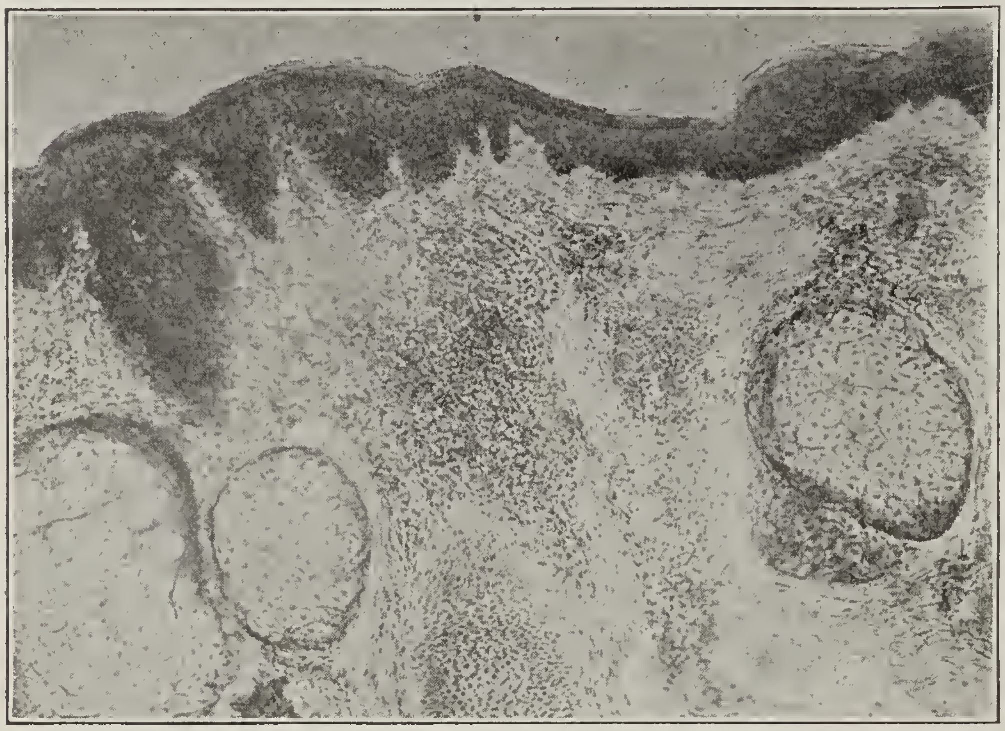
Fig. 6.—Section from same area of face, March 31, 1916; epidermis practically normal; infiltration very much less and located around the hair follicles.

Bloomfield[15] maintains that in view of the variety of organisms found by these various investigators, extreme conservatism should be maintained in interpreting any one as the etiologic agent of a specific disease.

In regard to the therapy of leukemia cutis, it would be proper to introduce the well known benzol (benzene, C_6H_6) treatment if the blood picture was leukemic. As my patient has at no time shown a leukemic blood, I depended on the Roentgen ray, both superficial and deep. The results so far in this case are encouraging, but as to the ultimate outcome I am not prepared to say. The latest skin sections still show some lymphocytic infiltration, very much less than formerly, but still present, and the Roentgen report still shows the mediastinal glands enlarged.

Burnam[16] recently has treated with considerable success a few cases of Hodgkin's disease, and, at present, is working on the leukemias. He uses radium over the spleen; but in the absence of radium depots this form of therapy is at present out of reach of the average man. It presents prospects, however, for the future.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HEIDINGSFELD, PFAHLER, SIMPSON AND SWEITZER

Dr. H. H. Hazen, Washington, D. C. In regard to Dr. Sweitzer's case, it seems to me that besides a true leukemia cutis, the diagnosis might possibly rest between pseudoleukemia, corresponding to Hodgkin's disease, and benign lymphoma, similar to the case reported by Winfield. Referring to the other papers, we should bear in mind the fact that there are quite a number of types of cancer, (1) the prickle cell cancer; (2) the cuboidal cell cancer; (3) the basal cell cancer; and (4) cancer of the cutaneous appendages. It does not make any difference what prickle cell cancer comes from, whether from scar tissue or a keratosis or a Roentgen-ray burn, it is the type of cancer that usually leads to metastasis. It makes no difference whether the primary growth is located on the tongue, lip or hands. About a year ago I studied sixty such cases and in thirty-eight instances I was able to follow them up for five years. Of these, about twenty-five showed metastases. It is a very difficult matter to tell when a prickle cell cancer will metastasize: I have seen it occur within one month. The cuboidal cell type of cancer is not so well known. Histologically, it resembles the basal cell type, but it leads to metastases almost as readily as the prickle cell type. Pure basal cell tumors, on the contrary, never lead to metastases. My sections show conclusively that basal cell tumors can spring from the rete cells. As regards tumors of the appendages of the skin, we cannot say very much about them. The most important thing to remember is this, that all tumors, in the vast majority of cases, come from precancerous dermatoses. It is of further interest to note that keratoses of the face usually give rise to the basal cell type of tumor, while those on the back of the hands give rise to the prickle cell type. A different method of treatment is called for in dealing with these two types. In the latter we must not only get rid of the local growth, but also prevent it from reaching the glands by thorough extirpation of the adjacent lymphatics. Excise the entire lesion with the cautery and then study the growth histologically. It is not good surgery to use the knife to remove a piece for diagnosis.

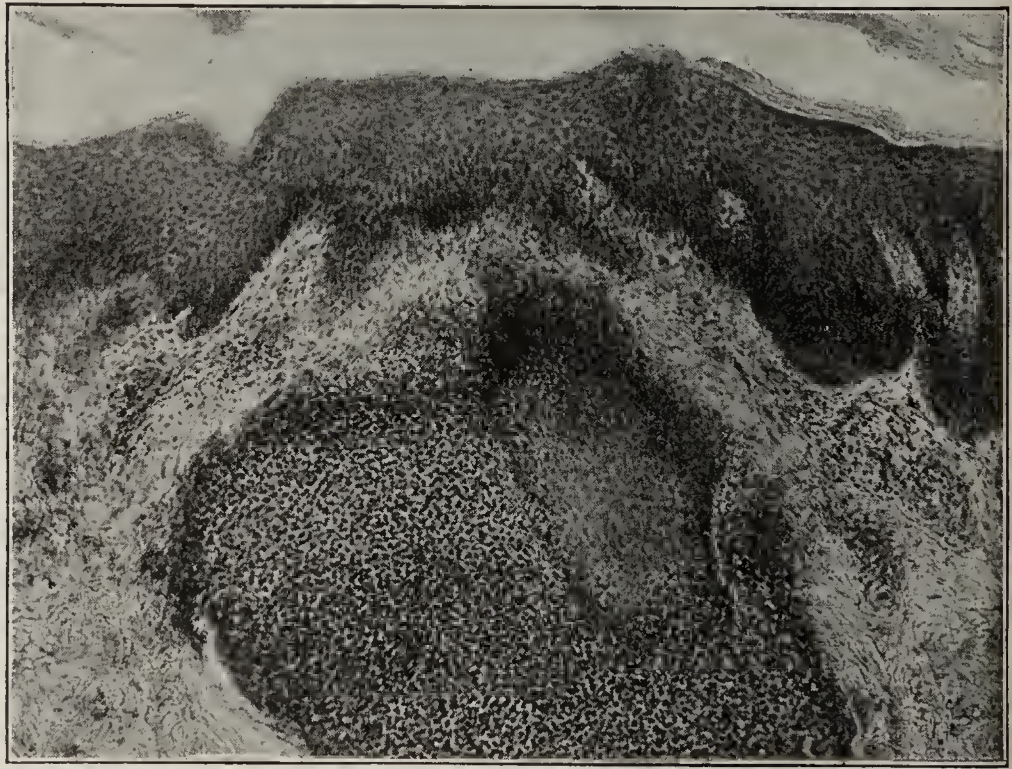
Fig. 7.—Section from abdomen, March 31, 1916; dense lymphocytic infiltration around a hair follicle.

We are sadly in need of more accurate statistics. The majority of men do not follow up their cases long enough. I recently saw three cases treated by radium, and the results were so distressing that I am very skeptical in regard to its value as at present employed by many men. They were three operable cases that went on to bad results after the use of radium.

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[13] Rhea, L. J., and Falconer, E. H.: A Report of the Bacteriologic Examination of Enlarged Lymph Nodes Removed from a Patient with Hodgkin's Disease, Arch. Int. Med., March, 1915, p. 438.

[14] Bunting, C. H., and Yates, J. L.: Bacteriological Results in Chronic Leukemia and in Pseudo-Leukemia, Bull. Johns Hopkins Hosp., 1915, xxvi, 376.

[15] Bloomfield, A. L.: The Bacterial Flora of Lymphatic Glands, Arch. Int. Med., August, 1915, p. 197.

[16] Burnam, C. F.: Personal communication to the author.

Dr. W. H. B. Aikins, Toronto: My attention was first called to the therapeutic value of radium in Paris at the Radium Institute, which was being conducted by the late Dr. Louis Wickham. I became quite enthusiastic, and still remain so, but have tempered my enthusiasm by many years of experience. I still believe strongly in the judicious use of radium. Dr. Simpson's results are entirely in accordance with my own experience.

Dr. Richard L. Sutton, Kansas City, Mo.: Dr. Heidingsfeld has called attention to a much neglected but very important factor in the etiology of carcinoma of the skin, particularly carcinoma of the prickle-cell type. It has long been recognized that certain conditions of the skin (particularly long-standing, dry seborrhea), predispose to cancer, and the development of one of the most common of all precancerous lesions, seborrheic keratosis, is frequently a direct result of trauma, such as a cut from a razor while shaving, and similar injuries. With respect to the histopathology of carcinoma basocellulare, I beg to differ very decidedly with Dr. Heidingsfeld. Krompecher's classification may not be perfect, but his researches have done much to elucidate the question in point. Any one who has taken the trouble to run through a well selected collection of three or four thousand serial sections of basal-cell carcinoma will be forced to conclude that the growths almost invariably spring from the epidermis at some point in or near the basal layer, and rarely, if ever, from the appendages of the skin. As Hertzler and others have demonstrated, in prickle-cell growths the apparently independent masses which are sometimes found are always connected to the main body of the growth, although careful search frequently is necessary before this connection can be traced. In basal-cell growths the tumor not infrequently is shaped like a bunch of grapes, the stem serving to connect the main body with the epidermis; and unless the specimen includes this stem-like link, the observer is very liable to jump at conclusions, and wander off imbued with the idea that the tumor originated at some point other than the basal layer of the epidermis.

Dr. Howard Morrow, San Francisco: I am inclined to agree with Dr. Sutton that the basal layer of the skin is the origin of many tumors of the rodent ulcer type. I believe they can spring from the basal cell as well as from the appendages of the skin. It is our first duty to decide which variety of epithelial growth we have to deal with. When it occurs on the face, it can usually be recognized clinically. When it is of the squamous cell variety the case should be treated surgically and in a radical way, but when the growth is of the basal-cell type there are many methods that can be used which are just as satisfactory as radium. Arsenic should not be overlooked entirely, because there are many patients who will not permit any surgical treatment whatever, and if we refuse to treat them, they will fall into the hands of the quacks. As a matter of fact, there are certain cases where arsenic paste acts very well, especially in ulcerating lesions on the nose or at the outer canthus. In such cases, one application, 50 per cent. in strength, applied for twenty-four hours, will effect a cure in many cases. It is a painful method, and there is considerable reaction which lasts for several days. In other cases, the curet is very satisfactory. The curettage should be done thoroughly and before the cautery or caustic is applied. Notwithstanding the theoretic objections this form of treatment is frequently the most satisfactory.

Dr. George M. MacKee, New York: The combined treatment with the Roentgen ray and the high frequency current has been very successful in some instances; in many cases more so than we could have hoped for from surgical intervention. Dr. Pfahler is right in saying that the effect is not selective, but is due to the very pronounced reaction and the coagulation of the blood in the adjacent vessels. Of course, there is no doubt that these results can be obtained, because we have seen them. My own experience with cases where deep therapy was required have not been so fortunate: while I had a few very good results, the majority were rather disappointing. I have been unable to duplicate Dr. Pfahler's results. It is possibly a question of technic. I have sufficient confidence in the method to warrant my resorting to it in cases where there is some reason why the patient should not be operated on. With sarcoma it is quite different. Here our results have been exceedingly good. We have had a very extensive experience with epithelioma of the lip. I never feel justified in applying the Roentgen ray to an epithelioma of the lip unless it is in the precepitheliomatous stage. In a case with induration and involvement of the glands, I would prefer to have the patient treated surgically, with radical excision of the lip and glands, followed by deep therapy, as outlined by Dr. Pfahler. In early cases of epithelioma of the lip, tongue or buccal mucous membrane, if superficial and without induration or palpable glands, then I believe we are quite justified in using either the Roentgen ray or radium. Even in these very mild cases I have seen a number of instances where an apparently brilliant result was followed by glandular metastases.

Dr. Walter Irwin LeFevre, Cleveland: I have used the fulgurating current a great deal in the removal of superficial growths. In these cases a large electrode is held in the hand; the wire is applied directly to the part under treatment. The doctor speaks of using a machine capable of generating from 1,000 to 1,500 milliamperes, passing the current between the two poles, by introducing the needle on one side, with the ball electrode on the other. I would like to ask how much current the meter shows passing and if he judges the time necessary for the treatment by the appearance of the part. Also if he was treating a growth, located where this bipolar electrode method could not be applied, if he would use a large electrode in some remote part of the body, with the needle in the growth, the same way? In other words, is his electrocoagulation method the same as the fulgurating current?

Dr. M. L. Heidingsfeld, Cincinnati: The difference of opinion expressed in reference to the origin of epithelioma from basal cells, while of a very decided nature, is at least honest and sincere in character. I, like Dr. Sutton, also have time and time again carefully examined thousands and thousands of sections in serial rotation without any material success, however, in casting the least light on the fundamental origin of skin cancer, particularly in regard to the ultimate derivation of these new growths from basal cells, hair follicles or sweat glands. When we realize that the emanating point must be a mass scarcely larger than a pin point and that this mass is transformed to a mass clinically much larger than a good sized pea before its true nature can be recognized, the utter hopelessness of establishing etiology by this method is readily apparent. Etiology must be conjectured and determined along entirely different lines. It is of some importance and at least of scientific interest to know from whence these new growths spring. If the basal celled epithelioma of Krompecher springs from the basal cells of the epidermis, we should at least see a fair degree of basal-cell epitheliomas springing from thoroughly cicatrized areas, following burns, injury, etc. That has not been in keeping with my personal experience. I am strongly opposed to the use of the curet in dealing with malignancy of the skin. I have never been a convert to its use and have observed nothing but unfortunate results when employed by others. I am also opposed to exploiting any new method of cancer treatment which has not been given thorough, careful and prolonged consideration and observation, not so much because new methods should be tried out thoroughly before being advocated, but because it gives a false sense of credulity and security and removes many patients from old, time-tried, successful and generally accepted methods. In other words, it offers uncertain for more or less certain results and the enforced procrastination may change a favorable condition to an unfavorable one.

Dr. George E. Pfahler, Philadelphia: The point I wish to emphasize is that these lesions, when they are in the precancerous stage, or in the early stage, can be destroyed locally by electrocoagulation and deep roentgenotherapy. The superficial lesions are destroyed by means of a pointed electrode using a single pole, making use of the Oudin current. If the disease is deeper, and yet not massive, I make use of the active point electrode attached to the Oudin current, together with a large indifferent electrode applied to the body elsewhere, and attached to the d'Arsonval current. When you desire to destroy large growths (say the whole cheek or the lower lip), you can control the process much better by the bipolar method and cook it out just as thoroughly. I usually curet away the diseased tissue or cut it off with the scissors after it is coagulated but not before.

Dr. Frank Edward Simpson, Chicago: Those who are interested in radium therapy should not fail to read the reports issued by the London Radium Institute in the last three years. These reports give a very fair idea of what can be accomplished and the whole subject is touched on in a way that frees radium from much of the exaggeration from which it has suffered. The proper application of radium is almost a specialty in itself. I have seen many cases treated unsuccessfully where the quantity of radium employed was too small and then have seen these same cases yield to a sufficient dosage. Mistakes in methods of treatment are apt to be disastrous. No one can take up this treatment and within a few weeks or months expect to master the whole subject. The greatest care and skill are necessary in order to get the best results. Radium therapy is almost a specialty in itself.

Dr. Samuel E. Sweitzer, Minneapolis: In answer to Dr. Hazen I would say that the diagnosis of benign lymphoma occurred to me in connection with my case, but after a very careful study of it, I decided that it was one of leukemia cutis, particularly as the microscopic findings corresponded very closely to those described by Arndt. At any rate, it belongs to the leukemia group.

WEAKNESS OF THE SOFT PALATE AND OF THE TONGUE A CONSTANT SYMPTOM IN HEMIPLEGIA *

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AND
T. H. WEISENBURG, M.D.
PHILADELPHIA

The extent of the paralysis on one side of the body and the escape of certain movements in hemiplegia have always been interesting problems. The latter has always been explained by Broadbent's hypothesis that those muscles which act bilaterally are represented on both sides of the brain, and therefore a unilateral lesion at most could only produce a temporary paralysis.

At first it was supposed that most of the so-called bilaterally acting movements escaped in a cerebral hemiplegia. In this were included wrinkling of the forehead, moving of the eyeballs, the muscles involved in eating, talking, swallowing, chewing, and the muscles of respiration and of the abdomen. Gradually, however, this view has been modified until at present there are some neurologists who hold the opinion that in a cerebral hemiplegia there is a partial implication in all of the so-called bilaterally acting movements.

Weakness in the upper facial distribution in cerebral hemiplegia has been frequently noted. Mirallie,[1] for example, is of the opinion that in every case in which there is weakness of the lower facial muscles the upper facial is also affected, but to a less degree, while von Monakow[2] states that careful examination of the paralyzed side will reveal a delay in the closing of the eye and the wrinkling of the forehead, and that in fact every upper facial muscle has suffered a certain slight and transitory loss of power. We are able to add a rather interesting observation in regard to this point, for it can be accepted at once that stimulative experiments of the cortical facial center should give contributory results. One of us[3] for a long time has been studying nervous cases by the use of moving pictures. In a case of jacksonian convulsions in which the twitchings always started in the right corner of the mouth and extended to the right side of the face and upper limb, the upper facial distribution was alone involved in the beginning, and it was only later on in the convulsion that the left eyebrow also took part in the movement. In the same picture it has also seemed to us as if the right eyeball was jerked to the right much more than the left eyeball. It is to be remembered that the irritation was on the left side.

Mirallie and Desclaux[4] have attempted to show that in every case of cerebral hemiplegia in which the face is involved, all the muscles of the eye on the paralyzed side are affected to a greater or less degree. This view, however, has not been generally accepted. For example, S. A. K. Wilson,[5] comes to the opposite conclusion, and holds ocular movements are absolute in their bilateral representation and innervation.

The masseters, temporals and pterygoid muscles have, of course, been frequently found to be involved on the paralyzed side. The weakness of the tongue in hemiplegia is very well known. The weakness of the soft palate is mentioned, but the extent of its involvement is not of common knowledge. It has been usually accepted that the larynx is not implicated in hemiplegia, and yet in a careful survey of the literature we have been unable to find a really satisfactory work which proves this point.

Of the muscles of the neck, chest and abdomen, it is, of course, known that the platysma and abdominal muscles are weak in hemiplegia and that the muscles of respiration are undoubtedly affected.

The present investigation is concerned with the extent of the paralysis of the palate and tongue in cerebral hemiplegia.

Our results, in brief, show that in practically every hemiplegia in which there is facial involvement, the soft palate is either totally or partially weak on the paralyzed side. In fact, so impressed have we been with the consistency of this symptom that we are loath to accept the presence of a hemiplegia in the absence of a weakness of the palate on the paralyzed side. This is equally true of the tongue; but the weakness of this organ is not so readily shown as that of the palate, and therefore as a constant symptom it does not have the importance of the former.

We investigated in round numbers 100 cases of hemiplegia, all of these being either in the nervous wards or the out-wards of the Philadelphia General Hospital. Besides, we studied a number of cases of diplegia and pseudobulbar palsy. Of the hemiplegics, in every instance in which we obtained a good view, there was found to be weakness of the soft palate.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Mirallie: Arch. de neurol., 1899, p. 1 et seq.

[2] Von Monakow: Gehirnpathologie, p. 288.

[3] Weisenburg, T. H.: Moving Picture Illustrations in Medicine, The Journal A. M. A., Dec. 28, 1912, p. 2310.

[4] Mirallie and Desclaux: Rev. neurol., 1903, p. 649. Desclaux: Thèse de Paris, 1903.

[5] Wilson, S. A. K.: Rev. Neurol. and Psychiat., 1904, p. 265.

In a normal individual with the mouth open and in quiet breathing, the uvula generally points to the middle, and the palate and its arches have a uniform outline. In a hemiplegia, however, according to our investigations, in about 80 per cent. of the cases, the uvula generally points away from the paralyzed to the normal side, and the palatine arch, because of the relaxation or loss of tone of the muscle, loses its normal concavity and appears flatter and wider. In ten out of the hundred the arch appears to be narrower on the paralyzed side. But in these the weakness of the palate can be readily determined in phonation. Even in these cases, however, in comparison with the normal side, the palate always appears ironed out or flat. In the other ten patients we were unable to obtain a satisfactory view because of physical reasons.

When, however, the soft palate is put in motion by saying "ah," the weakness of the palate is at once apparent. Instead of the normal contraction, the response of the arch on the paralyzed side is slower, and what can be best described as the giving way or the relaxation of the palate is greater and in a direction backward and toward the normal side, as if the normal palate exerted its influence by drawing the back part of the paralyzed muscle toward it. There is, of course, a variation in the extent of the palate weakness; but some involvement is found in every case.

Tetzner,[6] in 1909, also studied the extent of the soft palate involvement in hemiplegics, and divided his cases into four groups. In a certain number he was unable to get a view of the palate. In the second group the soft palate was so completely paralyzed that it moved very little. In the third group the soft palate did not move in phonation, but did move symmetrically in gagging, while in the last group in phonation there was undoubted movement of the soft palate, as in fifty-two cases of cerebral hemiplegia he found that in forty, or 77 per cent., there was a drawing of the soft palate upward and *toward* the paralyzed side. In eleven of these cases the soft palate acted symmetrically.

These observations coincide very much with ours in the sense that the author found in most instances a weakness of the palate in phonation; but while he states that the movement of the palate is backward and toward the paralyzed side, our observation is that the movement is backward and toward the healthy side, quite the opposite conclusion. With the knowledge of Tetzner's observations, we have repeatedly proved to ourselves that our views are correct. Besides, in our study we observed the condition of the palate at rest, to which Tetzner paid no attention.

An interesting contribution to this subject, which establishes that our view is correct, is that by Horsley and Beevor,[7] who in their experiments found that with minimal electrical stimulation of the cortex of one hemisphere, elevation of the soft palate toward the opposite side could be obtained more frequently than bilateral elevation of the palate. It follows, then, that if stimulative experiment produces an elevation toward the opposite side, paralysis will cause a movement of the palate toward the sound side.

WEAKNESS OF THE TONGUE

The weakness of the tongue in hemiplegia is, of course, very well known. The generally accepted view is that in a right hemiplegia, for example, the tongue deviates to the right or the paralyzed side, because of the unaffected action of the normal muscle. The extent of this paralysis varies, and is generally most marked directly after a hemiplegia, and gradually disappears; but in some cases this weakness is always apparent. Beevor[8] investigated the tongue in hemiplegia. He was particularly concerned with the fact that the tongue moved to the paralyzed side, not only in a paralytic condition, but also as a result of a cortical irritation. He explained this phenomenon by the fact that the cortex revealed that there are two centers for the movements of the tongue, one in the upper part of the tongue area which caused deflection toward the opposite side, and another situated lower and more anteriorly, stimulation of which caused protrusion of the tongue in midline. The latter affects equally the movements on the two sides of the tongue, and it is the disturbance of this movement which causes the flexion of the tongue toward the hemiplegic side, and not the voluntary movement of turning the tongue toward that side. The latter is a unilateral movement, and Beevor has shown that it is affected in hemiplegia, the patient having more difficulty in putting the tongue into the cheek on the paralyzed side than in moving it in the opposite direction.

In our investigation we studied the position of the tongue when lying in its cavity, and its action when protruded. The extent of the weakness on the paralyzed side was generally commensurate with the extent of the palatine involvement. In almost every case the tongue was flabby to touch and pressure as compared with the normal side. When lying in its cavity, especially in its posterior part, it appeared higher and thicker, and its width was less. This was especially brought out when the tongue was protruded. In about 25 per cent. of the cases no change was found in the circumference of the tongue when at rest, while in a few, about 5 per cent., the tongue appeared smaller on the paralyzed side. When protruded, especially in early cases, the tongue moved to the side of the paralysis; but what was most apparent was the greater convexity or thickness and lessening of the width, especially in its posterior part.

Our investigations of the palate and tongue in diplegia were not productive, chiefly because of the lack of comparison with the normal.

In pseudobulbar palsy, our findings were practically those in hemiplegia; for in the majority of cases of pseudobulbar palsy, one side is always more involved than the other. In a few instances, especially in one case in which the bulbar symptoms were most marked, there was not the slightest doubt about the weakness of the soft palate. The tongue movements in pseudobulbar palsy are always limited, and the lack of tone noticed in hemiplegics is easily apparent.

CONCLUSIONS

1. In all hemiplegics in who mthere is an involvement of the lower part of the face, there is also weakness of the soft palate. This can be seen with the mouth open, with the palate at rest and in phonation. When at rest the arch of the palate is flatter and broader than that on the normal side. In phonation the soft palate on the paralyzed side appears to give way and the arch of the palate goes back and toward the normal side.

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[6] Tetzner: Neurol. Centralbl., 1909, p. 520.

[7] Horsley and Beevor: Phil. Tr. Roy. Soc., 1894, clxxxviii, 62.

[8] Beevor: Brain, 1906, p. 487.

2. In hemiplegics in whom the lower part of the face is involved, the tongue on the paralyzed side loses its elasticity, and is flabby to touch and pressure. When lying in its cavity, the posterior part especially appears to be thicker and not as wide in comparison to the normal side, this being especially brought out when the tongue is protruded.

1909 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Francis X. Dercum, Philadelphia: In an organic hemiplegia involving the leg, arm and face of one side, the tongue, when protruded, deviates toward the paralyzed side. In a hysterical hemiplegia it deviates toward the sound side. The physical character of the tongue as it rests on the floor of the mouth in organic hemiplegia, as well as the condition of the soft palate and half arches, furnishes additional points of value in the further differentiation between an organic and a functional hemiplegia.

Dr. Walter Timme, New York: In phonation or in an attempt by the patient to move the soft palate, in which direction is his uvula carried—toward the paralyzed or the sound side? It is my experience that the large majority, in contradistinction to Dr. Weisenburg's findings, move to the nonparalyzed side of phonation.

Dr. George A. Moleen, Denver: One might say that in the examination of cases of hemiplegia the observation of palate and tongue is a routine. I have often, however, been struck by the point referred to by Dr. Weisenburg, that cases which eventually prove not due to destructive lesions were associated with diminished or slightly perceptible deviation of the tongue, and likewise the palate was little influenced, while in cases of organic hemiplegia, ordinarily the palate in phonation is found drawn to the opposite side.

Dr. J. Ramsay Hunt, New York: Were these observations made in old or recent cases?

Dr. Theodore H. Weisenburg, Philadelphia: We found that in hemiplegia the uvula points to the paralyzed side in phonation. Our cases were mostly old. In new cases the palate symptoms are much more marked than in older cases. So common has been the weakness of the palate that I would doubt the presence of hemiplegia without it.

Unsuspected Hernia as Cause for Infant's Crying.—M. Vargas of Barcelona in his "Pediatrics," 1915, relates a number of instances in which nothing could be found to explain the infant's constant crying until a tendency to inguinal hernia was detected. When the hernia occurs easily, through a wide passage, there is no pain, and the hernia is readily reduced, as a rule. The painful and often ignored form is when the passage is small and the intestine protrudes little, if at all, so that the hernia escapes detection unless the physician is on the alert to find it. The child keeps up its crying incessantly in these cases until the hernia is reduced and held in place with adhesive plaster, when relief and smiles follow at once.

LOCAL REACTIONS OF THE PASTEUR TREATMENT AND THEIR TIME OF APPEARANCE

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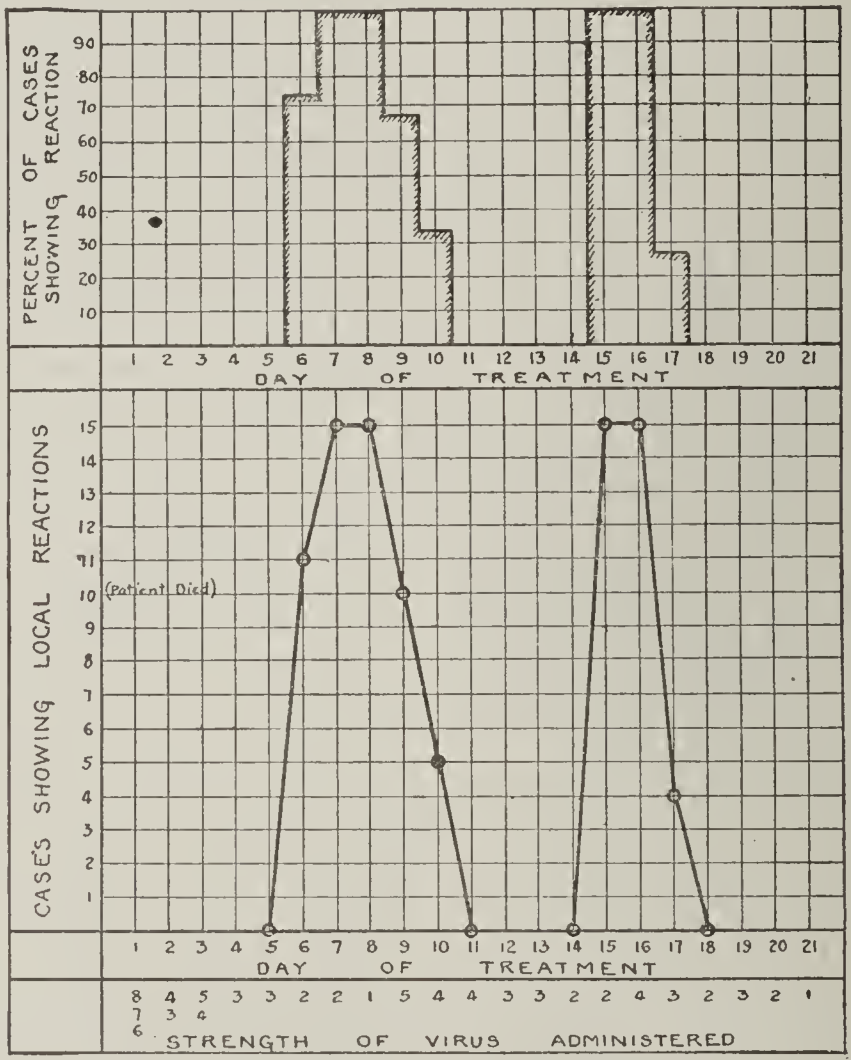
Textbooks and many writers describe a local reaction of the tissues at the site of injection occurring during the course of the administration of the classical Pasteur treatment. All agree in the general description of this reaction, namely, a slightly raised edematous area with erythema, accompanied usually by itching, pain and tenderness, and sometimes with malaise and rise of temperature.

The time of appearance of these reactions has been variously given. An attempt here is made to demonstrate by chart, in a series of fifteen cases, the strength of the virus given, the percentage of cases showing reactions, and the day of the treatment on which the reactions occurred. In only one case in a series of 641 did these reactions occur daily. Again, in only one case of this series could the reactions be considered absent. In one case, in which a paralysis occurred, as a complication of the Pasteur treatment, there was noted a flaring up of all the reactions with a sharp rise in temperature simultaneously with the beginning of definite symptoms of the involvement of the nervous system.



Time of local reactions in Pasteur treatment.

That these reactions are manifestations of hypersensitiveness of the individual to the nerve tissue injected is probably true. That the rise of reactions occurs after the injection of virus of high potency is suggestive. That they have any relation to immunity cannot be considered because of their occurrence in fatal cases, these cases being true failures of the Pasteur treatment. It is interesting to note, in the chart, the universal appearance of the reactions on the seventh and eighth days of treatment, and the second rise, occurring on the fifteenth and sixteenth days, this being less in extent. A search of the literature has failed to reveal the mentioning of this second definite rise in the reactions, as in the series recorded here and also noted in the majority of the 641 cases treated. Whether this decidedly modified reaction is due to a protein of another character cannot be definitely stated. The largest reaction noted was approximately 10 by 12 cm. in diameter.

THE CLINICAL VALUE OF COMPLEMENT FIXATION IN TUBERCULOSIS *

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NEW YORK

It is well known that in most bacterial diseases the body reacts by the formation of antibodies, and that when this phenomenon takes place the presence of these antibodies can be detected in vitro by a number of different methods, all of which depend on the observation of the reaction which occurs between the serum of the subject and the antigen prepared from the body constituents of the inciting micro-organisms; such are the agglutination reaction, the precipitin reaction, and, perhaps most important of all, the various methods of complement fixation. The demonstration of antibodies in the circulating blood has been accomplished and successfully applied to the diagnosis and prognosis of tuberculosis. Since 1903, beginning with the researches of Bordet and Gengou,[1] many workers have repeatedly noted the presence of antibodies in the blood of tuberculous patients, demonstrating them by the method of complement fixation with antigens derived from the tubercle bacillus. Wassermann and Bruck,[2] and then Citron[3] were among the early investigators who amplified this work. Because of technical difficulties, however, results in tuberculosis long proved irregular and unreliable. Nevertheless enough was done to indicate that with proper improvements in methods the fixation reaction would probably be available for the diagnosis and the clinical control of this disease in its prognosis and treatment.

The various other laboratory tests proposed for the early diagnosis of tuberculosis have served their purpose only to a limited degree.[4] Tuberculin reactions, particularly, seemed to offer help as diagnostic measures until it was demonstrated that their great delicacy impaired the usefulness of most of them. The skin reaction has lost much of its clinical significance because nearly all adults react positively. These tests denote a hypersusceptibility of the patient to the tubercle bacillus, and this state may exist whether the lesion is active or inactive; they are thus not an indicator of the activity of the disease. Extensive clinical observation has finally limited the value of skin tests chiefly to cases occurring in infants and in young children.

Equally unreliable have been the urochromogen test, albumin estimations of the sputum by various processes, the interpretation of the Arneth leukocyte count, agglutination reactions as carried out by Arloing and Courmont, etc. It is apparent, therefore, that specific diagnostic measures for tuberculosis, as generally in use at present, have proved inadequate.

Granted that the circulating blood of tuberculous patients contains specific antibodies, the chief difficulty with which all experimenters have been forced to contend has been the production of a suitable antigen. A suitable antigen in this sense would be represented by a preparation of tubercle bacillus constituents which, together with the serum of tuberculous animals or man, would specifically fix complement and would fail to show fixation in reasonable multiples either by itself, with normal serums, or with the serums of patients suffering from other diseases.

Elsewhere I have reviewed the literature on complement fixation in tuberculosis,[5] and have pointed out the great variety and large number of antigens which have been proposed. The subject has received sporadic study during the last decade, but within the past few years interest in the problem has been especially stimulated by the promising results published by Besredka[6] and by those who employed the Besredka antigen[7] and modifications of it (Inman,[8] Debains and Jupille,[9] Renaux,[10] Bronfenbrenner[11] and Craig[12]). Calmette[13] devised a watery peptone extract of the bacilli. McIntosh and Fildes,[14] Dudgeon, Meek and Weir,[15] and Radcliffe[16] used bacillary suspensions. Finally Petroff[17] employed, with good results, a filtrate of cultures on glycerin-potato broth.

From the statements of these workers, it became evident that many different antigens may yield results appreciably better than those obtained in the early investigations. A careful study of these later antigens, however, failed to eliminate a considerable margin of error. Besredka obtained a high percentage of positive fixation in positive cases, but he found, not infrequently, complete binding with the serums of normal and syphilitic patients. Obviously, this nonspecific cross fixation diminishes the reliability of Besredka's antigen. Bronfenbrenner, in spite of extracting lipins or precipitating and obtaining the protein constituents in pure form, could not avoid nonspecific cross fixation. In his latest report, Bronfenbrenner,[18] with his collaborators, stated that the reaction is positive in a certain number of clinically nontuberculous and in 20 per cent. of syphilitic cases. He holds that syphilis and tuberculosis occur in the same patient more often than has been heretofore suspected, and that the 20 per cent. of syphilitics with positive tuberculosis reactions probably have tuberculosis though no clinical evidence is present. Craig extracted the Besredka egg broth, together with its bacterial growth with alcohol, and procured a filtrate which gave no cross fixation with nontuberculous and syphilitic serums but gave positive reactions in 66.1 per cent. of clinically inactive cases. Though at variance with the clinical findings, Craig claims that the fixation test may be the more reliable guide to activity in these arrested cases. Petroff's data show cross fixation. Calmette's antigen gave a maximum number of positive fixations in moderately advanced pulmonary cases, but did not serve as a reliable test in the other stages of pulmonary and other forms of tuberculosis. With the bacillary suspensions the English writers obtained good results; but here also the number of inactive cases with positive fixation justified the belief that this test thus far offered little advantage over the tuberculin procedures, since 74 per

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[1] Bordet and Gengou: Compt. rend. Soc. de biol., 1903, cxxxvii, 351.

[2] Wassermann and Bruck: Deutsch. med. Wchnschr., 1906, xxxii, 449.

[3] Citron: Berl. klin. Wchnschr., 1907, p. 1135.

[4] Kahn: Jour. Lab. and Clin. Med., May, 1916, p. 599.

[5] Miller, H. R.: Jour. Lab. and Clin. Med., August, 1916.

[6] Besredka: Ztschr. f. Immunitätsforsch., 1914.

[7] The Besredka antigen consists of the filtrate of an egg-meat-broth medium on which tubercle bacilli have been allowed to grow for several weeks.

[8] Inman: Compt. rend. Soc. de biol., 1914, lxxvi, 251.

[9] Debains and Jupille: Compt. rend. Soc. de biol., 1914, lxxvi, 199.

[10] Renaux: Compt. rend. Soc. de biol., 1914, lxxvi, 864.

[11] Bronfenbrenner, J.: The Complement Deviation Test with Besredka's Tuberculin and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by This Test, Arch. Int. Med., December, 1913, p. 786.

[12] Craig: Am. Jour. Med. Sc., December, 1915, p. 781.

[13] Calmette and Massol: Comp. rend. Soc. de biol., 1912, lxxiii, 120.

[14] McIntosh and Fildes: Lancet, London, 1914, ii, 485.

[15] Dudgeon, Meek and Weir: Jour. Hyg., 1914, xiv, 72.

[16] Radcliffe: Jour. Hyg., 1915, v, 36.

[17] Petroff: Personal communication to the author.

[18] Bronfenbrenner, J.; Kahn, M. H.; Rockman, J., and Kahn, Max: Further Studies of Biologic Methods for the Diagnosis of Tuberculosis, Arch. Int. Med., April, 1916, p. 492.

cent. of the cases with quiescent lesions gave positive reactions.

Thus the work of Besredka and his followers, of Petroff, of Calmette, of McIntosh and Fildes, and of Radcliffe, indicates the regularity with which the test may give positive results in clinically active cases, but in general has not succeeded in determining the activity of the tuberculous process, since serums of many arrested patients and at times the serums of normal, nontuberculous and syphilitic cases reacted positively. The possibility that these patients, nearly all of whom failed to show evidence of the disease, were nevertheless harboring active lesions seems remote and directly opposed to clinical experience.

To be of any real value to clinicians, tests of this kind should either differentiate between arrested and active cases or should, at least, give regularly negative results in other disease and in normal cases. The latter standard seems to have been satisfied by McIntosh, Radcliffe and others, with suspensions of the bacilli, but the work did not serve to distinguish active from arrested lesions. It seemed reasonable to hope that the laboratory findings would agree more fully with clinical data.

In previous communications, Miller and Zinsser[19] described a simple antigen prepared by grinding living or dead tubercle bacilli with dry table salt, and then adding distilled water up to isotonicity. This salt extraction of tubercle bacilli has served as excellent antigen. Its detailed description has been published. At present we desire to report the results of 1,012 cases tested with this antigen.

The serums of the majority of the first three or four hundred cases examined reached the laboratory with no data whatsoever and were identified by number; later the clinical observations in these cases were compared with the serologic result, and practically no disagreements noted. This encouraged the belief that we were dealing with a specific reaction, and a more intensive study of this antigen was undertaken. The accompanying table illustrates the results.

The small but important group of eight incipient cases deserves special scrutiny. These were all very early cases, running a slight febrile course. In one instance the condition was considered malaria, in another the diagnosis was gastritis, in a third exophthalmic goiter and in the rest bronchitis. All showed few or vague pulmonary signs. There was no expectoration of sputum in any of these. The fixation test was positive in all of them. Twenty-seven active pulmonary "Stage I" cases with positive sputum gave positive reactions, while seven additional active "Stage I" patients with no bacilli in the sputum were also active.

Of 128 "Stage II" cases, ninety with positive sputum, all but four were positive. One hundred and fourteen "Stage III" patients, eighty-nine with positive sputum, gave positive reactions in 109; one negative result was obtained in a patient who had a very advanced lesion; the other four negative reactions occurred in moderately advanced cases.

We have, then, the serums of 284 clinically active patients in whom the reaction was positive in 275.

There were 113 inactive or arrested cases. The largest number had been arrested for a period of years; some, however, were classed as inactive by clinicians from various institutions, when the disease was clinically quiescent for short intervals of from four to five months. Every patient had had tuberculosis at some time, but no case was placed in this group that showed any physical signs or symptoms of activity. The von Pirquet test was performed in twenty-three in this series. It was positive in nineteen and negative in four; in all of these fixation was negative. Among the 113 cases, seven had tubercle bacilli in their sputum shortly before the fixation test was done; of these seven cases two gave strong positive fixation, and the other five were negative. The clinical picture of these five inactive cases with positive sputum corroborates the serologic observation that when there is no antibody in the blood, and in spite of bacillary positive sputum, the patients are not to be considered as suffering from tuberculosis. They are in effect tubercle bacillus carriers. The other 106 cases gave negative reactions in ninety-eight and positive reactions in eight.

RESULTS OF ONE THOUSAND CASES TESTED WITH SALT EXTRACTION OF TUBERCLE BACILLI

Total	Diagnosis	Sputum		Result		
		Positive	Negative	Positive	Negative	Suspicious
284	Active pulmonary:					
	Incipient........................ 8	..	8	8	..	..
	Stage I........................ 34	27	7	34	..	..
	Stage II........................128	90	38	124	4	..
	Stage III........................114	89	25	109	5	..
113	Inactive pulmonary..................	7*	106	10	103	..
228	Doubtful cases:					
	Pulmonary (148):					
	Pleural.................... 21	..	21	3	17	1
	Emphysema................. Asthma.................... 11 Bronchitis.................	..	11	1	10	..
	Postlobar pneumonia...... 5	..	5	..	5	..
	Spontan. pneumothorax... 1	..	1	..	1	..
	Hydrothorax.............. 1	..	1	..	1	..
	Miscellaneous..............109	..	109	16	93	..
	Eye cases...................... 28	..	..	1	25	2
	Bone and joint................. 17	..	..	5	11	1
	Gland cases.................... 11	..	..	3	8	..
	Ascites........................ 5	..	..	2	3	..
	Genito-urinary................. 11	..	..	4	7	..
	"Exposures"................... 3	..	..	..	3	..
	Tuberculous meningitis........ 5	..	..	4	1	..
144	Nontuberculous serums..............	..	..	..	144	..
243	Positive Wassermann serums......	..	..	7	236	..
1012						

* Of the 7 patients with positive sputum 5 gave negative fixation.

Summarizing this important group of inactive cases we observe that, out of a total of 113 patients examined, 103 gave negative reactions while ten showed fixation. The von Pirquet test was not paralleled by the fixation reaction. There seems to be a type of patient that may be termed a "tubercle bacillus carrier," manifesting no activity clinically and with no evidence in his blood of adsorption from an active process. As a rule, the fixation test in inactive or arrested tuberculosis is negative.

The serums of 228 doubtful patients were tested.

Twenty-one had pleural involvement, mostly of an acute nature, with fluid well marked. The results were: positive fixation in three, suspicious reaction in one, and negative in seventeen.

Eleven patients with various nontuberculous pulmonary conditions, as emphysema, bronchitis and asthma, were all negative except one in whom roentgenoscopy revealed diffuse lung shadows and in whom active tuberculosis was probable. Five postlobar pneumonias, one hydrothorax and one spontaneous pneumothorax of unknown origin were negative.

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[19] Miller and Zinsser: Tr. New York Path. Soc., Feb. 7, 1916; Am. Jour. Med. Sc., to be published; Proc. Soc. Exper. Biol. and Med., 1916, xiii, 134.

One hundred and nine additional cases were examined, the signs and symptoms being suspicious but not conclusive of tuberculosis. Here the reaction was negative in ninety-three and positive in sixteen. Subsequently the clinical diagnosis of tuberculosis was established in some of these sixteen positively reacting patients. In no inactive cases so far has there been discovered any evidence of an active lesion. We have, then, out of 148 pulmonary conditions of doubtful nature so far as tuberculosis is concerned, 127 cases with negative, one with suspicious and twenty with positive results.

Twenty-eight eye cases gave negative reaction in twenty-five, positive in one, and suspicious in two.

In seventeen bone and joint conditions, five were clinically tuberculous. The reaction was positive in these five. A guinea-pig inoculated with tissue from one of these cases developed tuberculosis several weeks after the serum test had been reported; the reaction was negative in eleven cases and suspicious in one.

Eleven glandular cases were examined. Three were positive; in one of these three the clinical diagnosis of Hodgkin's disease was disproved at the pathologic examination of an excised lymph node, when tuberculosis was found. The other eight glandular cases were negative.

Of five cases of ascites, three were clinically polyserositis with negative Wassermann reactions; fixation was positive in one of these three; a fourth was a case of splenomegaly with negative Wassermann and negative tuberculosis reaction, and the last, a case of tuberculous peritonitis with the Wassermann reaction positive, in which tuberculosis of the peritoneum was found on exploratory laparotomy.

Of eleven genito-urinary cases, four were positive and showed renal tuberculosis at operation; seven cases were doubtful clinically and negative to the test; in one case a tuberculous kidney had been removed but there was a persistent tuberculous sinus. In this case the test was negative.

The only three cases of "exposures" examined were negative.

The spinal fluid from four cases with proved tuberculous meningitis gave positive fixation in three cases and negative in one. One case for diagnosis reacted positively. This patient died with the clinical picture of tuberculous meningitis. No necropsy was obtained.

For controls, 144 negative cases were secured. Eight were normal patients; the rest had trivial complaints or diseases in which tuberculosis was well excluded. The fixation test was negative in all. Twenty-six received tuberculin intradermically and the skin reaction was positive in twenty-four and very marked in a few. Yet the serums of these twenty-four were negative with the fixation reaction.

Two hundred and forty-three Wassermann serums gave negative reactions in all but seven cases. One of these seven was the patient with tuberculous peritonitis already mentioned, who had syphilis and whose peritoneum showed tuberculosis at operation. One patient under Dr. Alfred Meyer's observation also had syphilis, and the Roentgen ray showed definite lung signs. Another case (G. G.) was repeatedly positive by the fixation test. Five weeks after our last report Dr. Smith of the Presbyterian Hospital reported that roentgenoscopy revealed consolidation in the lungs, and that there were signs of activity on auscultation. In three cases from a series of 198 positive Wassermann serums obtained from the New York Department of Health[20] the doctor in charge diagnosed tuberculosis in two, but could establish no diagnosis of syphilis or tuberculosis in the second. The final patient (J. O.) who gave positive fixation with both antigens cannot be reached for further investigation.

It would needlessly encumber this paper to detail the histories of the cases tabulated. At the outset the work was limited to the examination of pulmonary cases. The results showed a remarkable regularity in that active tuberculosis only gave positive fixation while controls were invariably negative. Subsequently inactive and syphilitic serums were examined, and in addition a large series of reactions were done on nontuberculous patients and in cases in which clinical history and signs pointed to the possibility of tubercle bacillus infection. Where there were apparent discrepancies between clinical and laboratory findings, later details, in almost all instances, upheld the serologic results. In a group of children from 1 to 15 years old, the reaction was equally reliable in differentiating the clinically active cases from all others. Here, too, the von Pirquet test did not, in all cases, coincide with the fixation reaction.

CONCLUSIONS

We have, then, in the complement fixation reaction, a method for the detection of active tuberculosis.

1. The reaction is practically always positive in active tuberculosis: 284 pulmonary cases: positive in 275, negative in nine.

2. Nontuberculous and normal patients react negatively: 144 cases: all negative.

3. The serums of syphilitics who have no clinically active tuberculosis are negative. Two hundred and forty-three positive Wassermann cases were all negative except seven, and in these seven tuberculosis was established in five cases and was not excluded in the other two.

4. The test is, as a rule, negative in arrested cases. Of 113 serums tested, 103 were negative and ten positive.

5. The von Pirquet and intradermic tuberculin tests and the complement fixation reaction are not identical or similar diagnostic procedures, since the former indicates the existence of a tuberculous lesion whether old and arrested or active, while the latter points clearly to the presence of some active focus.

6. There is evidence to believe that there exists a group of tubercle bacillus carriers who have no manifestations of clinical activity and whose serums contain no antibodies, and yet discharge tubercle bacilli in their sputum.

7. The presence of tubercle bacilli in the sputum is not an absolute guarantee of the activity of the pulmonary tuberculosis.

We feel reasonably justified, therefore, in assuming that the complement fixation test with our antigen may be of distinct aid in the diagnosis of early tuberculosis and in the detection of the disease when the condition is obscure. The test should offer a wide field of usefulness in prognosis, since the reaction loses its intensity of fixation as the patient progresses toward recovery. Lastly, in the fixation test the practitioner will have at his disposal a measure for the control of tuberculosis in institutional and private life.

150 West Eightieth Street.

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[20] For the privilege of studying these serums I am indebted to Mr. Coopman.

EPIDEMICS OF PEMPHIGUS NEONATORUM IN CHICAGO

PRELIMINARY REPORT *

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CHICAGO

Eight small epidemics of pemphigus neonatorum have occurred in Chicago within the last year. The disease is an epidemic staphylococcic vesicular dermatitis occurring usually in new-born babies from the fourth to the fourteenth day, but capable of being transmitted to older children and adults. The exciting organism is a peculiar strain of staphylococcus which is biologically and tinctorially indistinguishable from other strains of staphylococcus, but which shows characteristic pathogenic tendencies when causing the specific disease on the human skin. Morphologically on some mediums (broth and milk) it differs from the ordinary staphylococcus in that it appears as a kidney-shaped diplococcus with a tendency to form short chains. I have cultivated this organism in pure culture from the lesions, and it has fulfilled all of Koch's laws with respect to the disease. It is pathogenic for the lower animals, killing guinea-pigs and rabbits on intraperitoneal, subcutaneous and intravenous injections in less than a week. The typical vesicular eruption, however, could not be reproduced in these animals. An abortive lesion was produced in a monkey. A typical lesion was produced on my arm from a broth culture of the organism, and the organism was recovered from the experimental lesion in pure culture.

The onset of the disease is usually from the fourth to the tenth day. A reddened area of hyperemia first appears, which becomes whitened in the center in a few hours, followed by a raising of the epidermis into a thin walled, wrinkled vesicle containing a clear, yellowish fluid. Later this fluid becomes turbid. Smears from this show pus cells with intracellular and extracellular diplococci, which in these preparations resemble the gonococci very closely, but differ in that they are gram-positive. The vesicles spread rapidly by peripheral extension, and in severe cases may coalesce to form large areas from which the superficial epidermis has been lifted off, leaving a raw, weeping, hyperemic base.

There is, as a rule, no rise in temperature or increase in pulse rate. The babies eat and sleep well and gain in weight, and there seems to be little if any subjective sensation produced by the lesions. Fatal cases, however, occur associated with all the signs of a severe septicemia. In most of the reported cases of this type, skin lesions were present in the region of the umbilicus. The infection in these cases, therefore, probably spreads by way of the umbilical vessels.

The disease is highly contagious, and can be transmitted through the medium of a third party, who is not infected, but who has come in contact with patients having the disease. No cases have been reported in babies who have not been exposed directly or indirectly to the cases developing in the hospital epidemics.

Prompt isolation of patients with quarantine of the obstetric wards until the last patient has left the hospital, followed by thorough fumigation and painting or calcimining the infected wards and sterilizing material that has been exposed to the disease, appears to be the only efficient means of stamping out the infection. While in the hospitals, patients should have special nurses and separate equipment for their care. An efficient method of treating the lesions is to rupture the vesicle as soon as it forms and to apply 2 per cent. ointment of ammoniated mercury (white precipitate ointment) to the lesion. Prophylactic and curative vaccines in doses of 15 millions are being tried, but their use is too limited as yet to permit one to draw conclusions as to their value in preventing or effecting a cure of the disease.

The epidemics have occurred at the West Side Hospital, the University Hospital, Cook County Hospital, St. Luke's Hospital, Michael Reese Hospital, Chicago Lying-In Hospital, Englewood Hospital, and the Monroe Street Hospital. Nearly a hundred cases have been observed with at least four deaths.

CHLOROFORM IN STATUS EPILEPTICUS

WITH REPORT OF CASES

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By status epilepticus, reference is made to that condition of epilepsy which is characterized by epileptic seizures following so close one on the other that before the patient finds himself out of one convulsion the successive attack appears, and so on until death, unless by some means they are arrested.

At the New Jersey State Village for Epileptics, I made a study of the treatment of status epilepticus in cases selected from the children's division. All patients who had status epilepticus were studied. The study was made between March 1 and Dec. 1, 1915.

Prior to this study, the treatment of the status epilepticus cases was with purgation and high colon flushes, large quantities of water being used long after the colon had been cleansed. When necessary, relaxation was produced with chloroform to the state of primary and sometimes of complete anesthesia, and bromids and chloral hydrate were occasionally used during the intervals.

The present study was made to ascertain which of these remedies was the most potent, or whether all together gave the results. The study was divided into first, second and third parts, the first part to cover the first three months, the second part the second three months, and the third part the last three months. The plan of study pursued was the use in the first part of high colonic irrigation with saline purgation and to avoid the use of chloroform. In the second part the same procedure was to be followed, but chloroform anesthesia was used whenever the enemas and purgation failed. In the third part chloroform anesthesia was used alone and as soon as the physician arrived. As will be observed throughout the report, an absolute adherence to this plan was not possible owing to the frequency with which the patient's condition demanded a slight variation of the treatment.

All of the patients except Case 7 at the beginning of the study were placed on fluidextract of cascara sagrada each day at bedtime, and a saline purgative or castor oil was administered about every ten days.

The following case reports will show the results:

Case 1.—*History.*—B. C., girl, aged 12, in whom the first convulsion occurred at 5 months, exciting cause not known, had a neurotic hereditary taint. The Binet-Simon test gave the mental age as 4.8 years. The patient had been having status epilepticus on an average about once every three to five weeks. The status was usually preceded by violent pain in the back.

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* From the Laboratories of Experimental Medicine and of Obstetrics, University of Illinois, College of Medicine.

First and Second Parts.—Three status attacks occurred approximately on an average of four weeks apart, and were treated in the beginning with high colon irrigation. In the first status, no chloroform was administered; during the second and third, owing to the patient's becoming very much exhausted, enough chloroform was given for relaxation.

Third Part.—The last three months, as soon as the physician arrived at the bedside, chloroform was administered, which each time arrested the seizures with the same good after-results as when high enemas were used. Just enough chloroform was inhaled to relax the patient, at which time she would go to sleep and after a few hours awaken in her usual condition.

CASE 2.—*History.*—E. P., girl, aged 17, whose first convulsion occurred at 10 years, the exciting cause being indigestion, carried an epileptic hereditary taint and tested 2.6 years by the Binet-Simon scale. This patient had been having status about every four to five weeks.

First and Second Parts.—This study of the patient shows that from the first convulsions she recovered without the use of chloroform, but during the second and third it was necessary as a last resort. This patient always vomited shortly after the administration of chloroform, which seemed to relieve her and showed an overloaded condition of the stomach. After relaxation with chloroform she would have two or four convulsions within the next twelve hours, which were all except an occasional one until the next status.

Third Part.—The next four status convulsions were treated without enemas and chloroform was administered immediately on the arrival of the physician, which arrested convulsions with the same results as when the enemas were used in conjunction with the anesthesia.

CASE 3.—*History.*—M. R., girl, aged 14, whose first convulsion occurred at 5 years and was attributed to teething, had both a maternal and a paternal neurotic taint, and stood one-plus results by the Binet-Simon scale. She had status epilepticus every one to three months.

First Part.—Two attacks occurred, and it was necessary to administer chloroform in both attacks, which came on two months apart. Both times the patient became very cyanosed, and as soon as the chloroform was administered began to breathe easier and soon completely relaxed, without recurrence of convulsions. Each time she had a great deal of bronchial secretions, and the pulse became rapid and weak, which condition was relieved by atropin.

Second Part.—It was quite evident that the longer the chloroform was withheld the more chloroform it took to relax the patient.

Third Part.—The chloroform was administered at once and the patient relaxed early. The after-effects were very much diminished in that the patient was able to be up and about much earlier.

CASE 4.—*History.*—A. M., girl, aged 11, whose first attack occurred at the age of 3 years, exciting cause unknown, was epileptic because of a defective germ plasm carrying a maternal epileptic and a paternal feebleminded taint. The Binet-Simon test gave a mental age of 3.9.

First and Second Parts.—In the first attack, chloroform was not administered. The second attack was very severe, and colon flushes and chloroform would relax her for only a few minutes, sometimes as long as an hour, and then there would be a recurrence of the convulsions. This state of affairs lasted for about forty-eight hours, when the convulsions became arrested. During the time, bromids, chloral and morphin had been administered. The patient was in bed several weeks following this attack of status.

Third Part.—In this part, chloroform was administered immediately on the beginning of the status, which arrested the convulsions without any of the former symptoms.

CASE 5.—*History.*—M. C., girl, aged 10, whose first convulsion occurred at 8 months, exciting cause not known, had the hereditary taint of alcoholism on both sides of the house. The Binet-Simon test gave the mental age at 2 years.

First and Second Parts.—In this part of the treatment, chloroform was administered in only one out of three status attacks. There was apparently no difference in the recovery of any of the three attacks. There were one or two convulsions during the first twelve hours following the arrest of the status. The patient was able to be in her usual condition the following day.

Third Part.—This part of the treatment with the immediate use of chloroform showed an early arrest of the convulsions with the same after-effects as in the first and second parts.

CASE 6.—*History.*—L. T., boy, aged 12, whose first convulsion occurred at 18 months, exciting cause unknown, had no hereditary taint which had been ascertained. The Binet-Simon test gave the mental age as 2.5 years. This patient had status epilepticus every three or four months, and had only two attacks during the study.

First and Second Parts.—In the first attack the patient was given high colonic irrigation, but owing to his cyanotic condition, chloroform was administered after about forty minutes. Shortly after the effects of the chloroform wore off (about fifteen minutes) he went into convulsions again. Chloroform was administered a second time with no better results than the first. The patient had twenty-six convulsions in about three hours. He was given bromids, chloral hydrate, high enemas and three administrations of chloroform before he finally became relaxed and went to sleep.

Third Part.—Only one attack occurred, at which time the patient commenced convulsing at 4:45 in the morning, and chloroform was administered, enough to relax the patient, but not enough to produce anesthesia. The patient went back into convulsions in about ten minutes, and chloroform was administered again at about 5:44, at which time he relaxed and began to breathe easier, and apparently the convulsions were arrested; but in about ten minutes he went into convulsions for a third time. Chloroform was given again with no better results. At 8 o'clock a high enema was administered which revealed considerable constipation. Several gallons of water were used until it came out clear. The patient's convulsions diminished, and at 9:20 ceased altogether.

CASE 7.—*History.*—J. G., boy, aged 17, whose first convulsion occurred at 18 months, and was said to have followed a cranial operation, carried a maternal neurotic taint. His Binet-Simon age was 8.2 years. During the study the patient had three attacks of status epilepticus.

First and Second Parts.—The first attack was treated with high colonic flushes, and chloroform was used only after the patient became very cyanosed and showed no signs of relaxation.

Third Part.—In the other two attacks the patient was chloroformed immediately on the arrival of the physician. He relaxed at once and had no more convulsions after administration of the chloroform. No cascara was given this patient as a regular routine. In this part of the study a purgative was given a few hours after the occurrence of status, and both times the patient was found to be in a constipated condition, which, however, did not interfere with the expected results from the chloroform.

CONCLUSIONS

1. The records prior to the study show that this treatment produced no decrease in the frequency of the status attacks.

2. In most cases the data during the study show that despite changes in the routine of treatment, the occurrences of status attacks came at the close of fairly regular intervals.

3. The length of the time required for the average patient to recover from the effects of status depended on how soon the attack was arrested, and was in the same ratio.

In view of these facts, the following deductions are made:

1. Chloroform should be administered early in practically every case of status epilepticus.

2. Although this study showed that most patients would not benefit materially by high enemas and the regular use of laxatives, it is advisable along with the use of chloroform to employ proper measures to overcome any tendency toward constipation.

TWO CASES OF CONGENITAL ABSENCE OF ONE KIDNEY

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The two cases here recorded are interesting in that they nearly duplicated one another, except that they occurred on different sides of the body. Each single kidney present was essentially normal in shape and position, and possessed the weight of about two normal kidneys. A curious coincidence is that the two cases occurred in succession in a very small series of necropsies.

Case 1.—An elderly white man of medium build, rather emaciated, operated on for retention of urine and enlarged prostate, presented, as the chief pathologic conditions, aside from the absence of one kidney, an unruptured saccular aneurysm of the abdominal aorta, sclerosis of aortic and mitral valves at the bases, edema, and passive congestion of the lungs. The right kidney was absent, and no remnants were found in the neighborhood of the place in which it should have been, or elsewhere in the abdomen or pelvis. The right ureter was absent. The left kidney was in the normal position, hypertrophied, 14 centimeters long, 7.5 wide, 6 thick and weighed 335 gm. Aside from appearing larger and relatively narrower than usual, it was of normal shape and had but a single ureter. About a dozen small stones were in the pelvis of this kidney, and about half that number of stones were found in the bladder. The capsule was somewhat thickened, and stripped readily. Microscopically the vessel walls were somewhat thickened, slight fibroid changes were present in the kidney tissue, and there was some cloudy swelling of the convoluted tubules, and acute interstitial changes in many places. Only one ureter was found opening into the bladder, and a rather superficial examination did not reveal trace of a second.

Case 2.—A well built white man, aged about 30, operated on for appendicitis and chronic cholecystitis, had extensive hemorrhage into the lower lobe of the right lung as the only noteworthy pathologic condition aside from absence of a kidney. The left kidney was absent, and a careful search revealed no trace of it in either the abdomen or the pelvis, or the remains of the left ureter. The right kidney was in the normal position and approximately of normal shape, but relatively thicker and wider than usual, being 13 cm. long, 8.5 wide and 4.5 thick, and weighing 310 gm. Microscopically this kidney showed moderate cloudy swelling of the convoluted tubules, and acute congestion.

In neither of these cases was the anomalous condition suspected during life. In the first case a renal function test had been done and the kidney activity found satisfactory. The individual ureters had not been catheterized.

Unfortunately no observations were made as to the suprarenal bodies in these cases, or as to the condition of the seminal vesicles, etc., the importance of such not being appreciated at the time. Judged by external appearances, the testicles were normal in each case.

In 1903, Moore[1] recorded a similar pair of cases, complete absence of a right and of a left kidney. In 1908 Radasch[2] collected from the literature 255 cases of absence of one kidney. In the great majority of observed cases the suprarenal bodies have been normal. The left kidney is the one more frequently absent, and very frequently associated with its absence there is some defect or anomaly of the male reproductive organs on the same side.

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[1] Moore, F. C.: Jour. Anat. and Physiol., 1903, xxxviii, 71.

[2] Radasch, H. E.: Am. Jour. Med. Sc., N. S., 1908, cxxxvi, 111.

Therapeutics

DISTURBANCES OF THE KIDNEYS

In order to treat an abnormal or diseased organ correctly, it is essential that its structure and its function be understood. Hence the discussion of the various disturbances of the kidneys will include such data as will afford a rational basis for the treatment.

ANATOMY AND PHYSIOLOGY

The kidneys are extraperitoneal, and lie normally on each side of the spine at the level of the twelfth thoracic vertebra and the first, second, and sometimes part of the third lumbar vertebra. The right kidney is about half an inch lower than the left, and is the one most frequently displaced. An average normal kidney is nearly 5 inches long, 3 inches wide, 1 inch thick, and weighs between 4 and 5 ounces.

The location and the approximate size of the kidneys may sometimes be determined by manual palpation with the patient lying on his back with the knees flexed. He is instructed to breathe slowly and deeply. By this method the lower extremities of the kidneys may be felt, provided the abdomen is not too fat or too distended. If a kidney can be depressed to the umbilical line and felt to slip back from the fingers again, it is movable. If it can be actually displaced, it is floating. A floating kidney may have had no normal attachments from birth, in which case its only support is the mesenteric.

Frequently even a floating kidney cannot be found or diagnosed, unless the patient is standing, partly supporting himself by resting his hand on the back of a chair, with the foot of the side under examination resting on the lower round of the chair. Even by this method a loose or floating kidney may not be discovered at a single examination, several being necessary before it is decided that the kidney is not movable, as the gas pressure in the intestines often holds a loose kidney in place. If a loose kidney is suspected, the patient, sitting up or standing, breathes rapidly and deeply, or jumps, and the loose kidney may be displaced downward. It can then be better palpated.

If a kidney is much enlarged, a dull percussion note will be found in a part of the abdomen which is ordinarily tympanitic. The right kidney is more frequently movable than the left, and may be mistaken for a distended pendent gallbladder; but if the kidney is floating, it can be moved much farther downward than the gallbladder could ordinarily be displaced. The most frequent causes of an enlarged kidney are hydronephrosis, pyonephrosis, tuberculosis, sarcoma, carcinoma, and echinococcus and cystic disease. Abscesses or growths behind and above a kidney may also displace it, and, if they are adherent to the kidney, the latter may seem enlarged.

The kidneys, like the liver and spleen, although not to such an extent, can change their size from time to time, depending on their blood supply. They may also grow large permanently in those who drink alcoholic beverages habitually and who require their kidneys constantly to do an increased amount of work.

The blood supply to the kidneys is large. It has even been estimated that under high blood pressure or under the action of diuretics the amount of blood passed through the kidneys in a minute may equal the weight of the kidney. Councilman[1] estimated that the blood supply to the kidneys may vary nineteen times as much as the average supply to other organs.

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[1] Councilman, W. T.: The Pathology of the Kidney, The Journal A. M. A., Jan. 13, 1906, p. 81.

In younger life the kidney structure may rapidly undergo repair even after considerable damage, but this ability to regenerate diminishes as age advances.

FUNCTION

The kidney structure is divided into a varying number of closely connected lobes (from eight to ten), each having a cortical and a medullary portion. The drainage system of the kidney consists, according to Gerrish, of about half a million capsules and about 15 miles of tubes variously termed as each tube proceeds from the capsule to the kidney pelvis, the constricted, the convoluted, the twisted, the looped (Henle), the zigzag, the second convoluted, the arched, and the long straight portion. All of these tubes are lined with epithelial cells, their shape and contour varying with the different parts of the tube. Tufts of capillaries in the capsules make up the structures termed the malpighian bodies, which are all situated in the cortex of the kidney. Each tube is also surrounded by a network of blood vessels.

There is a large surplus, as far as the body need is concerned, of secreting and excreting substance of the kidney. Not only may one kidney be removed (the other being normal) without damage to the health and general metabolism of the individual, but also it has been estimated that even as little as one fourth of the combined kidney substance (one half of one kidney), if healthy, is able to carry on necessary excretion. This explains why a person may live with apparently so much kidney structure diseased. However, the single kidney or the healthy parts of otherwise diseased kidneys must and do work with increased energy. This increased energy can be maintained only by a perfect blood supply to the healthy section of the kidneys; hence impairment of the general or local circulation is immediately serious. Any swelling of the epithelium that will narrow or block the tubules in the healthy section of these damaged kidneys, or any blocking by pressure from kidney edema, is serious. With a minimum amount of healthy kidney structure, any poison or substance irritating the kidneys is dangerous, and a drug ordinarily harmless — for instance, arsenic — may by its action on the kidney epithelium in damaged kidneys be fatal. Therefore, before arsenic is administered in large doses, as in syphilis, it must be ascertained that the kidney function is not seriously impaired.

It will be recognized that the pressure in the renal arteries must be sufficient always for the circulation of blood through the vessels in the kidney structure and for the proper excretion of urine and for the proper purity of the blood in the renal veins. The pressure on the inside of the capsules of the glomeruli must be lower than that of the circulation. Hence any serious damming back of urine will interfere with excretion.

Normal functioning of several of the internal secreting glands is essential for the complete functioning of the kidneys; perhaps more especially important is the secretion of the suprarenals as demonstrated by Marshall and Davis.[2] A damaged, insufficient heart must cause, sooner or later, imperfect circulation in the kidneys, imperfect excretion of urine, and, from the resulting passive congestion, diseased kidney structure.

The renal nerves come from the renal plexus and small splanchnic, and some fibers from the pneumogastric. Asher and Pearce[3] believe that these fibers from the vagi are secretory to the kidney. However, all secretory nerves are supposed to originate in the sympathetic system. Stimulation of the renal nerves will cause constriction of the renal vessels and a diminished flow of urine; hence some incidental irritation from a nerve lesion or reflexes from some abdominal inflammation may interfere with the function of the kidney. If a renal nerve is paralyzed, the kidney will swell and the flow of urine will increase, provided the general circulation is normal. Polyuria may also be caused by cutting the splanchnic nerve.[4] The well known result of puncture of a certain portion of the floor of the fourth ventricle, namely, polyuria, shows a central nervous control of the secretion of the kidneys. Cushing's work on the pituitary has shown the relation of the hypophysis to kidney function. Injuries to the head, and some cerebral lesions, especially in the region of the medulla, may cause polyuria and at times even glycosuria. It has not been shown that the kidney itself is so affected as to cause a glycosuria in some disturbances of the thyroid and pituitary, though glycosuria may occur in disturbances of these glands. Pituitary stimulation of the kidney function has been repeatedly shown by Cushing and others. Motzfeld[5] has shown that the posterior lobe of the pituitary has a governing influence on the renal function, and insufficiency of this secretion causes diabetes insipidus.

If the general blood pressure rises, and more especially if the surface vessels contract, as from cold, there is an increased flow of urine, provided the renal arteries are not overcontracted. If the renal arteries are dilated while the general arterial system is not, the flow of urine will be increased, provided the flow of blood in the renal vessels is unimpaired. With excessively low blood pressure, there is no flow of urine.

The amount of kidney excretion is also much influenced by the changes in the blood composition. For this reason certain drugs may act as diuretics besides those which stimulate the heart and raise the blood pressure. Urea, dextrose, sodium chlorid and various salts act as diuretics. The reason some salts increase the flow of urine is probably that they raise the specific gravity of the blood, which then seeks water from the tissues to become isotonic with fluids outside of the blood vessels. This increased water in the blood is soon eliminated by the kidneys, and carries with it more or less of the extra salt. Caffein stimulates the nervous system, raises the general blood pressure, and soon generally causes diuresis by this circulatory effect alone. The first effect of caffein on the kidney vessels is to constrict them, but this is soon followed by a dilatation of these vessels.

The great value of digitalis as a diuretic is in cardiac insufficiency. If the systemic circulation is improved and if the kidneys are not too much damaged in this disease, diuresis will occur following digitalis administration. Thyroid extract may stimulate kidney secretion, as well as prevent poisoning from retained toxins in the blood in kidney insufficiency. Not only may glucose act as a diuretic, but small doses of saccharose, as 1 c.c. of a 100 per cent. solution in water, injected subcutaneously causes diuresis.[6]

(To be continued)

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[2] Marshall and Davis: Jour. Pharmacol. and Exper. Therap., 1916, viii, 525.

[3] Asher and Pearce: Zentralbl. f. Physiol., 1913, xxvii, 584.

[4] Jungmann: München. med. Wchnschr., Aug. 12, 1913.

[5] Motzfeld: Boston Med. and Surg. Jour., 1916, clxxiv, 644.

[6] Crispolti: Policlinico, Rome, May, 1915, Med. Section.

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SATURDAY, NOVEMBER 18, 1916

GOITER, GOITER REGIONS, AND THE IODIN CONTENT OF FOODS

The existence of well defined areas characterized by the prevalence of goiter is generally recognized. Regions in which goiter occurs as an endemic manifestation have long been known and described for European countries; and they are gradually being located in a similar way in this country.[1] Since the discovery of iodin in that organ by Baumann in 1895, the thyroid gland, involved in the occurrence of goiter, is believed to be concerned in some way with the metabolism or use or disposition of that element in the animal organism. Perhaps there is sufficient vagueness to correspond with the present uncertainty in regard to the subject in the following formulation by Crile: As far as is known, the function of the thyroid gland is metabolization of iodin, in order that iodin thus metabolized may perform a larger rôle in human and animal economy.[2] At certain periods of life when the activities of the organism are increased, and consequently an increased metabolization of iodin is required, the thyroid may enlarge as a result of its increased activity. This enlargement of the thyroid appears most commonly at the period of adolescence. The administration of iodin during that period, however, may prevent thyroid enlargement, or, if the thyroid is already enlarged, it diminishes its size, and may reduce it to normal.

The known relation of iodin to the thyroid, and the geographic variations of goiter are facts hitherto unrelated though often suspected to be involved with some unlike distribution of iodin in different areas of the world. The waters of different regions have most frequently been assumed to hold the key to the solution of the goiter problem in some marked difference of iodin content. The biochemists of the Ohio Agricultural Experiment Station in its department of nutrition have followed a suggestion of Crile to investigate the iodin content of foods from different parts of the country in the hope of throwing some light on the perplexity of the goiter situation. The distribution of goiter being known, it is now proposed to study the distribution of iodin in the dietary; for the prevalence of goiter in definitely localized situations readily leads to the inference of a local cause for the disorder. We are reminded by the Ohio investigators[2] that the idea of goiter being due to the food or drinking water of the regions in which it is found is very old; and it is a natural hypothesis that the iodin content of the foods and water should determine the condition and efficiency of the thyroid. In spite of the fact that these ideas have been constantly before us, however, since the beginning of the discovery of the cause of goiter, we have no direct evidence that they are in harmony with the facts.

Dr. Forbes and his Ohio associates have appreciated the limitations of the question before us. A fact tending to emphasize the significance of the iodin content of foods, they repeat, is the well known responsiveness of the thyroid in certain disordered conditions to iodin treatment. A fact tending to minimize the value of iodin estimations in foods is that the total iodin content of the body is so exceedingly small that it is quite conceivable that the organism could glean its entire iodin requirement from foods containing so little of this element that its presence would escape detection by the best of our chemical methods of the estimation of iodin. The energy of the Ohio biochemists has been commendable. Nearly 900 samples of foods were analyzed for iodin. An inspection of the data impresses one with the smallness of the proportion of our food products which contain iodin, the minute quantity in which the element ordinarily is found, and the seemingly haphazard nature of its distribution.

These most recent investigators find no evidence, in the kinds of foods containing iodin, that its presence is usually essential. In most cases they believe that it must be strictly an accidental constituent. Stated in the order of increasing abundance of iodin, foods and feeds may be grouped and rated somewhat as follows: nuts; spices, condiments and stimulants; fruits; cereals, hay, silage and forage crops; garden vegetables and root crops; leguminous seeds; animal products; manufactured foods, and milling and manufactory by-products. The results are too variable to deserve detailed reference here.

The evidence shows that iodin is more commonly present in the foods from some regions than from others. Nevertheless, in view of the seemingly inexplicable variability, it is concluded that no satisfactory basis exists for statements as to the general geographic distribution of iodin in the foodstuffs of the United States. The evidence seems, we are told, much more to emphasize the rarity and the accidental nature of iodin as a food constituent. The iodin content of foods grown in admittedly goitrous regions appears not to be lower than in foods grown elsewhere. Variations in the iodin content of the same grain crop from several plots in the same field are often comparatively prominent. None of the ordinary methods of fertilization or other details of management of the soil have been found, in any regular way, to affect the iodin content of field crops.

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[1] Endemic Goiter, editorial, The Journal A. M. A., Aug. 12, 1916, p. 514; Goiter Among the United States Indians, Oct. 7, 1916, p. 1097.

[2] Crile, G. W.: Foreword to Bulletin 299, Ohio Agricultural Experiment Station, Wooster, Ohio, June, 1916, on The Iodin Content of Foods, by E. B. Forbes, F. M. Beegle, C. M. Fritz, L. E. Morgan and S. N. Rhue.

In summarizing the significance of this laborious analytic undertaking, Forbes has given a fair estimate of what may be expected. It is possible, he concludes, that the iodin content of the drinking water would contribute valuable evidence to the subject at hand. It is also conceivable that food habits in a given region stand in a closer connection with the cause of goiter than does the iodin content of foods grown in the same region; for the residents of any particular place actually enjoy, in the selection of the dietary, a very considerable independence of locally grown products. Nevertheless, the results of the Ohio investigation direct one toward a study of factors other than diet which affect the amount and condition of the iodin present in the thyroid, as promising results of greater significance in relation to the cause of goiter.

THE BREAKFAST FOODS OF TODAY

The term "breakfast food," as applied to cereals marketed in a special way for household use, has been coined by the present generation. There is, of course, no novelty in cereals as a regular component of the dietary of man; they have been used from time immemorial. Wheat, corn, rye, oats, rice and barley have furnished liberal sources of nutriment to all the peoples of the earth; but as Mendel[1] has remarked, the ready-to-eat "breakfast foods" in highly advertised, neat and attractive packages have replaced the less expensive cereals long sold in bulk. The change is not merely one of the container or package; the contents no longer are the same. Oatmeal, for example, has lost some of its former popularity as a breakfast dish through the inroad of cornflakes and wheat foods. The breakfast staples have been changed by the modern advertiser; and illustrations of his ingenuity might be extended to include numerous food products. Except from the standpoint of extreme economy, the innovations have as a rule been wholesome and usually in the interest of food hygiene. The purity of the products has not infrequently surpassed the honesty of the advertisement.

The breakfast food preparations sold in American markets have been analyzed in various laboratories under state government auspices, so that an abundance of data respecting their composition is available. The peculiar feature regarding these food products is clearly not to be found in any unique nutritive make-up, but rather in the constant accession of new "brands." A recent report[2] regarding breakfast foods and their relative value indicates that it is possible to purchase as many as thirty brands in the stores of a single small city of South Dakota. These must represent only a fraction of the entire number offered for sale throughout the United States. The chemist of the South Dakota Experiment Station remarks that of the brands on the market ten years ago, only three or four can now be found. The others have either given way to better products or, what is equally likely, changed names as the result of waning popularity.

Breakfast foods are doubtless made from the grains and other additions claimed on the packages; that is, they represent the various cereals indicated by their manufacturers, and are not adulterated in any important sense. In respect to composition, therefore, they have the essential characteristics of the cereal grains. All are rich in starch. The ready-to-serve varieties are likewise mostly starch, though some sugar and dextrins may have been produced by cooking or roasting. To speak of them as "predigested" in any serious sense is scarcely warranted. The force of publicity, especially as the outcome of the administration of our food laws in recent years, has served to limit more and more the publication of extravagant claims for the breakfast foods. Misbranding is slowly losing its popularity; and the "cure" of appendicitis with toasted cereal no longer makes a strong appeal.

The nutritive value of these cereal preparations, estimated from their content of true nutrients per pound, does not vary materially. All of them must be regarded as wholesome and nutritious. They are sold in sealed packages which reach the consumer under sanitary conditions. Buying in bulk, as the South Dakota chemist reminds us, seems to have gone out of fashion, so to speak. Not even bulk rolled oats are kept on hand by grocers. The reason lies in the fact that consumers demand package service at a much greater cost.

The most striking difference between the marketed package cereals lies in their price estimated on the basis of nutrient units. It varied, in the survey just reported,[2] all the way from 7 cents to 44 cents per pound. The cost of 1,000 calories in these breakfast foods is from 4 to 25.4 cents, while the cost of a pound of protein runs from 45 cents to $4.60. In the case of the common old fashioned food preparations from grains, the following data represent comparable costs:

	1,000 Calories, Cents	One Pound Protein, Cents
Wheat flour	2	26
Oat meal	1.3	44
Corn meal	1	22
Rye flour	2	47
Rice grains	4	75

These figures, cited from the South Dakota report, show at a glance that the manufacture of these grains into breakfast foods has increased the cost enormously without adding anything to their nutritive values. It is evident that an extensive use of these high priced foods forms one noteworthy item in the high cost of living.

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[1] Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, New Haven, Yale University Press, 1916.

[2] Youngburg, G. E.: Breakfast Foods and Their Relative Value, Bull. 168, South Dakota Agricultural Experiment Station, 1916.

The average cost of the raw breakfast foods now on the market is about 8 cents a pound; of the ready-to-serve, about 16 cents. The price of these products has advanced about 33 per cent. during the last fifteen years. The South Dakota report ventures the statement that whatever is paid above the average cost of those now obtainable is unwarranted. The ready-to-serve kinds save the trouble of cooking, and often appeal in a special way to the taste. But we must agree with the state chemist that none of the breakfast foods are strictly economical. Their chief claim for popularity is in their package form.

THE AIR ON SHIPBOARD AND IN SUBMARINES

The work of the navy at times involves unusual living conditions, and entails certain performances which do not favor the preservation of an ideal hygienic status for the sailor. Insufficient air space in the sleeping quarters, exposure to extremes of temperature, irregular sleeping hours, hard work and the possibility of accidents during storms are some of the factors which may lead to an undue prevalence of injuries, diseases of the respiratory organs, and other diseases. Surgeon Holcomb[1] of the United States Navy has pointed out some of the problems which, during the past ten years, the naval sanitarian has faced in relation to the atmosphere. In the past he has been confronted by the problem arising from the presence on shipboard of more men per cubic foot of habitable air space than are to be found in almost any other occupation. With the development of aeronautics, men in the naval service have ascended to a great atmospheric tenuity; with the development of deep diving they have descended to atmospheric pressure equivalent to ten times the pressure at the sea level; within the submarine they are confronted with a reduction of oxygen content and a high degree of human and chemical air vitiation.

Now that the submarine is the center of so much interest, it is time to call attention to the problems which the undersea boat offers as a habitation. After investigating a series of accidents to the submarines of various nations, Holcomb believes that the hygiene of a submarine is largely a question of air supply. Consideration of the preservation or preparation of food always comes back to the question of air supply. Consideration of clothing, of rest, of sleep, brings us ultimately to consideration of ventilation.

The problems of ventilation are today being attacked vigorously from many sides.[2] The question of the vitiation of the air, particularly by human beings in closed habitations, is not a new one; for more than a century it has become a feature of every profound consideration of the physiology of breathing. From more purely chemical considerations, such as the rôle played by deficient oxygen pressure and by increased carbon dioxid tension, interest has gradually shifted to the development of the physical theory of ventilation. Lee says:

> Living beings constantly produce and give off to their environment an excess of bodily heat. This heat must be constantly carried away from the body, and is carried away partly through the lungs in expired air, but chiefly through the skin by the process of radiation, conduction through the clothing, and the evaporation of perspiration. It is obvious that to insure this necessary and healthful removal of heat there is needed an atmosphere about the body that is neither too hot nor too humid. If it is too hot, radiation and conduction are prevented; if too humid, the evaporation of perspiration is interfered with; and if the two conditions exist simultaneously, the result is a rise of bodily temperature with concomitant interference with the body's well-being. According to this conception, the air problem involved is one of physics and not of chemistry; the physiologic problem is a problem that begins with the skin and not the lungs; and the ventilation problem is a problem of maintaining the proper temperature, humidity, and motion of the air.

There can no longer be any doubt that, in aviation, mountain climbing and ballooning, certain physical features, notably the diminished oxygen pressure of the atmosphere, are of fundamental importance for the maintenance of comfortable existence. In caisson disease and diver's disease, physical factors incident to the production of gas emboli on decompression after exposure to a compressed atmosphere are likewise at work. These items have already become quite familiar to the students of respiration. Surgeon-General Stokes[3] has referred to the injurious effects of carbon monoxid, which develops in gun firing in the turrets of battleships, as one of the occupational risks of the navy. He believes that this gas in the furnace room gives rise to acute poisoning, often mistaken for heat prostration. In a sense the phenomena just cited must also be classed as special forms of menace from air vitiation in the work on shipboard.

Holcomb[1] points out that the bacteriology of the air, which at the present moment no longer seems to appeal to us as worthy of the same serious consideration that is given to other factors of air vitiation, deserves further study in the case of the battleship and the submarine. Considering the large number of men per cubic foot of habitable space on board a ship, he remarks that the bacteria of the skin become a matter of special consideration, not only as bearing directly on the health of the crew, but also within submarines, where the intense bacterial pollution must have its influence, on the preservation of exposed foods — a notorious difficulty aboard these boats.

The possibility of air-borne infection may not appear as formidable as it did in the days of Lister's pioneer work. It must be remembered, however, that the ship has features not similar to a habitation on shore. We can well understand, therefore, the appeal of the navy surgeon for further investigation of the bacteriology of the air on shipboard. Such an investigation is demanded, he contends,[1] if for no other reason than the high sick rate from tonsillitis. This disease has for years occupied second place in the navy admission rate statistics, being exceeded only by the admission rate for gonorrhea. The tonsillitis aboard battleships is probably dependent largely on the bacterial content of the living spaces. Owing to the large number of human beings per cubic foot of air space, the body surface supplies a culture medium for bacteria; the surface moisture and body heat contribute to bacterial growth, and ultimately the germs reach the atmosphere through drying in soiled clothing and bedding.

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[1] Holcomb, R. C.: The Atmosphere and Its Relation to the Human Mechanism, with Special Reference to the Naval Service, U. S. Naval Med. Bull., 1916, x, 430.

[2] Ventilation, editorial, The Journal A. M. A., Nov. 7, 1914, p. 1672; Heat, Humidity and Working Power, Jan. 30, 1915, p. 444; Atmospheric Temperature and Immunity Reactions, May 13, 1916, p. 1553.

[3] Stokes, referred to by Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, 1916, p. 706.

ANOTHER STEP IN HIGHER MEDICAL EDUCATION

Among the remarkable developments in medicine anywhere, at any time, are the changes that have occurred in medical education in the United States during the last ten or fifteen years. Once regarded as a disgrace, the standard of medical education in this country recently has advanced so rapidly that today it is equal to that of any other nation so far, at least, as the majority of medical teaching institutions are concerned. This change has occurred partly through the generosity of wealthy men and women who have contributed millions to medical schools and to medical research; partly because the medical profession itself became aroused to the wretched conditions in medical education, and undertook to rid itself of the incubus of the purely commercial medical school. Both were necessary to bring about the rapid advances that have placed American medicine in the high position it now occupies.

The announcement just made[2] of the establishment, as a department of the University of Chicago, of a new medical school, complete with postgraduate departments, extensive hospital facilities, numerous research branches, with a standard as high as that of any medical school here or abroad, and with an endowment sufficient to meet the expenses connected with full-time, paid instructors in all departments, is one of the most important events connected with the rapid development of scientific medicine and medical teaching in this country. It means much not only to medical education, but, more important, to public health, for it will be not only a teaching institution — an institution that will make for better and more broadly and practically educated medical practitioners — but also an institution for the development of preventive medicine. It means much to the city of Chicago — once the home of more quack medical colleges and diploma mills than any other city in the world. It will aid the city, which was the plague spot of medical education, to rid itself wholly of the commercial school and to develop medical institutions second to none. But the influence of this new institution will be broader than the city or the state in which it is located. It will be national, and will reach out and stimulate good work in every part of the country.

To President Harry Pratt Judson, of the University of Chicago, and to Dr. Frank Billings, Dean of Rush Medical College, is due, to a large extent, the credit for this achievement. It means the successful culmination of President Judson's ambition to carry out not simply the original plan of his predecessor — once looked on as a dream — but a greater and broader one than even President William Rainey Harper conceived.

SUPERVISION OF THE INSANE OUTSIDE OF INSTITUTIONS

Every now and then some community is appalled by one or more deaths due to an apparently sudden outburst of violence on the part of some simple and seemingly harmless mental defective who has been allowed to go at large. Even more frequently people are shocked by the self-destruction of some friend or relative to whose periods of unexplained depression they had given but scant heed. After the event there is excited talk about prevention for the future, but ultimately nothing is done, because no one knows just what to do. Organized interest is being awakened, however, and experts are engaged in several cities, attempting to outline methods for ending this menace. At the request of the City Club of Chicago and the Illinois Society of Mental Hygiene, Dr. Herman M. Adler of Harvard University is conducting an investigation of the problem in Chicago. This work is a part of a more extensive survey of mental defectives being conducted throughout the country under the auspices of the National Committee for Mental Hygiene and the Rockefeller Foundation.

Dr. J. Allen Jackson,[1] chief resident physician of the Philadelphia Hospital for the Insane, has outlined a plan for the establishment of bureaus of mental hygiene as subdivisions of departments of health which seems susceptible of development in a manner that will afford protection against at least some of these mishaps. In Philadelphia, patients who have recovered sufficiently to become self-supporting, and whose mental state is such as to permit them to be cared for at home by relatives, are paroled. Before this privilege is granted, however, a trained social worker investigates the home conditions under which the patient will be placed, and if a parole is granted, the conditions and the patient are observed regularly until the case is terminated. The authorities of the hospital from which the patient is paroled are thus enabled to determine satisfactorily, from reports made by the social worker, whether the parole should be terminated or extended and whether the patient should be given his discharge. The results of this system have suggested to Dr. Jackson the benefits that would be derived from the establishment of a bureau of mental hygiene, subordinate, in Philadelphia, to the Department of Public Health and Charities.

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[2] See General News, p. 1534.

[1] Jackson, J. A.: Month. Bull. Dept. Pub. Health and Charities, Philadelphia, September, 1916.

It is suggested that the proposed bureau of mental hygiene should work through various psychiatric centers. Physicians assigned to the various centers would bear the same relation to the custodial institution for the care of the mentally defective as medical inspectors in the contagious disease service ordinarily bear to the hospitals for contagious diseases. The advantages claimed by Dr. Jackson for the proposed bureau are, that (1) it would greatly improve the care of the indigent insane, and lessen the cost; (2) it would aid in preventing mental abnormalities, and in the care of the mentally sick; (3) it would afford excellent avenues for investigation and scientific research, and for the establishment of mental clinics and preventoriums; (4) it would weed out borderland cases from frank cases, and the acute recoverable cases from those of chronic types, so that the patients could be placed immediately under the treatment best adapted for them; (5) it would greatly relieve the influx of patients into the psychiatric wards of the general hospital; (6) it would permit the safe return to their families of patients who had apparently recovered or who presented periods of lucidity, or quiet intervals, under the supervision of social service workers assigned to the proper psychiatric units of the bureau of mental hygiene, and (7) it would protect the patient and society from harm.

If a bureau of mental hygiene will accomplish anything like the results Dr. Jackson promises for it, no city should be long in adopting the suggestion. Even if it will serve in a reasonable measure only to prevent such catastrophes as that caused by the madman McIntyre in Chicago, last July, the plan is worthy of adoption. In any event, the possibilities of properly organized bureaus of mental hygiene should receive careful consideration by those who are responsible for the public health and safety.

Eugenics.—Eugenics should, therefore, not be allowed to deceive us into the belief that we should try to raise a race of supermen, nor that it should be our aim to eliminate all suffering and pain. The attempt to suppress those defective classes whose deficiencies can be proved by rigid methods to be due to hereditary causes, and to prevent unions that will unavoidably lead to the birth of disease-stricken progeny, is the proper field of eugenics. How much can be and should be attempted in this field depends on the results of careful studies of the law of heredity. Eugenics is not a panacea that will cure human ills, it is rather a dangerous sword that may turn its edge against those who rely on its strength.—Franz Boas.

Current Comment

"SLEEPY WATER" FOR WIDE-AWAKE DOCTORS

The physicians of Chicago are being circularized by the "Sleepy Water Corporation" of Chicago. They are told that they are members "of the greatest and most progressive profession in the world." They are also told, in the same letter, that "Sleepy Water" is a "cure" for diabetes, Bright's disease and many other ills. The "greatest and most progressive profession in the world"—or at least the Chicago part of it—is assured that for six years "not a single case of nephritis or diabetes treated with this water has failed to be cured," and this in spite of the fact that many were "considered to be in a hopeless condition, with but a short time to live." "Sleepy Water" sells for a dollar a gallon, but you cannot buy one dollar's worth; nothing less than fifty gallons can be purchased, for this amount constitutes a "treatment." But, as the company points out to the Chicago branch of "the greatest and most progressive profession in the world," the cost of fifty gallons "is less than the railroad fare from most points to Hot Springs and surely is reasonable enough." At least a gallon a day must be taken if a "cure" is to be effected, but even five gallons a day can be taken "without any detrimental effect upon the heart action, no matter how bad the heart action seems to be." Of course, "Sleepy Water" is radio-active—but then, so is dish-water. However, the "greatest and most progressive profession in the world" is told that "Sleepy Water is the most highly radio-active water yet discovered." If we are to take the corporation's word for it, "Sleepy Water" has performed many miracles, although details of its *modus operandi* are not forthcoming, "as no autopsy has been performed on a person cured by Sleepy Water." Seriously, though, one wonders whether the explanation of the ineffable bosh sent out by the Sleepy Water Corporation is to be sought in the ease with which some members of the profession recently "fell for" a preposterous "goiter cure" exploited by a horse doctor. Here is a sporting proposition: We dare the Sleepy Water Corporation to print the same claims, now being made to physicians by means of circulars, etc., on the trade package and ship it in interstate commerce!

THE SACRIFICE OF THE CHILD TO CARELESSNESS

As winter arrives with unprotected open fires, hot stoves and burning brush heaps, there occurs a marked rise in the number of deaths from accidental burns. It is conservative to say that ninety per cent. of these deaths are the results of carelessness of adults, and most of the victims are helpless infants and children. In Chicago during the past fortnight two deaths occurred as a result of an older child setting fire to a younger one with a lighted candle; three deaths and one serious burning resulted when a child pulled over a pot of boiling water, coffee and potatoes, respectively; two serious burnings and one death followed "playing with matches." When death does not occur, the result is usually an extensive burn with horrible scarring and mutilation. It is pitiable to read that one mother left a 5 year old child to "watch" a baby of 18 months, and in the room was a lighted candle. Carelessness and ignorance — their toll of deaths is greater than that of war.

"TRESPASSERS WILL BE PROSECUTED"

It is common knowledge that certain medical cults — as, for instance, the osteopaths and the chiropractors — when asking for special legislation, announced that their treatment would be limited to manipulation: that the use of drugs and surgical procedures was no part of their methods. The legislature of one state — Ohio — took these "limited practitioners" at their word; hence the Platt-Ellis law, passed in 1915, provides that "such certificates" [that is, certificates issued to these "limited practitioners"] "shall authorize the holder thereof to practice such limited branch or branches of medicine or surgery as may be specified therein, but shall not permit him to practice any other branch or branches of medicine or surgery, nor shall it permit him to treat infectious, contagious or venereal diseases, nor to prescribe or administer drugs or to perform major surgery." But these "limited practitioners," even in Ohio, in spite of these legal restrictions, have gradually branched off on other lines and have ceased to comply with the law. The Ohio State Medical Board now proposes to deal with the question in a practical and reasonable manner. It has decided to inaugurate a state-wide campaign to protect the public against the illegal practices of these "healers," and it will employ a corps of investigators to conduct the work. The law provides means for the revocation of licenses, and the board evidently intends to enforce these provisions, and to facilitate the matter proposes to hold monthly, instead of quarterly, meetings. There will be no element of persecution in their action, which, it is worthy of note, is being endorsed by the better element among these "limited practitioners." The chiropractors will be permitted to practice chiropractic, whatever that may be, and the "magnetic healers" to "magnetize," but only within the limits defined by the law and the regulations of the board made under that law; they will not be permitted to use these limited licenses as a back entrance to the unrestricted practice of medicine.

BACTERIOLOGY OF THE URINARY TRACT IN CHILDREN

The symptomatology of pyelocystitis in the young is so indefinite as to make the diagnosis depend essentially on the bacteriologic examination of the urine. While it is generally recognized that the most common infecting organism is the *Bacillus coli,* the question of the mode of entrance of the infecting organism into the urinary tract has not yet been answered to the satisfaction of all. It is admitted that infection may occur by way of the blood stream, and perhaps also by way of the anastomosing lymphatics of the large intestine and urinary tract. An ascending infection along the route of the urethra seems to be the most probable or at any rate the most common source of the disease; and this conclusion is fortified by the fact that in correspondence with the more ready contamination of the urethral orifice, pyelocystitis is much more common in girls than in boys. Investigators at the Children's Memorial Hospital, Chicago, working in the Otho S. A. Sprague Memorial Institute Laboratory, have wisely decided that the first essential for a definite conclusion on the subject at hand rests in a study of the bacteriology of the normal urine and urethra of children.[1] Surprisingly little has heretofore been ascertained about the relation of bacteria to the urinary tract in young persons. Beeler and Helmholz, who examined carefully twelve healthy children under 2 years of age, conclude that organisms of the colon bacillus group are not normal inhabitants of the female urethra. On the other hand, in extra-urinary infections occurring in the first two years of life, the colon group of bacilli is frequently found in the urethra (one third of the cases). Furthermore, in girls over 2 years of age, among whom greater care can be exercised in catheterization for diagnostic purposes, the urine is almost free of organisms; and it was always found entirely free from bacilli of the colon group by the Chicago investigators. The bacterial flora was practically the same in all the specimens examined, gram-positive cocci and diphtheroid organisms predominating, the former being present in practically every case in which any organisms were found. In no instance were gram-negative bacilli found in such numbers that it seemed probable that their presence resulted from more than an accidental contamination from the urethra.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARIZONA

Phoenix Regulates Hospitalities to Consumptives.—By an ordinance adopted last July, Phoenix has made it unlawful for any hospital, hotel, boarding or rooming house knowingly to receive, lodge or board any persons suffering from pulmonary tuberculosis, unless under a permit from the city health officer.

Personal.—Dr. Guillermo R. Servin, a Spanish-American physician, is reported to have been arrested at Tucson, November 1, charged with conspiracy to export arms to revolutionists in Mexico.——Dr. Alfred J. Murrieta, formerly chief surgeon for the United Verde Copper Company, Jerome, has moved to Los Angeles.

DISTRICT OF COLUMBIA

Gratuitous Public Service Restricted.—The medical and surgical service necessary in connection with public functions such as those incident to the inauguration of a president, the preparedness parade, and so on, have heretofore very generally been organized and directed by physicians selected by groups of laymen, without reference to the views of the local medical society. To meet this condition the society, on October 4, adopted the following resolution:

> "It is the sense of the Medical Society that it is inimical to the best interests of the Society for any member thereof to render professional services to the public gratuitously in connection with any public function in the District of Columbia, unless a request for such services is made through the Society."

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[1] Beeler, Carol, and Helmholz, H. F.: The Bacteriology of the Urine in Healthy Children and Those Suffering from Extra-Urinary Infections, Am. Jour. Dis. Child., October, 1916, p. 345.

GEORGIA

Hospital News.—The first steps were taken, October 28, toward the erection of a hospital in Atlanta, to cost $200,000, when the trustees of Emory University applied for a building permit for the construction of the J. J. Gay, Jr., Clinic Building in the rear of the Atlanta Medical College, to cost $50,000. ——A new wing, to cost $40,000, is being added to the Harbin Hospital, Rome.——The Frances Berrien Hospital, Rome, has contracted for a new building to cost $25,000.

Personal.—Surg. William H. Slaughter, U. S. P. H. S., who has been in charge of the federal health survey in Floyd County since March last, has been transferred to the Marine Hospital, Stapleton, N. Y., and left for his new post of duty, October 31.——Dr. William S. Elkin, Jr., Atlanta, has been reappointed a member of the Georgia State Board of Pharmacy for a term of five years.——Dr. Robert E. McClure, formerly a member of the resident staff of the Macon Hospital, has accepted an appointment as superintendent of the State Tuberculosis Sanatorium, Atlanta. He has been succeeded as physician at the Macon Hospital by Dr. William A. Newman, Jr.

ILLINOIS

Personal.—Dr. James A. Kleinsmid, Aledo, was shot and seriously wounded by an unknown assailant while entering his home, November 10.——Dr. Ida M. Laird Barroll, Winnetka, has been elected president of the Cornell University Women's Club of Chicago.

Improvements at Bartonville.—A new cottage for male and one for female tuberculosis patients is being constructed at the Peoria State Hospital, Bartonville. The cottages are of frame and stucco construction. A new cottage for paroled men is nearly ready for occupancy.

Aesculapians Elect.—At the seventieth annual meeting of the Aesculapian Society of the Wabash Valley, held in Paris, October 26, the following officers were elected: president, Dr. J. W. Alexander, Oakland; vice president, Dr. Thomas O. Freeman, Mattoon, and secretary-treasurer, Dr. Herbert N. Rafferty, Robinson.

Alienists Meet.—The Illinois State Hospital Medical Association held its annual meeting at the Peoria State Hospital, October 26, under the presidency of Dr. Charles Burr Caldwell, assistant superintendent of the Peoria institution. The Chicago State Hospital was selected as the place for the next meeting, to be held in January, 1917.

The County Sanatorium Movement.—A state-wide fight against tuberculosis has begun. At the election, November 7, eight counties voted to tax themselves, and to erect and maintain a woman's sanatorium, and this movement will be continued in every county of the state. The counties that voted to levy taxes up to 3 mills for $100 valuation were: La Salle, Adams, Livingston, Morgan, Ogle, Champaign, Kane and McLean. The proposition was defeated in Rock Island and Green counties.

Chicago

Cause of Englewood Epidemic.—The epidemic of typhoid fever at the Englewood High School, in which sixteen cases occurred, with one death, is believed to have been caused by an open cesspool adjoining the high school building, the infection being carried by flies to the lunchroom of the school. The cesspool has been disinfected and filled up.

Curtis Resigns as Superintendent of St. Luke's.—Mr. Louis R. Curtis, for over ten years superintendent and secretary of St. Luke's Hospital, has resigned to become president of the Frank S. Betz Company. Mr. Curtis during late years has been prominent as a consulting engineer among hospitals and has introduced many innovations in hospital construction and organization.

Preparedness Meetings.—The November 8 meeting of the Chicago Medical Society was devoted to preparedness. The principal addresses were made by Drs. Frank F. Simpson, Pittsburgh; Franklin H. Martin, Chicago, and Col. William Stephenson, M. C., U. S. Army.——At the meeting of the Physician's Club of Chicago, November 16, Lieut. John Weatherson, M. R. C., U. S. Army, presided. The program was devoted to "The Military Doctor at Home and Abroad." Dr. H. M. Richter, recently in charge of a base hospital in Germany, detailed his experiences; Dr. Kellogg Speed spoke on "Six Months in Charge of an English Base Hospital in France"; Capt. Robert J. Gay, M. C., First Illinois Cavalry, presented his ideas as to "Preparedness in Brownsville, Texas," and Dr. John Ridlon gave a talk illustrated by photographic slides on "The First Medico-Military Training Camp at Plattsburg."——Preparedness was also the dominant note of the meeting of the Illinois Division Medical Reserve Corps, U. S. Army, at its meeting, November 14. The provisions of the order creating the Officers Reserve Corps were explained and discussed, and a motion that all members of the division be urged to join the Officers Reserve Corps, Medical Division, was unanimously adopted.

INDIANA

Water Purification.—The towns in Indiana on the south shore of Lake Michigan are endeavoring to reduce their high typhoid fever rate by the installation of plants for the filtration and treatment of the lake water.——East Chicago is planning a filtration plant to cost $100,000.——Whiting has already contracted for a large filtering system.——Hammond is said to be about to instal a plant for the treatment of water with chlorin.

Personal.—Dr. Anthony H. Bennewitz, Lafayette, has moved to Cicero, Ill.——Dr. James A. Work, Elkhart, who has practiced in that city for forty-three years, leaves this month for Phoenix to make his home with his daughter.——Dr. David C. Peyton, Jeffersonville, has been elected president of the American Prison Association.——Dr. Florin H. Pugh, Williamsport, was stricken with cerebral hemorrhage, October 10, and is in a critical condition.——Dr. William A. Hollis, Hartford, was elected president of the Eighth District Medical Society at its meeting in Muncie, October 19.

MARYLAND

State Hospitals' Christmas Exhibit.—The five state hospitals for the insane and feebleminded, consisting of the Springfield State Hospital, Spring Grove State Hospital, Crownsville State Hospital, Eastern Shore State Hospital, and the Rosewood State Training School, together with the Eudowood Sanatorium, will have an exhibit of the patients' handiwork in Baltimore from November 15 to December 1, to show the public the methods of diversional occupation in the treatment of the patients. The proceeds from the sale of the articles will be used as a recreation and amusement fund for the benefit of the patients.

Personal.—Dr. Henry W. Hodgson, Cumberland, one of the oldest physicians of Allegany County, was severely cut and bruised recently when his automobile overturned near Clarysville on the National Pike as a result of a collision with a motorcycle.——Dr. Joseph I. France has been elected United States senator from Maryland.——Dr. G. Loutrell Timanus, Baltimore, has been appointed medical supervisor of boys, by the Public Athletic League.——Dr. Hugh H. Young of the Johns Hopkins Hospital delivered the principal address at the meeting of the New York Academy of Medicine, November 3.

Health Wardens Named. — Because of uncertainty when the Fifth Regiment Field Hospital No. 1 and Ambulance Company No. 1 will return from Eagle Pass, Health Commissioner Blake has been authorized to appoint three temporary health wardens for the work of three men on the border: Major J. Harry Ullrich, Baltimore, commander of the field hospital; Capt. Frederick H. Vinup, Baltimore, with the ambulance company, and Capt. Edmond A. Munoz, Baltimore, of Company K, Fifth Regiment. The new men are necessary because the extra physicians employed during the outbreak of infantile paralysis have been laid off.——Capt. Clarence P. Erkenbrack, Baltimore, who was on the border with the First Regiment, has resumed his duties as health warden.

MISSOURI

Hospital News.—At a dinner at the Muehlbach Hotel, Kansas City, November 8, a movement was initiated to raise $175,000 to complete the new building for the Mercy Hospital, a free institution devoted to the care of indigent sick and crippled children.

Tuberculosis Colony.—The tuberculosis colony at Koch Hospital, St. Louis, the municipal institution for the care of tuberculosis cases, was opened for the reception of patients, November 9. New cottages have been built to care for 102 patients with the incipient type of tuberculosis.

Donation to Library.—The Oto-Laryngological Section of the St. Louis Medical Society has donated to the library of the society the *Transactions of the American Laryngological*

Society, Transactions of the American Laryngological, Rhinological and Otological Society, and the *Archives of Otology,* about 100 volumes in all. The library now has a complete set of these publications.

Personal.—Dr. George P. Pipkin, Kansas City, now serving as captain in the medical corps on the border, is convalescing after an attack of typhoid fever.——Dr. Frank G. Beard has resigned as health officer of St. Joseph.——Dr. William L. Whittington, superintendent of State Hospital No. 2, St. Joseph, gave a dinner to the members of the Buchanan County Medical Society, November 4, at which more than 125 were present.

St. Louis

Personal.—Dr. Malcolm A. Bliss has been appointed by the mayor a member of the committee created to investigate the cases of persons charged with minor crimes and to suggest better methods of caring for them.——Dr. Keating Bauduy is under treatment at the State Hospital.——A lecture was delivered by Dr. Eugene F. DuBois, medical director of the Russell Sage Institute of Pathology, New York, before the Missouri Alpha Chapter of the Alpha Omega Alpha Fraternity in the lecture hall of the St. Louis Children's Hospital, November 14, on "Clinical Calorimetry."——Dr. Andrew H. Ryan has accepted the chair of physiology in Tufts Medical College, Boston.

NEW YORK

Compulsory Health Insurance Meeting.—Under the auspices of the Committee of Medical Economics of the Medical Society of the State of New York, a meeting will be held at the New York Academy of Medicine, Nov. 23, 1916, at 8 o'clock, devoted to compulsory health insurance. The following addresses are scheduled: "Relations to Preventive Medicine," B. S. Warren, M.D., U. S. Public Health Service; "The Labor Man's Point of View," Mr. Hugh Frayne, American Federation of Labor, National Civic Federation; "The General Medical Practitioner's Point of View," Eden V. Delphey, M.D.; "The Advantages of Compulsory Health Insurance," Mr. Miles M. Dawson, insurance expert. Discussion to be opened by Lee K. Frankel, Ph.D., insurance expert, Dr. Alexander Lambert, and others.

New York City

Depew Delivers Annual Address.—The anniversary address of the New York Academy of Medicine was delivered, November 16, by Hon. Chauncey M. Depew on, "The Art of Growing Older, and the Value of an Interest in Public Life."

Typhoid Carriers Found.—As a result of nearly two years' work, the Bureau of Preventable Diseases of the health department has completed a list of thirty-five carriers of typhoid fever, and has published a report of what is being done to prevent these carriers from spreading the disease.

Public Clinic.—A public clinic for genito-urinary disease was inaugurated November 2 at the West Side German Dispensary and Hospital, 328 West Forty-Second Street. The clinic is under the charge of Dr. Abraham L. Wolbarst and will continue each Thursday evening at 8:30 until April, 1917. Physicians and medical students are invited to attend.

Personal.—Dr. Michael V. Ball, formerly of Warren, Pa., has been elected full-time professor of pathology in the New York Medical College and Hospital for Women.——At the service held in memory of the late Dr. John A. McCorkle, Brooklyn, in Plymouth Church, October 8, the pastor, the Rev. Newell Dwight Hillis, paid a notable tribute to the work of the deceased physician, who had labored for forty years in Brooklyn.

OHIO

Hospital News.—The Marion State Hospital has been purchased by Dr. James O. Starr, Pitsburg.——Mount Sinai Hospital, Cleveland, was opened to the medical profession, October 1.

Personal.—Dr. Ralph W. E. Cole, formerly of York Village, Maine, has been appointed city epidemiologist of Akron.——Dr. Walter A. Haldy, Cleveland, has accepted a call for service as surgeon at a base hospital at Deutsch-Eylau, West Prussia, and sailed from New York, October 6.——Dr. Ernest V. Ackerman, Frederickstown, was shot and seriously wounded while making a professional call near Mount Vernon, November 1. He is under treatment at the Mount Carmel Hospital, Columbus, and may, it is said, lose the sight of one eye.——Dr. William R. Deemer, Fremont, was seriously injured by the overturning of his automobile after a collision with a motor truck.——Dr. Clayton R. Truesdale, Fremont, has been elected president of the chamber of commerce of that city.——Dr. Orin W. Robe, Portsmouth, has been appointed division surgeon of the Chesapeake and Ohio System, with headquarters in Portsmouth.——Dr. John H. McVay, Toledo, is reported to have been seriously injured in an automobile accident near Portland, Ore., recently.——Dr. Samuel P. Fetter has resigned as a member of the board of health of Portsmouth.

OKLAHOMA

Personal.—Dr. C. E. Frost, Duncan, is recovering after a serious illness.——Dr. Thomas L. Wiltus, Granite, who was operated on for appendicitis, is recovering.——Dr. Julian Field, Enid, is convalescent after an abdominal section.

New Hospitals.—The Oklahoma Hospital at Tulsa has recently been opened. It is a four story, fireproof building and is under the charge of Dr. Fred S. Clinton.——The first free clinic to be operated in Tulsa was opened at the Sunnyside Hospital, October 10. Tuesdays and Fridays of each week are devoted to the work of the free clinic.

PENNSYLVANIA

Philadelphia

Memorial to Dr. Uhle.—At a meeting of the German Hospital Dispensary Chiefs' Association, Monday, October 30, a minute was unanimously adopted, setting forth the feeling of the members of the association in the death of their fellow member and president, Dr. Alexander A. Uhle.

Work of Aid Association.—The committee on benevolence of The Aid Association has received the usual number and character of appeals for financial aid as in former years, all of these being made by physicians or their families in distress; none have turned out to be unworthy. Four are receiving assistance annually and five have needed temporary assistance. A physician, now old and infirm and totally unable to support himself, who once enjoyed active practice in Philadelphia, through the influence of friends has entered a home. His wife supports herself and is able to contribute one third of the annual expenses, and the society the remainder, $100. A widow of a former assistant professor at one of the medical colleges, advanced in years and in very limited circumstances, is receiving an annuity of $200. A physician, paralyzed as the result of an infection contracted during an operation, and who is now entirely incapacitated, was given $100 and made an annuitant at $200. An aged physician, broken in health and unable to support himself, was given $100, which, together with a similar amount raised by the alumni association of his medical college, enabled him to enter the Old Man's Home. A widow of a life member, advanced in years, suffering from a chronic and painful affection, dependent on her own efforts, to a great extent, for support, was given $50 and made an annuitant at $200. A widow of a physician, far advanced in years, dependent on a son earning a few dollars a week, was given $100 when her son was injured and incapacitated for many weeks. A widow of a physician, also advanced in years and endeavoring to maintain herself by keeping a small apartment house, was given $50. A member in poor health, and as a result thereof, financially distressed, was given $22.

GENERAL

Appeal Refused.—The Supreme Court, November 6, refused to hear the appeal of Drs. Nathan A. Hughes, T. W. Hughes and O. F. Bourque from indictments drawn against them at Houston, Texas, for alleged frauds in conducting medical offices. Nathan A. Hughes was sentenced to three years' imprisonment; T. W. Hughes, eighteen months, and O. F. Bourque to imprisonment for one year.

Investigation of Deaths on Ship.—Surgeon-General Blue, U. S. P. H. S., has appointed a board consisting of Surg. Hugh S. Cummings, P. A. Surg. William M. Bryan and Asst. Surg. Frank M. Faget, U. S. P. H. S., to investigate the accident on board the British steamship *Devonian* in East Boston, November 2. Three carpenters were killed by fumes said to have been due to the fumigation of the holds of the ship.

Hygienists to Meet.—The annual meeting of the American Social Hygiene Association and joint conference with the St. Louis Social Hygiene Society and Committee of One Hundred of St. Louis will be held in St. Louis, November 19 to

21. The chief subjects for discussion are "The New Public Conscience," "Health Aspects of Social Hygiene," "Ways and Means of Public Education Regarding Social Hygiene," and "Repression of Commercialized Vice."

Eye, Ear and Throat Specialists to Meet.—The committee on transportation of the American Academy of Ophthalmology and Oto-Laryngology announces that the members will leave Chicago, December 9, at 10:15 p. m. by the Illinois Central Railroad, arriving at Corinth, Miss., at noon the next day, where they will take a 50 mile drive through the National Military Park, reaching Memphis at 7:10 the same evening. After the Memphis meeting it is proposed to go to New Orleans, returning by way of Mobile, Birmingham, Chattanooga and Cincinnati. Dr. Harry S. Gradle is in charge of the arrangements for this trip.

Bequests and Donations.—The following bequests and donations have been announced:

Orlando (Fla.) Hospital, a donation of $5,000 through Bishop Cameron Mann.

For the aid of persons afflicted with tuberculosis in Dallas, Texas, a donation of $1,000, by Mr. P. P. Martinez.

Mount Sinai Hospital, Cleveland, a donation of $5,000, by Mr. Samuel Wise, for the immediate erection of a separate nurses' home.

Flagler Hospital, St. Augustine, Fla., will be entirely rebuilt as a memorial to the late Henry M. Flagler, by his widow; a donation of $10,000 by Dr. Anderson.

New York American Baby Hospital Fund, a contribution of $5,000 by William Randolph Hearst toward the establishment of a free dispensary, which will provide treatment for 1,000 children suffering from tuberculosis.

Albany Medical College, a subscription of $10,000 by members of the board of trustees and others.

East End Hospital, Pittsburgh, a bequest of $5,000 for the endowment of a bed for free use of poor and deserving persons, by the will of Mrs. Josephine DeJonghe, of Chicago.

German Charity Hospital, Kansas City, Mo., a donation of $25,000 for a building to be known as the Minnie Bardon Building, by Richard Bardon, Tulsa, Okla.

Disinfecting Imported Hides.—Effective January 1, new rules and regulations have been issued by the treasury department and the department of agriculture directed toward the exclusion of anthrax carried in imported hides; also against foot and mouth disease and rinderpest. Hides from countries not shown by the United States consular agents or official veterinary or sanitary inspectors of the countries to be free from anthrax, if such hides are to be admitted on certificate, must be certified to have been immersed in 1:1,000 solution of mercuric chlorid for twenty-four hours instead of thirty minutes, as under present regulations. Hides in bales unaccompanied by certificate of freedom from anthrax, rinderpest or foot and mouth disease, or by certificate of disinfection, will be admitted if such bales have been whitewashed under United States consular supervision and the importers agree to ship them in customs-sealed cars to a tannery provided with adequate facilities for disinfection, and to disinfect them in accordance with the requirements of the Bureau of Animal Industry under supervision of an agent of the bureau. Sun-dried hides from countries certified to be free from anthrax will be admitted without disinfection.

Physicians Go to Study South American Diseases.—Drs. William T. Councilman, Boston, and Robert A. Lambert, New York, are accompanying an expedition fitted out by Dr. Hamilton Rice, well known for his explorations on the upper Amazon, to the region of the upper Negro and Orinoco. The expedition left New York, November 15. It is the intention to study the diseases of men and animals met with during the exploration. Although a region of insects, the meager reports which have come from the country have tended to show that there are comparatively few insect-borne diseases, except malaria, among the Indians. The steam yacht *Alberta*, which carries the expedition, after a stop at Barbadoes, will reach Para, spending a few days there. It will then proceed to Manaos, about 1,000 miles up the Amazon, and, after a brief stop, go on to St. Izabel on the Rio Negro. This will be the home station of the yacht. From there the party proceeds in a specially arranged power barge to St. Felipe and through the Casiquiare Canal some distance down the Rio Negro. This region is one of the least known on the globe. There are no settlements, and although the rivers are more or less well known, practically nothing is known of the interior country.

National Board Holds First Examination.—The National Board of Medical Examiners held its first examination in Washington, October 16-21. Ten candidates were examined of whom five passed and five failed. The successful candidates were:

Thomas Arthur Johnson, De Kalb, Ill.; born at Malta, Ill., 1885; S.B., University of Chicago, with Phi Beta Kappa; Rush Medical College, 1911, with Alpha Omega Alpha; assistant in bacteriology, University of Chicago, 1910; license in Illinois, 1911; internship in Cook County Hospital, 1911-1913; City Bacteriologist of De Kalb, Ill., 1913; member of the Board of Health of De Kalb since 1914.

Hjorleifur T. Kritjanson, Wauwatosa, Wis., A.B., University of North Dakota, 1903; M.D., Rush Medical College, University of Chicago, 1907; pathologic intern, Rhode Island Hospital, Providence, R. I., 1907-1908; house staff, Worcester City Hospital, Worcester, Mass., 1908-1909; assistant superintendent and resident physician, pathologist and bacteriologist, Providence City Hospital, Providence, R. I., 1909-1912; assistant professor of pathology and bacteriology, Medical School, University of North Dakota, University, N. D., 1912-1913; bacteriologist, State Public Health Laboratory, University of North Dakota, 1912-1913; pathologist and resident roentgenologist, Milwaukee County Hospital, 1913; resident surgeon to Milwaukee County Hospital, 1915; assistant professor of surgery, Marquette School of Medicine, Milwaukee, Wis., 1915.

Harry Sidney Newcomer, Madison, Wis.; born in Willetts Point, N. Y., in 1887; A.B., University of Wisconsin, 1909, A.M., 1910; Johns Hopkins University, 1915.

Orlow Chapin Snyder, New York; born in Rockport, Ind., 1890; A.B., Indiana University, 1910; University of Michigan Medical School, 1915; intern City Hospital, Blackwells Island, New York, until December, 1916.

William White Southard, Redlands, Calif.; born in Halsted, Kan., 1886; A.B., Leland Stanford University, 1910; Johns Hopkins University, 1916.

The five candidates who failed were graduates of Howard University, School of Medicine, Johns Hopkins University, Medical Department, Rush Medical College, and University and Bellevue Hospital Medical College. The unsuccessful candidates will be permitted to take a second examination at the end of one year; a third examination will not be allowed.

Another Step in Higher Medical Education.—The Board of Trustees of the University of Chicago announce the gift of $1,000,000 by the General Education Board and $1,000,000 by the Rockefeller Foundation for the organization of medical instruction at the University of Chicago. The amount will be supplemented by $3,300,000 to be raised by the University of Chicago. One million, two hundred thousand dollars of this amount has already been pledged. This money will be added to the $2,000,000 endowment of the present two year school and will be used to establish an undergraduate medical school, a graduate medical school and a foundation for medical research, all parts of the University of Chicago. The undergraduate medical school will be on the South Side, directly connected with the University, and will give the entire four years of the undergraduate course. This will be the Medical School of the University of Chicago. In addition to the $2,000,000 endowment which now supports the present two year course, there will be provided $1,000,000 for new hospital buildings (ground valued at $500,000 has been donated by the university); $1,500,000 for maintenance of the 250-bed clinical hospital at the university and $1,500,000 as endowment for salaries, making a total of $6,000,000 for the undergraduate school. In this school, all of the teachers will be whole time men.

On the West Side, Rush Medical College, the Central Free Dispensary and the Presbyterian Hospital will be combined to form a postgraduate department. An effort will be made to coordinate the O. S. A. Sprague Memorial Institute, the work of which is now directed by members of the faculty of Chicago University and Rush Medical College. A laboratory building for the postgraduate department, to cost $300,000, will be erected on the site of the old Rush Medical College Building. An endowment of $1,000,000 will be provided for this department. The postgraduate instruction will be of the same grade as the work in the undergraduate department.

Research work is to go on in all departments. Graduate students are to be offered an opportunity to do research work. The Presbyterian Hospital, comprising 440 beds, of which 325 are ward beds, will be utilized in this work. In both the graduate and research schools, all heads of departments and all laboratory teachers will be full time men. The adjunct staff will be made up of clinical instructors and part time teachers.

In developing the undergraduate department, not only the Presbyterian Hospital, but other standardized hospitals will be brought into relation with the undergraduate school, for furnishing the necessary facilities for the fifth or intern year. It is possible that the Children's Memorial Hospital, the Durand Hospital, the Home for Destitute Crippled Children and the St. Joseph's Hospital may become part of the new organization.

The Presbyterian Hospital, the Sprague Memorial Institute and other affiliating institutions will not become the property of the new school, but will each retain its independence. However, such property as can legally be transferred will be turned over to the new school. The governing body will be the trustees of the University of Chicago. The Rockefeller Foundation and General Education Board will not be represented on the governing body. The graduate instruction offered will be of the highest type.

These plans require for their consummation a total of $7,300,000, of which $2,000,000 already exists in the endowment of the two year medical department now conducted by the University of Chicago, while $2,000,000 more is provided for by the gift just announced and $1,200,000 by private subscription, making a total of $5,200,000 that has already been secured, leaving $2,100,000 still to be raised. The trustees of the University of Chicago and of Rush Medical College and the Board of Managers of the Presbyterian Hospital have, by resolution, agreed to the plan under which the gifts of $2,000,000 are made. The additional money is needed to carry them out, but the plans themselves are not contingent on securing the money. Details regarding the names of the schools, the organization of the faculties, and the relation of Rush Medical College have not yet been taken up and will not be until the funds are raised.

The trustees of the university met, November 14, and named the following committee to raise the necessary funds: President Harry Pratt Judson, chairman, A. C. Bartlett, Julius Rosenwald, Andrew McLeish, Thomas E. Donnelley, Robert L. Scott, Harold H. Swift, Martin A. Ryerson and Dr. Frank Billings. The probabilities are that the raising of the necessary amount will soon be accomplished.

FOREIGN

Göttingen Scholarships in Memory of Esmarch and Ehrlich.—Each of these scientists provided in their wills for a fund of 10,000 marks for stipends for needy students at the University of Göttingen.

French Medical Unit in Roumania.—The unit which has just left for Bucharest with full equipment comprises the surgeons Moure and Sorel, with Clunet and Ripert, internists, and Duchaffaud, radiologist, besides nine nurses.

Red Cross President Dies.—The Marquis DeVogue, member of the academy and president of the Central Committee of the French Red Cross, aged 87; for a long time in the diplomatic service of France as ambassador to Constantinople and Vienna, died in Paris, November 10.

Deaths in the Profession Abroad.—C. S. Hägler, a leading surgeon and bacteriologist of Basel, Switzerland, connected with the university but prevented by deafness from a full professorship, succumbed to cancer, aged 54.——O. Schwartz of Cöln, the dean of Prussian physicians, aged 93.

Hygienists Meet.—The South American Association of Hygiene, Microbiology and Pathology of Buenos Aires held its annual meeting, September 25, under the presidency of Dr. Rudolph Krauss. It was decided to hold a conference on hygiene, microbiology and pathology in Rio de Janeiro in 1917, under the presidency of Dr. Oswaldo Cruz, Rio de Janeiro.

Fees Only for Secret Formula Preparations.—The Guatemalan government has recently informed the United States minister that the analysis fee of $10, required in the case of medicinal preparations imported into the country, will hereafter be imposed only when the products are of secret formula. It is expressly stated, however, that the fees already collected will not be refunded.

Hospital Notes.—The local authorities of Leplitz, Austria, are planning the erection of a tuberculosis hospital which will cost $100,000, and which will provide accommodation for fifty-four patients, to be used in connection with the present district hospital.——Plans have been drawn for a hospital which is proposed to be erected in the city of Madila, Colombia, and which is to cost about $1,000,000.

Flemish University at Ghent, Belgium.—The University of Ghent was founded in 1816, and the Germans have transformed it now into a Flemish university, giving the chairs to Flemish born and speaking scientists. The latest addition to the faculty is Prof. J. Versluys, who has had the chair of zoology and comparative anatomy at Giessen since 1907, and now assumes the corresponding chair at Ghent in his native land.

Bárany Called to Stockholm.—It is rumored that negotiations are pending that may bring Prof. R. Bárany of Vienna to the University of Stockholm as professor of otology and rhinolaryngology. He recently delivered at Stockholm the customary address describing his research when presented with the Nobel prize. It will be remembered that he was a war prisoner in Russia when notified that the prize in medicine had been conferred on him.

The Edith Cavell Training School for Nurses.—This new hospital and training school for nurses was opened at Paris on the anniversary of the death of Miss Cavell. It is installed in barracks with accommodations for 100 patients, and it is hoped that subscriptions will be received permitting the erection of permanent buildings, as the land has been donated. Miss Cavell was at the head of the training school for nurses connected with the surgical hospital at Brussels in charge of Depage.

Chagas to Lecture at Harvard.—The *Brazil Medico* of October 7, just received, states that Dr. Carlos Chagas of the Institute for Experimental Pathology at Rio de Janeiro has been invited to conduct a course on tropical medicine at Harvard University by Professor Strong, who has the chair of tropical diseases. Our exchange adds that Chagas has accepted the invitation. A comprehensive report of some recent research on Brazilian trypanosomiasis, "Chagas' disease," was summarized on page 1479.

Notification Required of Medical Interruption of Pregnancy.—The authorities in Prussia have recently stated the principles that should govern the physician in the interruption of a pregnancy. No grounds except medical ones should be considered—only serious and unavoidable danger, from an already existing disease, which cannot be averted by any other means. The physician is not justified in arresting the pregnancy from any social or race-hygiene reasons; any such action conflicts with the criminal code. A consultation of several physicians is advisable, and official notification is required.

Tobacco Smoking by the Young to be Prohibited.—The Journal mentioned last year the ban placed by the Lübeck board of health on smoking by the young. The minister of the interior of the duchy of Sachsen-Altenburg, Germany, has recently promulgated a similar degree. Explaining the reasons why tobacco smoking is injurious for the undeveloped vascular and nervous systems, the decree says that no one under 18 years of age is allowed to use tobacco in any form without consent of parents, teacher or guardian and, outside of the residence, only in their presence. The sale of tobacco in any form to persons under 18 is forbidden. Fines up to $15 or corresponding jail terms can be imposed.

Brazilian Odontologic Congress.—The first odontologic congress in Brazil, according to Consul General A. L. M. Gottschalk at Rio de Janeiro (*Commerce Reports*, Nov. 6, 1916), was held in Rio, October 9, and was well attended by delegates from the various dental schools of the country. Remodeling of the dental course and an increase in the requirements for obtaining a license to practice were among the questions considered by the congress. One of the proposed requirements was that the student must have a knowledge of English. It is said that a large proportion of the dentists of Brazil have been educated in the United States, but that on account of the general knowledge of French possessed by the Brazilians, French technical books, instruments, etc., are more largely purchased. The requirement of English in the course may change this to some extent, it is believed.

Argentine Republic Medical Congress.—The first meeting of the Medical Congress of the Argentine Republic was held in Buenos Aires, September 17 to 24. About 1,000 delegates from Buenos Aires and the different provinces of the Argentine Republic, Brazil, Paraguay, Uruguay, Chile, Peru and Bolivia were present. About 500 papers were presented for consideration before the congress, which was divided into sections on medical clinics and therapeutics, biology and pathology, obstetrics and gynecology, pharmacy and chemistry, general surgery, theory and practice of medicine, military sanitation, ophthalmology, odontology, pediatrics, dermatology, microbiology and laryngoscopy. The congress recommended the founding of hospitals to house children suffering with tuberculosis; the establishment on the seashore, on the plains or in the mountains of sanatoriums for delicate or poorly fed children, who would be in danger of contracting tuberculosis; the adoption of prophylactic measures to protect the newly born and nursing children of consumptive mothers, and the thorough and critical revision of the required studies in the Argentine medical schools, including in the curriculum the history of medicine and its principles, and the genetics of evolution, general physiology and biology. The executive committee of the congress was directed to compile an index of medical biography. Cordoba was selected as the place of meeting for the second national medical congress in 1920.

Letter from Vienna.—A correspondent "v. H." writes from Austria to the *Deutsche medizinische Wochenschrift* that the fine hospital which the University of Vienna organized in its buildings for wounded soldiers has been given up, the buildings being needed for teaching purposes. For two years the hospital has served as a useful and model institution, and money has been poured out freely for it, but the winter semester will open with the university in full swing. The patients in the hospital were given a gala entertainment as farewell before they were all transferred to the Grinzing barracks hospital. He relates further the organization of surgical groups to be sent from place to place at the front where they are most needed at the moment. This *Schnellhilfe im Felde* seems to be a private undertaking, but has been accepted and endorsed by the military authorities. He continues, "A new law in Austria classes habitual drunkenness and drug addiction with feeblemindedness and insanity as justifying the appointment of a guardian to take charge of the business affairs, etc. . . . Further progress has been realized in the enlargement of the training schools for nurses, founded three years ago, connected with the public hospital at Vienna and at Prague. The schools offer a two-year course with eighteen instructors from the medical faculty or the hospital force. There is also an afternoon postgraduate course, requiring several months, open to trained nurses with at least three years of practical experience. This course entitles them to a state license. . . . The authorities have sent a circular to all physicians and druggists urging special economy not only in the use of drugs but of all articles that might be used for food or for making munitions. Oil should be used sparingly and olive oil replaced with sunflower oil, starch with talcum. There is no scarcity of opium, atropin and cocain, but the price is high. Senna, cascara, aloes and rhubarb are scarce, as also caffein and quinin. The circular impresses on physicians and the public at large that drugs should be used only when it is impossible to realize the end sought by hygiene alone or associated with simple dietetic-physical measures. . . . Professor Weichselbaum reached the age limit for academic duties last year, but the time limit was extended. He has now definitely retired and Kolisko takes his place."

CANADA

Infantile Paralysis in Ontario.—The prompt steps taken by the Ontario Board of Health when infantile paralysis appeared in Montreal have resulted in a considerable reduction of cases in the province. In September there were in Ontario seventy-six cases with seven deaths; in October, thirty-one cases with seven deaths.

Hospital News.—The Canadian Hospital Commission of Canada is appointing discharge boards in different parts of Canada. A board will be appointed for each command unit. In Manitoba the board will consist of Drs. Henry H. Chown, Edwin S. Popham and Herbert P. H. Galloway; in British Columbia, Drs. Oswald M. Jones, Roderick L. Fraser and William J. C. Tomalin.——Lieut.-Col. Mackenzie A. Forbes has been appointed medical officer of the military hospitals command for Montreal. The personnel of the other boards will be announced shortly.——London, Ont., will have a permanent hospital for tuberculous soldiers returning from the front. The city council has voted a sum of $25,000, the military hospitals commission have agreed to donate another $25,000, and the provincial government of Ontario will contribute another $25,000.——Lieut.-Col. Cameron A. Warren, Toronto, has been temporarily placed in command of the Toronto Base Military Hospital.——Capt. George D. Porter, Toronto, is looking after the laboratory of the Toronto Base Military Hospital.

Personal.—Lieut.-Col. George G. Nasmith, C. M. G., chief of the Toronto Public Health Laboratories, has arrived home from France and will hereafter attend to his duties as chief analyst of Toronto. Colonel Nasmith resigned owing to indifferent health.——Lieut.-Col. Thomas B. Richardson, Toronto, has been transferred from the command of the Toronto Military Base Hospital to president of the Medical Board in Toronto.——Capts. Stuart M. Polson, Garfield Platt, and William H. Ballantyne, Vernon, Ont., with the Queen's University (Kingston, Ont.) Hospital in France, have been promoted to the rank of major.——Dr. Fred L. Grasett, Toronto, has gone to England to visit his son who is with the Canadian artillery.——Lieut. Charles F. Moore, M.D., Toronto, son of Dr. Charles S. Moore, London, Ont., who was invalided home, has recovered and returned to the front.——Of the two sons of Dr. Horace A. Yeomans, Belleville, Ont., aged 18 and 17 years, one received the Distinguished Conduct Medal last March, but was killed in action in April. The younger was awarded the Military Medal.

WAR NOTES

The New Harvard Unit.—The winter shift of the Harvard Surgical Unit, consisting of Drs. Kendall Emerson, Worcester, Francis W. Paulfrey, Boston, Paul Hector Provandie, Melrose, Frank H. Pike, Melrose, and Henry B. Potter, Wakefield, R. I., and twenty nurses, will sail from New York, November 18, to relieve an equal number of the staff now serving in the Harvard Field Hospital behind the British lines in France.

Medical Unit for Palestine.—An appeal has been made to the Jewish women of Boston for immediate contributions to help equip a medical unit to be sent to Palestine to relieve the sufferings caused by the ravages of typhus fever in that country. The British, French and Turkish governments have been persuaded by the Zionist provisional committee to lift the embargo against drugs and thus render possible the work of the unit.

The Fatalities in the War.—The editor of the *Deutsche medizinische Wochenschrift* comments on the organization at Copenhagen of a society to study the social consequences of the war, saying that the loss of human life in the war to date cannot be estimated with accuracy. "Germany is the only country," he says, "which publishes systematically reliable casualty lists, and even in these the missing form quite a large proportion. No other country but England makes any attempt to publish the casualty lists regularly. The new society issues a bulletin and this stated recently that up to July, 1916, there had been 4,631,500 killed in the war. Even if this number is somewhat too high—and more than probably the figure is too low—this shows what unspeakable misery this war of annihilation has brought to Europe even so far, and to all civilized countries."

Serbian Noncombatant Relief.—The letters received by the American Red Cross from Mr. Edward Stewart, at Belgrade, give an insight into the gratifying civilian relief activities which are being directed in Serbia. Prior to the declaration of war by Roumania, Mr. Stewart had procured 257 carloads of supplies, including eighty carloads of corn. He expected to receive sixty carloads of corn which had been purchased in Roumania by the Swiss Red Cross for distribution by the American Red Cross. Forty-six carloads of the sixty have been sent on to Dr. Edward Ryan, who is in charge of the work in the interior. He expected, furthermore, to receive twenty-five carloads of clothing and food from Switzerland. Two distributing stations for food and one for clothing are being operated. The public welfare department of the government is building a people's kitchen whose first object is to supply one meal a day to about 200 indigent persons. Clothing has already been distributed to 10,000 people and there is sufficient clothing on hand for about 10,000 more.

American Women's War Hospital.—This hospital was established by the American Women's War Relief Fund at Paignton, South Devon, England, immediately after the outbreak of the European war. At its head are many titled women of American birth. Sir William Osler is consulting physician and Maj. D. Pearce Penhallow, Boston, is chief surgeon and administrative officer of the institution. An analyzed report of the third thousand cases treated at the hospital shows that during the period from Dec. 9, 1915, to Aug. 19, 1916, there were received in the hospital 1,202 cases, of which 202 patients still remained on the date last mentioned. In addition to the treatment of every sort of wound received in war, many purely medical cases were cared for, details of which are given in the analysis. The average time in the hospital of the 1,000 patients was 33.36 days. Of 54 patients who were in the hospital ninety-eight days or over, 2 were in over ten months, 9 about eight months, 13 between six and seven months, 8 between five and six months, 6 between four and five months, and the remainder for periods varying upward from fourteen weeks.

LONDON LETTER

London, Oct. 30, 1916.

The Health of London

The annual reports of the health officer of London and of the school medical officer for 1915 have just been published. The health of London during that year was below the average of recent years. This is ascribed to the number of deaths at relatively high ages due to epidemics of influenza and respiratory diseases. The marriage rate was, as stated in previous letters, the highest ever recorded. This is attributed directly to the war. The birth rate has fallen again, and was 23.6, as compared with 24.3 in 1914 and 25 in 1909-1913. The incidence of infectious disease has been low. Despite the return of convalescent soldiers and the abnormal conditions, no increase of typhoid fever or dysentery was observed. A few cases of typhus occurred, but the outbreak was quickly controlled. Measles, on the other hand, was responsible for 2,286 deaths, as against 1,376 in 1914. The fact that diarrhea and enteritis at ages from 0 to 2 fell from 3,057 in 1914 to 2,556 shows how efforts to save the children are being crowned with success. The question whether or not cerebrospinal fever is related to influenza is discussed at length. Evidence is produced to show that a close relation exists between the two. It has been suggested that the influenza attack in some persons involves the brain and cord so that the cerebrospinal disease is set up. Nearly 25 per cent. of the cases of cerebrospinal fever reported in England and Wales occurred in London. Great care was taken to prevent attacks of infectious disease, and special attention was devoted to the seamen's lodging houses in East London. Difficulty was encountered in dealing with the houses occupied by Chinamen. Examination of samples of milk showed contamination with tubercle bacilli in 6.5 per cent., as against 7.9 per cent. in 1914 and 9.9 per cent. in 1913. Schemes were initiated for maternity and child welfare work. The report of the school medical officer shows that the prosperity which has come to some poor homes on account of the war is reflected in the fact that while 3.9 per cent. of children had insufficient clothing or footgear in 1914, only 2.6 per cent. were found in this condition last year. The percentage for malnutrition fell in the same period from 9.4 to 6.6 per cent. An interesting experiment in early notification of measles by telephone was tried. In spite of the general epidemic affecting all districts of London, the areas in which the special arrangements were in operation were less seriously affected.

The British Journal of Ophthalmology

The earliest journal of ophthalmology published in this country was the *Royal London Ophthalmic Hospital Reports,* which appeared in 1852. The title was somewhat misleading, as abstracts from foreign literature were given as well as reports from this hospital, which has ever been the center of British ophthalmology. In 1864 the abstracts were discontinued. In 1882 appeared the *Ophthalmic Review,* which took up this work. In 1903 another ophthalmic journal, the *Ophthalmoscope,* appeared. For some time ophthalmic surgeons have felt that it would be a great advantage if these three journals were merged into one. At a meeting it has been decided to do this and to publish in January, 1917, the new journal under the title of the *British Journal of Ophthalmology.* The editor will be Mr. Sydney Stephenson, who has edited the *Ophthalmoscope* since its foundation. Subsequent numbers will be published monthly.

The Control of Venereal Diseases

It is well known that the ravages of venereal diseases are always increased by war. The growing public attention which has been given to this subject in recent years has therefore been stimulated. A meeting has been held at the Mansion House to consider the urgent problem of national health. The large hall was crowded with representatives of the medical profession, municipal and local government authorities, the governing bodies, medical staffs, and matrons of the London hospitals and religious and social organizations. Mr. Walter Long, president of the Local Government Board, said that it had become impossible any longer to conceal from the public that these diseases were terrible in their nature and almost overwhelming in the effect they had on the health and strength and the very life of the people. It was essential that they must be eradicated. He was confident that the new year would see a scheme for London ready in all its details. In many other local areas, too, work was proceeding rapidly, and a real attempt was being made to deal in an effective way with these scourges. They were told in some quarters that all plans would fail until compulsory notification was adopted and there was compulsory treatment. But the royal commission (whose report has been given in a previous letter to The Journal), had fully considered the question and did not recommend compulsory notification and treatment. He had no prejudice in this matter, and if he thought compulsory notification was the right thing, he would do his best to secure it.

Mr. Herbert Samuel, the home secretary, said that the question arose whether or not more active means should be adopted to limit prostitution. The action of the police was limited by restrictions imposed by law, and it was doubtful whether Parliament would consent to extend their powers of arresting women in the streets because of the possibility of grave errors, such as had occurred some years ago. The government was anxious to encourage the employment of women police and women patrols whose work was calculated to be of great benefit.

On the other hand, a letter signed by leading women, including physicians, the wives of public men, and social workers, has been published in the press advocating notification and compulsory treatment as "the obvious remedy for every contagious disease."

The Treatment of Tuberculosis

The annual report of the Local Government Board for 1915-1916 states that notwithstanding the difficulties created by the war, progress has been made with the development of approved schemes for the treatment of tuberculosis, and a certain number of institutions, the erection of which had been undertaken previous to the war, have been completed and brought into use. Up to April 30, 1916, the board had approved, under the national insurance act, 288 residential institutions, containing 11,227 beds for the treatment of tuberculosis. Of this number, 130 institutions, containing 5,258 beds, had been provided by local authorities, and 158 institutions, containing 3,969 beds, by voluntary bodies. In addition, the board had approved 355 dispensaries for the treatment of tuberculosis, 319 of which have been provided by local authorities.

Inoculation Against Typhoid Fever in the Army

The following are the latest official figures on this subject: Up to Aug. 25, 1916, 1,501 cases were finally diagnosed as typhoid fever among the British troops in France, 903 among inoculated men and 508 among uninoculated men. There were 166 deaths, 47 of which were among the inoculated and 119 among the uninoculated. To the same date there were 2,118 cases of paratyphoid fever, 1,968 among inoculated men, and 150 among men who had not been inoculated. There were 29 deaths, 22 of which were among the inoculated and 7 among the uninoculated.

Decline of Vaccination

It may be assumed, says the annual report of the Local Government Board, that more than half the children now born escape vaccination. By far the greater proportion unvaccinated are exempted by a declaration of conscientious objection made by their parents. The percentage so exempted in 1913 was 35.

Death of Sir Joseph Beecham

Sir Joseph Beecham, the son of Thomas Beecham, who founded the great pill making business at St. Helen's, Lancashire, has died. Born in 1848, he was prodigiously wealthy from his pill business, and financed various schemes for popularizing opera in England. His father began life by selling his pills in the market place of St. Helens. One day a woman interrupted his speech by shouting out that his pills were "worth a guinea a box," and he at once replied that he would put that phrase on every box he made in future, which he did. Beecham erected a shed in the yard behind his house where the manufacture of the pills took place. As the demand increased, he had the house pulled down and a factory was built on the site, to be succeeded later on by the present palatial buildings. The story is still told in the town of an incident that occurred in a school. An inspector, examining a class, asked the pupils what St. Helens was noted for. "Please, sir" said one aspiring boy, "for Beecham's pills." When the story reached the ears of the great pill-maker he made the boy a present of a watch. The extent of the advertising resorted to by both the founder and the late Sir Joseph Beecham is well known. Nearly every big firm that advertises largely employs an agent, but the Beechams have always kept this part of their business, so far as the United Kingdom is concerned, in their own hands. Their foreign advertising is, however, entrusted to a London firm. It has been computed that a sum of about $400,000 is spent in this way every year, $300,000 of it in this country alone.

PARIS LETTER

Paris, Oct. 26, 1916.

The War

SENDING OF ALL MEDICAL ORDERLIES TO THE FRONT

Acting on an agreement between the general headquarters and the direction of the health service, the minister of war has just decided to send to the front all those medical orderlies at present occupied in the rear, up to the class of 1900 (that is, men up to 36 years of age). These men will replace orderlies, ambulance attendants and stretcher bearers, who will be sent into the infantry or the artillery. In the medical formations of the rear, the men sent to the front will be replaced by women, by persons discharged from the army, by partially disabled men, or by volunteers. It is estimated that 40,000 men will be released for combatant service by the adoption of this measure, the application of which has already commenced.

A MEDICAL CORPS FOR ROUMANIA

La Société Française de Secours aux blessés militaires has sent to Roumania a sanitary corps composed of two surgeons, a physician, an assistant physician and nine orderlies belonging to the society. When they arrive at Bucharest, these persons will be employed in a hospital already chosen by the French minister, and will work under the auspices of the legation. Ample equipment sent at the same time will allow of installing this hospital under the most favorable conditions.

THE RIGHTS OF THE WOUNDED

In connection with two interpellations on the rights of the wounded, the Chamber of Deputies discussed at length the question whether the military medical authorities have the right to impose a particular treatment on a wounded man, and whether the military authorities have the right to punish refusal. To those who would push to the extreme the doctrine of individual liberty, Dr. Gabriel Maunoury, deputy for the department of Eure-et-Loir, speaking as a delegate of the commission on hygiene of the chamber, put forward the just objection that not only the interests of the wounded man, but also those of the nation must be taken into account, and that, to the latter, it is important that the wounded should, as far as possible, be cured and rendered able to take their places in the ranks. M. Justin Godart, undersecretary of state for the health service, pointed out that it was impossible to leave this decision to the absolute discretion of the wounded man; the contrary doctrine would conflict both with the national interest and with that of the wounded man himself. Finally the chamber, by 354 votes against 5, passed the following resolution:

> The chamber, approving the declaration of the government, is confident that it will assure the treatment of the wounded in such a way as to reconcile their rights and their liberty with the general interest of the national defense; and affirming that all soldiers, without distinction of rank or social position, shall be submitted to the same treatment, as regards medical or surgical measures, passes to the order of the day.

EXTRACTION OF A SHELL FRAGMENT FROM THE DORSAL REGION

Professor Quénu exhibited to the Société de chirurgie de Paris a shell fragment weighing 385 gm. which had lodged in the back of a soldier without killing him. It was placed transversely between the shoulder blades, one extremity, slightly more pointed, being turned to the right. The first attempts at removal failed. Success followed median dorsal incision exposing the broadest part of the projectile.

FOR BLIND SOLDIERS

L'Association Valentin Haüy for the welfare of the blind, founded in 1899, has just received from a manufacturer of Isère, who desires to remain anonymous, a gift of 35,000 francs ($6,755), representing his share in the profits of a munition factory.

AN INDIA RUBBER EYE FOR THE WOUNDED

The large number of cases of war wounds in which the enucleation of one eye has to be performed has led MM. Lemaitre and Teuillières to improve the technic of ocular prothesis. Before the war, the development of this class of work was practically restricted to fitting an artificial eye on a stump skilfully prepared by the surgeon. This procedure has proved absolutely insufficient in the presence of the frequent great destruction involving the eyeball and the orbit, and which does not admit of adapting in the orbit a piece selected from a standardized series. In these cases it is necessary to prepare an eye especially for each wounded, so that it may be sufficiently esthetic, may follow the movements of the relics of stumps, and be on the same plane as the other eye. To obtain this result, MM. Lemaître and Teuillières studied first the making of casts of the orbital cavity. They had to give up the idea of employing substances melting at a temperature slightly higher than that of the body, because with them it was not possible to count on obtaining faithful casts. Recourse was then had to plaster, or rather, to alabaster, which the mucosa tolerates very well. In order that the mold shall not require retouching, they use a special impression tray provided with a small funnel having a large aperture for the admission of liquid plaster. Opposite this funnel is a convex surface intended to reproduce the internal surface of the eyelids and maintain the latter in the position which they originally occupied over the eyeball. When the eyelids are kept in position in this way, the liquid plaster easily fills the whole of the orbital cavity and takes the place formerly occupied by the eyeball and its appendages. The impression reproduces faithfully the details of the orbit. From this mold a cast is made in caoutchouc. The anterior part is made with vulcanite, and on this is placed the "façade" reproducing the aspect of the eye. This will be made either in enamel or in some other suitable method. On this rigid part, the retaining action of the eyelids is exerted. The posterior and lateral parts are made in soft rubber. There is a space between the anterior and posterior walls which is occupied by air. It will be seen that this apparatus is very elastic, owing to its pneumatic construction, and follows without injury the irregularities of the orbital cavity, transmitting all of the movements. Its suppleness permits it to maintain an elastic contact between the eyelids and the back of the orbital cavity. This apparatus has, further, the advantage of being unbreakable.

Marriages

Horace Perkins Makechnie, M.D., West Somerville, Mass., to Miss Gertrude M. Janes of Somerville, Mass., November 1.

Charles Arthur Ellis, M.D., Denver, to Mrs. Minerva Cooley Winter of Mayfield, Ky., at Colorado Springs, October 26.

Dell Lou Grothaus, M.D., Delta, Iowa, to Miss Jennie McArthur of Mason City, Iowa, at Marion, Iowa, November 1.

Carl Ferdinand Bookwalter, M.D., Chicago, to Miss Emma Ellis Boyd, at Crown Point, Ind., November 3.

Allton Lawrence Sherman, M.D., to Miss Ethel Agnes Yoemans, both of West Orange, N. J., October 30.

Louis Henry Ritzhaupt, M.D., Washington, D. C., to Miss Lillian Mae Harris of Seymour, Wis., recently.

Marcenus C. Mason, M.D., Rochester, N. Y., to Miss Matilda L. Starke of New York, November 1.

Leo Louis Elliott, M.D., Rosebud, S. D., to Miss Mary Head of Bemidji, Minn., November 2.

Barclay Wilkinson, M.D., to Mrs. Laura Harvey Moore, both of Chicago, about October 30.

John Franklin, M.D., San Jose, Calif., to Miss Louisa Getz of San Francisco, October 2.

Welcome Walter Wood, M.D., to Miss Grace Brown, both of San Francisco, September 15.

H. Williams Smith, M.D., to Miss Estelle Monroe, both of Crookston, Minn., October 24.

Karl F. M. Sandberg, M.D., to Mrs. Emilia P. Peterson, both of Chicago, November 4.

Frank A. Craig, M.D., to Miss Florence P. Frismuth, both of Philadelphia, November 2.

Edwin B. Weldon, M.D., to Miss Helen L. Abberton, both of Bridgport, Conn., June 17.

Harry Levi Day, M.D., to Miss Nola M. Jackson, both of Bluffs, Ill., October 25.

Deaths

Albert Philip Ohlmacher, M.D., Detroit, Northwestern University Medical School, Chicago, 1890; aged 51; a Fellow of the American Medical Association and a member of the American Association of Pathologists and Bacteriologists, National Association for the Study of Epilepsy and National Association for the Study and Prevention of Tuberculosis; a prolific writer on pathology and epilepsy; professor of comparative anatomy and embryology in the College of Physicians and Surgeons, Chicago, from 1891 to 1894 and in the Ohio Wesleyan University, Cleveland, from 1894 to 1897; director of the Pathological Laboratory of the Ohio Hospital for Epileptics, Gallipolis, from 1897 to 1901; then for a year professor of pathology in his alma mater; from 1902 to 1905 superintendent of the Ohio Hospital for Epileptics, Gallipolis, and afterward a practitioner of Detroit, where he made a specialty of epilepsy and vaccine therapy; died at his home in Detroit, November 10.

William Judkins Conklin, M.D., Dayton, Ohio; Medical College of Ohio, Cincinnati, 1868; aged 71; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association, president in 1890 and secretary in 1872; a member of trustees of the Ohio State Hospital for two years; from 1875 to 1876 a member of the faculty of the Starling Medical College, Columbus; for many years a member of the staff of St. Elizabeth's and the Miami Valley hospitals; for eighteen years president of the board of trustees of the Dayton Public Library and Museum, and for several years a member of the board of education; a director of the Merchants' National Bank, and one of the most widely known physicians of the Miami Valley; died at his home, October 31.

Gilman Corson Dolley, M.D., M. R. C., U. S. Army; Medico-Chirurgical College of Philadelphia, 1907; aged 36; formerly a Fellow of the American Medical Association; a member of the Association of Military Surgeons of the United States; who entered the government service in 1909 as acting assistant surgeon and was bacteriologist to the Post Hospital, Department of the Missouri, Fort Leavenworth, Kan., and later on duty at Santo Domingo, and for the last year resident physician at the United States Leprosarium, Culion, Palawan, P. I.; died in Manila, October 21, from pneumonia.

Oliver C. Ormsby, M.D., Rexburg, Idaho; Rush Medical College, 1870; aged 73; formerly a Fellow of the American Medical Association; for many years a druggist and practitioner of Utah; city physician of Rexburg and county physician of Madison County; who served as surgeon during one of the Indian campaigns in the West; died at his home, October 26, from cerebral hemorrhage.

Harry W. Weyant, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1895; aged 47; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; for twenty-one years police surgeon of the tenth district; assistant in the eye department of the Protestant Episcopal Hospital; died at his home, November 2, from pneumonia.

Louis Edward Gott, M.D., Falls Church, Va.; University of Maryland, Baltimore, 1861; aged 76; a member of the Medical Society of Virginia; surgeon of the Forty-Ninth Virginia Regiment and the Twenty-First Georgia Regiment during the Civil War; died in Georgetown University Hospital, Washington, October 29, from prostatic disease.

Romeo Orpheus Keiser, M.D., Columbia, Ohio; Ohio Medical University, Columbus, 1898; Cleveland-Pulte Medical College, Cleveland, 1899; aged 46; formerly secretary and later president of the Homeopathic Medical Society of Ohio and a member of the faculty of his alma mater; died at his home, November 1.

James M. Coyle, M.D., Nashville, Tenn.; University of Nashville, Tenn., 1881; aged 66; a member of the Mississippi Valley Medical Association, and a resident of Nashville for nearly half a century; for several years major surgeon in the Tennessee National Guard; died at his home, October 21.

Andrew L. Marugg, M.D., Specht's Ferry, Iowa; Northwestern University Medical School, Chicago, 1898; aged 42; a Fellow of the American Medical Association; for many years a practitioner of Sherrill's Mound, Iowa; died in Mercy Hospital, Dubuque, Iowa, October 31, from pneumonia.

Henry L. Gosling, M.D., Washington, D. C.; Columbian University, Washington, D. C., 1886; aged 61; assistant chief of the Division for Operation of the Coast Guard; for forty-one years in the federal service; died at his home, November 1.

Edwin A. Lex, M.D., Irvington, Ky.; Kentucky University, Louisville, 1903; aged 40; for several years a druggist and practitioner of Louisville; died at St. Joseph's Infirmary, Louisville, October 26, from typhoid fever during convalescence after an operation for appendicitis.

Joseph Hammond Huston, M.D., Clintondale, Pa.; Jefferson Medical College, 1866; aged 78; a member of the Medical Society of the State of Pennsylvania; for forty-four years a practitioner of Clintondale; died in the Lock Haven Hospital, October 26, from disease of the bladder.

William Guy Frierson, M.D., Shelbyville, Tenn.; University of Nashville, Tenn., 1897; aged 41; formerly a Fellow of the American Medical Association; formerly professor of osteology in his alma mater and health officer of Shelbyville; died at his home, October 21, from nephritis.

Price Patterson, M.D., Maysville, Okla.; Memphis (Tenn.) Hospital Medical College, 1901; aged 53; a Fellow of the American Medical Association; was shot and killed by an Indian citizen of Purcell, Okla., at Maysville, October 28, during a quarrel over domestic affairs.

John Harrison Oatley, Harristown, Ind. (license, Indiana, 1897); aged 86; an honorary member of the Washington County (Ind.) Medical Society, and once a representative from the county in the state legislature; died at his home, October 24, from cerebral hemorrhage.

George Washington Kerr, M.D., Fayetteville, Ark.; University of Michigan, Ann Arbor, 1874; aged 74; first lieutenant, One Hundred and Fifty-Second Illinois Volunteer Infantry during the Civil War; died near his home, October 25, from heart disease.

David Johnson Culver, M.D., Harrisville, N. Y.; University of Vermont, Burlington, 1881; aged 60; a Fellow of the American Medical Association; for more than thirty years a practitioner of Harrisville; died at his home, October 29, from arteriosclerosis.

John B. Armstrong, M.D., Chicago; New Orleans School of Medicine, 1869; aged 69; formerly a Fellow of the American Medical Association; a member of the pension board of Chicago for twenty-one years; died at his home, November 8, from heart disease.

Henry Jonathan Dearborn, M.D., Mount Sterling, Ill.; Rush Medical College, 1888; aged 50; formerly a member of the Illinois State Medical Society; coroner of Brown County for two terms; died at his home, October 29, from cerebral hemorrhage.

Elmer G. Myers, M.D., Canton, Ohio; Starling Medical College, Columbus, Ohio, 1889; aged 53; consulting surgeon to the Aultman Memorial and Ingleside hospitals, Canton, Ohio, died at his home, November 4, from rheumatic endocarditis.

William Henry Conibear, M.D., Lakeland, Fla.; Rush Medical College, 1876; aged 72; a member of the Illinois State Medical Society and for many years a practitioner of Morton, Ill.; died at his home, October 25, from carcinoma of the liver.

Lynn A. Pickering, M.D., Aberdeen, S. D.; Baltimore Medical College, 1898; aged 46; a Fellow of the American Medical Association; is believed to have been drowned while hunting, near Aberdeen, November 3.

Allen Jefferson Garrett, M.D., Tallassee, Ala.; University of Alabama, Mobile, 1893; aged 54; formerly a member of the Medical Association of the State of Alabama; died at his home, July 16, from cirrhosis of the liver.

Isaac A. Dail, Harriman, Tenn. (license, Tennessee, 1889); aged 60; for two terms a member of the state legislature from Roane County; died at his home, near Union Cross Roads, October 29, from rheumatic endocarditis.

Neal L. Burgess, M.D., Sumner, Texas; Memphis (Tenn.) Hospital Medical College, 1909; aged 39; a member of the State Medical Association of Texas; died at his home, November 1, from cerebral hemorrhage.

Moses R. Coates, M.D., McKeesport, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1893; formerly a member and chairman of the select council of McKeesport; died at his home, October 20.

Frank Duane Maine, M.D., Springfield, Mass.; New York Homeopathic Medical College, New York, 1872; aged 77; a veteran of the Civil War; died in the Hampden Hospital, Springfield, October 29.

Marvin Fisher Smith, M.D., Hampton, N. H.; Dartmouth Medical School, Hanover, N. H., 1883; aged 64; formerly a member of the New Hampshire Medical Society; died at his home, October 31.

Peter B. Spiron, M.D., Collinsville, Ill.; University of Bucharest, Roumania, 1890; National Medical University, Chicago, 1898; aged 50; was found dead in his office, November 4.

John W. Webster, M.D., Siloam Springs, Ark.; Missouri Medical College, St. Louis, 1884; aged 69; a veteran of the Civil War; for many years a druggist; died at his home, October 21.

Henry D. Long, M.D., New York; Johns Hopkins University, Baltimore, 1903; aged 40; a Fellow of the American Medical Association; died at his home, October 22, from septicemia.

John Saltenberger, M.D., Millstadt, Ill.; Washington University, St. Louis, 1864; aged 84; a veteran of the Civil War; died at his home, near Millstadt, October 20, from heart disease.

John F. Maddox, M.D., Orlando, Fla.; Eclectic Medical Institute, Cincinnati, 1877; aged 71; died at the home of his daughter in Edinburg, Ind., October 18, from cerebral hemorrhage.

Wade H. Chase, M.D., Rutland, Ohio; Starling Medical College, Columbus, Ohio, 1897; aged 56; died at his home, October 8, from carcinoma of the mouth and throat.

Julia A. W. Winslow, M.D., Rockland, Mass.; New England Female Medical College, Boston, 1866; aged 90; died at her home, August 18, from arteriosclerosis.

Horace William Johnson, M.D., Little Rock, Ark.; Northwestern Medical College, St. Joseph, Mo., 1886; aged 64; died in a hospital in Little Rock, October 14.

Joshua Simon, M.D., Rome City, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1889; aged 68; died at his home, October 19, from cerebral hemorrhage.

Abner Hayward, M.D., Mount Clemens, Mich.; Cleveland University of Medicine, 1866; aged 86; died at his home, October 28, from cerebral hemorrhage.

Julius D. Abbott, M.D., Bethel, Ohio; Cincinnati College of Medicine and Surgery, 1874; aged 71; died in Christ Hospital, Cincinnati, October 22.

Edward Lummis Diament, M.D., Bridgeton, N. J.; Baltimore Medical College, 1897; aged 44; died at his home, August 2, from heart disease.

William W. McMann, Gardner, Ill. (license, Illinois, years of practice, 1878); aged 78; a veteran of the Civil War; died at his home, October 24.

John T. Dunn, M.D., Pasadena, Calif.; University of Minnesota, Minneapolis, 1904; aged 37; formerly of Albert Lea, Minn.; died, October 26.

Frank Herrick Green, M.D., Louisville, Ky.; University of Louisville, 1899; aged 46; formerly a druggist; died in Perryville, Ky., October 26.

Emery G. Drake, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1874; aged 64; died at his home in Barry, Brooklyn, October 29.

Hiram M. Winn, M.D., Sterling, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; aged 64; died at his home, October 16.

William G. Du Bois, M.D., Camden, N. J.; Hahnemann Medical College, Philadelphia, 1880; aged 59; died at his home, October 28.

Leo Dann, M.D., New York; New York University, New York, 1885; aged 77; died at his home, October 20, from cerebral hemorrhage.

Asa M. Stackhouse, M.D., Moorestown, N. J.; Hahnemann Medical College, Philadelphia, 1868; aged 72; died at his home, October 6.

William David Aldrich, M.D., Albany, N. Y.; Albany Medical College, 1910; aged 33; a specialist in urology; died, September 28.

Peter J. McCahey, M.D., Philadelphia, Jefferson Medical College, 1885; aged 60; died at his home, October 22, from heart disease.

Noah Webster Spring, M.D., Columbus, Ohio; Medical College of Ohio, Cincinnati, 1869; aged 69; died at his home, October 12.

John D. McCollum, M.D., Alpharetta, Ga.; Atlanta (Ga.) Medical College, 1884; aged 55; died at his home, October 16.

Marie F. Rose, M.D., Harvey, Ill.; Hahnemann Medical College, Chicago, 1896; died at her home, October 11.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

HUMAN EASE

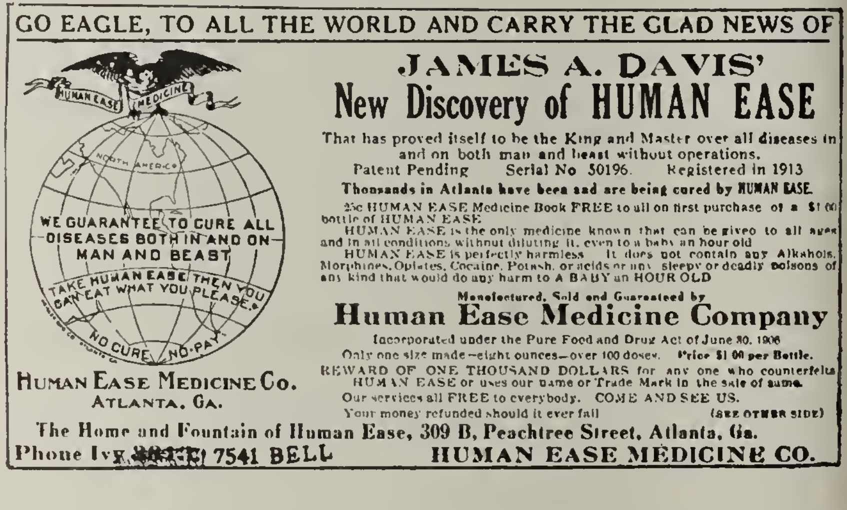
Another Fraud is Denied the Use of the Mails

"Human Ease" was a cure-all sold under preposterously false claims by one James A. Davis who did business under the trade name "Human Ease Medicine Company," Atlanta, Ga. On Sept. 12, 1916, Davis was called on by the federal authorities to show cause why a fraud order should not be issued against his company. Davis made no answer to the charges; neither did he deny the truth of them or offer any evidence to offset them. On the date set for the hearing William M. Smith of Atlanta appeared as counsel for Davis.

The Solicitor for the Postoffice Department in his memorandum for the postmaster-general recommending the issuance of a fraud order in this case declared the facts to be as follows:

THE GOVERNMENT CASE

"Respondent obtains remittances of money through the mails from various persons in payment for a preparation known as 'Human Ease.' The claims made for this preparation in the treatment and cure of all diseases are so astounding that a very brief statement of a few of them as disclosed by the evidence will suffice to establish the fraudulent character of the scheme. This preparation has been analyzed by Dr. W. S. Hubbard of the Bureau of Chemistry, Department of Agriculture, and a report made to this office showing the chemical analysis to be as follows:



GO EAGLE, TO ALL THE WORLD AND CARRY THE GLAD NEWS OF

JAMES A. DAVIS'

New Discovery of HUMAN EASE

That has proved itself to be the King and Master over all diseases in and on both man and beast without operations.

Patent Pending Serial No 50196. Registered in 1913

Thousands in Atlanta have been and are being cured by HUMAN EASE.

25c HUMAN EASE Medicine Book FREE to all on first purchase of a $1 00 bottle of HUMAN EASE

HUMAN EASE is the only medicine known that can be given to all ages and in all conditions without diluting it, even to a baby an hour old

HUMAN EASE is perfectly harmless It does not contain any Alkahols, Morphines, Opiates, Cocaine, Potash, or acids or any sleepy or deadly poisons of any kind that would do any harm to A BABY an HOUR OLD

Manufactured, Sold and Guaranteed by

Human Ease Medicine Company

Incorporated under the Pure Food and Drug Act of June 30, 1906

Only one size made—eight ounces—over 100 doses. Price $1 00 per Bottle.

REWARD OF ONE THOUSAND DOLLARS for any one who counterfeits HUMAN EASE or uses our name or Trade Mark in the sale of same.

Our services all FREE to everybody. COME AND SEE US.

Your money refunded should it ever fail (SEE OTHER SIDE)

WE GUARANTEE TO CURE ALL DISEASES BOTH IN AND ON MAN AND BEAST

TAKE HUMAN EASE THEN YOU CAN EAT WHAT YOU PLEASE.

NO CURE NO PAY

HUMAN EASE MEDICINE CO.
ATLANTA, GA.

The Home and Fountain of Human Ease, 309 B, Peachtree Street, Atlanta, Ga.

Phone Ivy [illegible] 7541 BELL HUMAN EASE MEDICINE CO.

Lard	95.5 per cent.
Sodium bicarbonate (baking soda)	1.6 per cent.
Sodium sulphate (Glauber's salts)	0.2 per cent.
Potassium nitrate (Salpetre)	1.9 per cent.

The ointment is flavored with oil of sassafras.

"According to the representations made by respondent there is no disease that this preparation will not cure. The cure of all diseases is guaranteed by him in the following terms:

> 'We guarantee to cure all diseases both in and on man and beast.'

"Scores of diseases are enumerated in the booklet which is distributed broadcast to the public through the mails by him, all of which his guarantee covers. For the purpose of showing the obvious absurdity of the claims and the patent falsity of the representations, a few of these diseases are taken at random from the booklet containing the whole list of diseases whose cure is guaranteed, as follows:

Tuberculosis,
Diphtheria,
Pellagra,
Bright's Disease,
Stricture,
Diabetes,
Syphilis,
Scarlet Fever,
Paralysis,
Heart Disease,
Cancer,
Rheumatism,
Smallpox,
Obesity,
Mad dog bites, and
Ingrowing nails.

"A review of the booklet shows that it contains a very large number of false claims and representations. This office has seldom seen a booklet so filled with fraudulent representations. It has been frequently shown in hearings before this office by the testimony of experts in the treatment of various diseases that many of the diseases which the respondent mentions in this booklet and guarantees to cure are incurable, and human experience serves to confirm the truth of such testimony. The evidence in this case shows that the respondent is not a physician; that he has had no training which would qualify him to diagnose and treat diseased conditions; that his educational attainments are strictly limited, and that the preparation furnished by him cannot and does not relieve or cure many of the diseases for which it is recommended and is without value in the treatment of such diseases."

The federal authorities issued a fraud order on Oct. 19, 1916, denying the use of the mails to the Human Ease Medicine Company (not to Davis, himself) on the ground that it had been obtaining money by means of false and fraudulent pretenses, representations and promises.

MORE MISBRANDED NOSTRUMS

A. D. S. COD LIVER OIL COMP.

"A. D. S. Cod Liver Oil Comp." was one of the preparations put out by the American Druggists' Syndicate, a cooperative concern to which druggists belong who wish to share in the profits of the manufacture as well as of the sale of "patent medicines." The preparation, which admittedly contained 17 per cent. alcohol, was marketed under such claims as:

> "A Sovereign Remedy in Pulmonary Tuberculosis or Consumption of the Lungs."
>
> "The Great Curative Value of this Preparation has been demonstrated by the Most Eminent Physicians, who regard it as a powerful strength builder, that gives the system force to resist the Invasion of Bacilli."

These statements the federal officials charged were false and misleading because "the said article and drug was not a sovereign remedy in pulmonary tuberculosis or consumption of the lungs, was not a powerful strength builder, and possessed no properties such as would give the system force to resist the invasion of bacilli." The government officials also charged that the statement that the product was a "Preparation of the Active Principles of Pure Norwegian Cod Liver Oil" was false and misleading because the preparation "did not contain cod liver oil in any appreciable or measurable quantity, and did not possess the active principles of cod liver oil." The company first pleaded not guilty but later changed its plea to guilty. The penalty assessed by the court against this wealthy corporation for selling an alcoholic nostrum under the representation that it was a "sovereign remedy" for consumption was $5.—[*Notice of Judgment No. 4033.*]

A. D. S. PEROXIDE TALCUM ANTISEPTIC AND DEODORANT

"A. D. S. Peroxide Talcum Antiseptic and Deodorant," another preparation of the American Druggists' Syndicate, was sold under such claims as:

> "This powder contains a peroxid."
>
> "The wonderful antiseptic and germicide."

A sample of the product was examined by the Bureau of Chemistry which reported that the preparation "contained no antiseptic properties" and that analysis "failed to reveal the presence of either peroxids or antiseptics." In view of these findings the federal officials charged that the stuff was misbranded because of the false and misleading claims made therefor. The company withdrew its first plea of not guilty and entered a plea of guilty and the court imposed a fine of $25.—[*Notice of Judgment No. 4056.*]

DR. KING'S ROYAL GERMETUER

"Dr. King's Royal Germetuer" was put on the market by the Ellis-Lillybeck Drug Company, Memphis, Tenn., under such claims as:

> "Germetuer is, as its name indicates, a germ destroyer. . . . It destroys all disease germs with which it comes in contact. . . ."
>
> "Typhoid fungus, small pox fungus and cholera fungus have been discovered. . . . Germetuer kills these microbes and restores the patient to health."
>
> "It will also permanently cure indigestion. . . ."
>
> "It purifies the blood. . . ."
>
> "For Female Diseases it is all that can be desired—pleasant, safe and unfailing."
>
> "It cannot be surpassed as a cure for diseases of the Kidneys and Bladder. It is a great conqueror of Malaria. Cures promptly Swamp Fever, Chagres Fever, Jaundice and all Malarial Troubles."

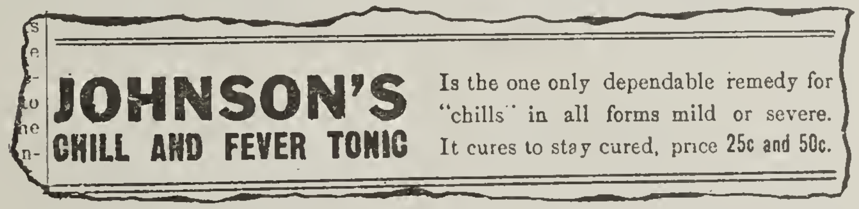
Dr. King's Royal Germetuer was analyzed by the federal chemists who reported that it consisted essentially of 98 per cent. water and 2 per cent. sulphuric acid, the mixture being saturated with hydrogen sulphid. It is not surprising that the federal officials charged that this malodorous mixture was misbranded and that the claims quoted above and other similar ones were "false and fraudulent" and had been made by the Ellis-Lillybeck Drug Company "knowingly and in reckless and wanton disregard of their truth or falsity." The company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 4113.*]

JOHNSON'S CHILL AND FEVER TONIC

"Johnson's Chill and Fever Tonic" was put on the market by a company of that name in Savannah, Ga. Some of the claims made for it were:

> "A Guaranteed Remedy for the following diseases: . . . Dengue Fever, . . . Typhoid Fever, . . . Measles, . . . La Grippe."
>
> "We Believe this is The World's Greatest Fever Medicine."

The claim was also made, by implication, that the nostrum was a "cure" for typhoid fever. When analyzed by the federal chemists it was reported to be a watery solution of Epsom salts and cinchonin hydrochlorid. The therapeutic claims were declared false and fraudulent and applied to the article knowingly and in wanton and reckless disregard of their truth or falsity. The company entered a plea of *nolo contendere* and was fined $25 and costs.—[*Notice of Judgment No. 4150.*]



JOHNSON'S
CHILL AND FEVER TONIC
Is the one only dependable remedy for "chills" in all forms mild or severe. It cures to stay cured, price 25c and 50c.

WHAT AILED HIM?

A druggist, who prefers that his name and address be withheld, writes that he was called on to fill the following prescription:

℞ Hydrarg. chlor. mite	gr. j.
Pottassi iodidi	ʒ iv.
Pottassi bromidi	ʒ iij.
Pottassi cit	ʒ v.
Tr. aconit.	ʒ ii.
Vini ipecac	ʒ j.
Aqua chloroform	q. s. ad ℥ iij.

M. et sig: Teaspoonful in water three times a day after meals, and, if necessary, at bedtime.

The druggist writes further: "We should be glad to have you guess what was wrong with the patient. We should not like to go down as criticising our physicians, but would like for you to have a shot at them. I have now had about twelve years' experience behind the counter and am just getting to where I am afraid to turn them loose. There are times when I feel that the patient is not only wasting his money but ruining his stomach also. But what can the poor country druggist do? He is dependent on the physician for his prescription work. I sometimes fear that we don't have the backbone that we should have."

We hesitate to risk our reputation as a guesser by accepting our druggist friend's dare. But not to block the game, we will go this far: If anything new was wrong with the patient after he took the medicine we should diagnose the case as one of Misplaced Confidence. Whether this was the physician's misplaced confidence in drugs, or the patient's misplaced confidence in the physician is a question which we may safely leave for others to settle according to their own liking.

Correspondence

"The Important Factor in Dealing with Tuberculosis" — A Protest

To the Editor:—I wish to commend the article with this title by Dr. George Thomas Palmer (The Journal, Oct. 28, 1916, p. 1321), and also to protest against the crime, as I choose to designate it, of certain members of the medical profession in sending tuberculous patients into this western country with such instructions as these:

"Avoid sanatoriums, as contact with other tuberculous persons is depressing and furthermore dangerous because you may get a further infection from other patients.

"Do not go around a doctor's office, as there is not a specific cure for tuberculosis and you will only be wasting your money.

"Report to me occasionally, and I can advise you from here.

"Get out into the open and 'rough it' on a horse, in a wagon, in camp, or get you a job on a stock ranch herding cattle on a bronk, etc."

I know some will smile and think this is a joke, but too many victims of the "white plague" with whom I have come in contact while "chasing the cure" myself have corroborated what I have written. With the well known fact staring us in the face that rest is the most essential thing in the treatment of tuberculosis, why do they do it?

When the tuberculous person gets off the train in the West he has some part of the following equipment, according to his taste in the sports: a shotgun; an express rifle for big game; bag of golf sticks; tennis racket and shoes; fishing outfit; khaki clothing, etc., to match; riding habits, etc. This is not an exaggeration, as I have seen such outfits many times, often after the owner had crossed over the "great divide."

They try out this equipment and find it does not lead to a restoration of health except in a few instances. They then go to the cities; rent a room down town; go out to restaurants for meals when they feel like it; hang around saloons and drink beer and whisky to "build them up," and loaf around the parks, pool rooms, tobacco stands, etc., until, in about 75 per cent. of cases, they fall by the wayside unable to go further. A physician is called to make the last moments comfortable, and a minister to administer the last rites, followed by the undertaker, who gently breaks the news to the folks back home by wire.

Since the physician advised the patient to report progress to him, to be consistent the body should be shipped back to the physician for further advice. It must be admitted, however, that the treatment prescribed by some western physicians outside of the sanatoriums is in no wise an improvement on the advice given by his eastern colleague.

J. A. Van Horn, M.D., Roswell, N. M.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPLENECTOMY

To the Editor:—1. Has it not been conclusively proved that the spleen is not essential to life? 2. What is the average duration of life after the spleen is removed? What is the longest period man has survived after splenectomy? 3. Granting that the spleen is diseased, other remedial measures failing, is not splenectomy a justifiable and approved measure?

J. L. Dach, M.D., Reeder, N. D.

Answer.—1. The spleen is not essential to the life of a person in the sense that it can be removed and that person continue to live in apparent health. It should not be inferred, however, that the spleen has no useful function in the body, but simply that this function may largely be taken up by other organs after the spleen is removed.

2. Persons have lived for many years after the spleen has been removed. Should no other disease be present, a person whose spleen has been removed would probably live out his ordinary expectancy.

3. Splenectomy is a justifiable operation in many diseases in which it is thought that the spleen is concerned in the disease process. In some of these conditions, splenectomy seems to have been beneficial; in others, it has not yet been proved that splenectomy is followed by any permanent favorable result. It is probable that in these cases the spleen is not the site of the primary cause of the disease.

SINUSOIDAL ELECTRIC APPARATUS

To the Editor:—Can you give me any information regarding the Ultima No. 3 sinuistat, manufactured by the Ultima Physical Appliance Company of 136 West Lake Street, Chicago? Does it give a true sinusoidal current? Has sinusoidal therapy any real merit? If so, in what conditions is its use beneficial?

Joseph E. Golding, M.D., Roslyn Heights, N. Y.

To the Editor:—What is the present status of the sinusoidal current as applied in treatment? Is there sufficient evidence that it is worth while in the treatment of diseases of nervous origin, or in spinal therapy? The Ultima Appliance Company, Chicago, advertises a course in spinal therapy, after which a sinuistat made by them is to be used to apply the treatment. I enclose some of their literature. Is this a sound venture?

W. F. B.

Answer.—The Ultima No. 3 sinuistat is manufactured in Chicago by the McIntosh Battery & Optical Company. It is a neat, portable apparatus, operating on the alternating or direct current. It gives a true sinusoidal current slow and rapid, and also other modalities. The sinusoidal current bears a strong similarity to the ordinary faradic, but is less painful because of its greater evenness. According to textbooks on electrodiagnosis and electrotherapeutics, d'Arsonval recommended the sinusoidal currents especially for paralysis, atrophies, atonies, neuralgias, rheumatic affections, and in gynecologic diseases for resorption of the products of inflammation. It is difficult to see how the results to be obtained by the sinusoidal current could be expected to differ in any way from those obtained by the faradic, which is itself extremely limited in its therapeutic action.

AVERAGE LENGTH OF HUMAN LIFE

To the Editor:—I wish to learn what is given at the present time as the average length of life of man. Can you give me this either published in The Journal or by letter? If published, omit name.

C. M. W.

Answer.—As a result of a study of the vital statistics of Massachusetts for the period from 1893 to 1897, it was found that the average duration of life was: for males, 44.1, and for females, 46.6. On account of the absence of complete vital statistics records in the United States covering a considerable period, figures for the average duration of life based on the entire population of the country cannot be provided. Figures from European countries, in which records of vital statistics are more complete, show the following as the average duration of life for the periods named: Sweden, 1891-1900, males, 50.9, females, 53.6; Denmark, 1895-1900, males, 50.2, females, 53.2; France, 1898-1903, males, 45.7, females, 49.1; England and Wales, 1891-1900, males, 44.1, females, 47.7; Italy, 1899-1902, males, 42.8, females, 43.1; Prussia, 1891-1900, males, 41.0, females, 44.5. Figures for India, 1901, give the average duration of life for males as 23.0 and for females, 24.0.

MERCURIAL OINTMENT AND IODIN

To the Editor:—A patient appeared at my office, October 5, suffering from a contusion of the great toe on his right foot, which subsequently resulted in loss of the nail. It seems that the wound had been treated with a mercurial ointment from September 28 to October 4 by a physician in a neighboring town. On removing the dressing, I found that the wound had healed, except an area about one-half the size of an ordinary pea, which I painted very lightly with tincture of iodin. I should like to know if any untoward action could have developed as the result of such treatment.

J. A. Palmer, Jr., M.D., Cumberland, Md.

Answer.—Applying tincture of iodin soon after the use of mercurial ointment on the same locality would be likely to cause a chemical reaction, dependent on the relative amount of mercury and iodin. If there was more mercury than iodin, mercurous iodid (HgI) would most probably result; if the iodin was in excess, mercuric iodid (HgI_2) would be formed. It would therefore be expected that an action of such salts in the tissues would take place. A case report on "Irritation rom Iodin and Mercury on the Skin" appeared in THE JOURNAL, Dec. 21, 1912, p. 2254. The incompatibility of mercury and iodids was discussed in Queries and Minor Notes, Nov. 2, 1912, p. 1640, and July 24, 1915, p. 354. Affections of he skin may manifest themselves after the external use of mercury. Cushny states that "skin rashes are more frequent rom inunction than from any other method of application."

JOURNALS ON PEDIATRICS

To the Editor:—Please publish a list of American and foreign journals devoted to children's diseases. M. B. GORDON, M.D., Brooklyn.

ANSWER.—

American Journal of Diseases of Children, American Medical Association, 535 N. Dearborn Street, Chicago, monthly, $3.
Archives of Pediatrics, E. B. Treat & Co., 241 West Twenty-Third Street, New York, $3.
British Journal of Children's Diseases, Adlard & Son, Bartholomew Close, London, E. C., monthly, £1.
Annales de médecine et chirurgie infantiles, 71 Avenue d'Antin, Paris, semimonthly, 12 francs.
Archives de médecine des enfants, Masson & Cie, Paris, monthly, 18 francs.
Pediatria Española, Aurelio M. Argnellada, Atocha 75 y 77, Madrid, monthly, 9 pesetas.
Pediatria, Nikolaevsky 31, Petrograd, Russia, monthly, 6 rubles.
La Pediatria, S. Andrea, delle Dame 21, Naples, monthly, 12.50 lire.
Archiv für Kinderheilkunde, F. Enke, Stuttgart, irregular, 15 marks per volume.
Jahrbuch für Kinderheilkunde, S. Karger, Karlstrasse 15, Berlin, monthly, 36 marks.
Monatsschrift für Kinderheilkunde, Franz Deuticke, Leipzig, monthly, 20 marks.
Zeitschrift für Kinderheilkunde, Julius Springer, Berlin, irregular, 18 marks.

SPECIAL DIET IN PREGNANCY

To the Editor:—There is a diet used during pregnancy to keep the size of the child reduced so that labor will not be so difficult. Not remembering the man's name who proposed the diet, I cannot find it in the index. Can you help me out by referring to the page where I can find it in THE JOURNAL, provided you have taken it up?

G. B. WARD, M.D., Gilman, Iowa.

ANSWER.—Prochownik, whose observations were confirmed by Noel Paton and Reed, recommended that in cases in which the pelvis is slightly contracted, or in which the mother has previously been delivered of abnormally large children, a special diet should be followed. He recommends that in the last few months of pregnancy the carbohydrates and fluids should be reduced to a minimum and that the expectant mother should leave the table without satisfying her appetite completely. It is stated that this procedure has rendered labor in some cases distinctly easier. The general question is discussed and references are cited in "Some Factors Affecting Fetal Development," Current Comment, THE JOURNAL, Sept. 5, 1914, p. 873.

PSEUDOLEUKEMIC ANEMIA

To the Editor:—I would appreciate the publication in your column of any information as to the literature on the pseudoleukemic anemia of von Jaksch, especially as to the frequency of the condition, the number of cases reported and the etiology. Is the condition a clinical entity?

ROBERT KILDUFFE, M.D., Chester, Pa.

ANSWER.—This condition is rather uncommon. There is not available a record of the number of cases reported. The exact cause of the disease is still unknown, and its essential nature is a matter of some doubt. In fact, the existence of pseudoleukemic anemia as a distinct disease is denied by most authorities on diseases of the blood, who regard it simply as a symptomatic complex.

BRAINS AS A DEPILATORY

To the Editor:—In regard to the question asked by Hunter in THE JOURNAL, Oct. 14, 1916, p. 1175, I should like to add my testimony that I know what he states to be a fact. I gather from what you say that you doubt that brains are a depilatory. If you doubt it, just try it once, and I am sure you will be convinced. When I was a boy back in old Virginia, I would go out in the morning, kill a few squirrels, come home, and in three or four hours I would have as nice white leather out of those hides as one would wish to see, and I had no thermometer either. My brother-in-law gave me these directions: Smear the brains of the animal on the raw side, rubbing in well. Then hold the hide before the fire with the raw side next the fire. Hold with the hands in order not to get it too hot. In ten or fifteen minutes the hair comes out easily. Then pull and rub until the hide is dry, which if I have not forgotten, will be about an hour. Of course, I asked my brother-in-law to explain it to me, but he declined. I hoped you would do so, as my interest was reawakened in the matter.

J. E. HUBBLE, M.D., Lordsburg, Calif.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka;
KENTUCKY: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.
LOUISIANA: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.
MARYLAND: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
MISSOURI: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.
NEW HAMPSHIRE: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.
OHIO: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.
VIRGINIA: Richmond, Dec. 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Delaware June Report

Dr. Henry W. Briggs, chairman of the Medical Council of Delaware, reports the written examination held at Dover and Wilmington, June 20-22, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, of whom 7 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Louisville	(1915)	88.4
New York Homeo. Med. Coll. and Flower Hosp	(1915)	86.7
Hahnemann Med. Coll. and Hosp., Phila	(1914)	87
Medico-Chirurgical College of Phila	(1915) 82.4; (1916)	84.3
University of Pennsylvania	(1915) 83; (1916)	86
FAILED		
New York Homeo. Med. Coll. and Flower Hosp	(1915)	71.8

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
College of Phys. and Surgs., Baltimore	(1905)	Maryland
University of Maryland	(1914)	Maryland
Jefferson Medical College	(1906)	Penna.

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, June 1-3, 1916. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 56, of whom 54 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1915)	83.6
Rush Medical College	(1915) 81.9; (1916)	88.5
University of Illinois	(1915)	82
Johns Hopkins University	(1916)	86.8
Detroit College of Med. and Surg.	(1916)	77.3, 75.4, 79.2, 79.3, 79.5, 79.7, 80.2, 80.6, 80.8, 81.1, 81.3, 81.5, 81.8, 81.8, 82.1, 82.1, 82.3, 82.4, 82.7, 83, 83, 83.1, 83.3, 83.3, 83.3, 83.7, 83.8, 83.9, 84.8, 85, 85.3, 85.4, 85.8, 85.9, 86, 86.2, 86.3, 86.6, 86.6, 86.7, 86.7, 87.1, 87.1, 87.5, 88.5.
University of Michigan Med. School	(1916)	87.9
Medical College of Virginia	(1915)	78.3
University of Toronto	(1914)	85.5
Western University, London, Ont	(1914)	82.3
FAILED		
Detroit College of Med. and Surg	(1916)	75.6*, 81.7*

LICENSED THROUGH RECIPROCITY

Twenty-three candidates were licensed through reciprocity from March 11 to Aug. 12, 1916. The following colleges were represented:

College	Year Grad.	Reciprocity with
Howard University	(1906)	Maryland
Bennett Medical College	(1913)	Illinois
Chicago College of Med. and Surg.	(1913) (1914)	Illinois
Chicago Homeopathic Medical College	(1892)	Indiana
Coll. of Phys. and Surgs., Chicago	(1908)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1915)	Illinois
Medical College of Indiana	(1881)	Tennessee
Baltimore Medical College	(1911)	Delaware
Maryland Medical College	(1911)	W. Virginia
Johns Hopkins University	(1908)	Maryland
Missouri Medical College	(1898)	Oklahoma
John A. Creighton Medical College	(1916)	Nebraska
New York Homeo. Med. Coll. and Flower Hosp	(1908)	Nevada
Ohio State Univ., Coll. of Med	(1915)	Ohio

University of Cincinnati	(1912)	Ohio
Jefferson Medical College	(1896)	Iowa
Medico-Chirurgical College of Phila	(1913)	Penna.
University of Pennsylvania	(1895)	Tennessee
Woman's Medical College of Pa	(1908)	Maryland
Marquette University	(1915)	Wisconsin
University of Vermont	(1911)	Vermont
National University of Athens	(1897)	Wisconsin

New Jersey June Report

Dr. Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 20-21, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 69; of whom 63 passed, including 3 osteopaths, and 6 failed. Fifty-seven candidates were licensed through indorsement. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Georgetown University	(1915)	79.1
Howard University (1914) 75.4; (1915) 76.8, 82.3;	(1916)	78.3
College of Phys. and Surgs., Baltimore	(1914)	79.7
Johns Hopkins University (1911) 85.8; (1912) 81;	(1916)	83, 85.1
University of Maryland	(1915)	81.5
Albany Medical College	(1914)	76.4, 79.7, 84.6
Columbia Univ., Coll. of Phys. and Surgs. (1915) 83.5;	(1916)	80.7, 83.6, 86.6.
Fordham University	(1915)	83.5, 85.2
Long Island College Hospital	(1912)	83.3
New York Homeo. Med. Coll. and Flower Hosp. (1914) 82.5;	(1916)	75, 77.4, 80.8, 84.3, 87.6.
Univ. and Bellevue Hosp. Medical College (1915) 82.8;	(1916)	80, 80.1, 80.6.
Hahnemann Med. Coll. and Hosp. of Phila	(1916)	76.8, 77.8
Jefferson Medical College (1914) 77.3; (1915) 80, 82.5, 84.2;	(1916)	77, 77.5, 80, 81.6, 83, 88.7.
Medico-Chirurgical Coll. of Phila. (1914) 82.2; (1915) 83.6, 85.2;	(1916)	75.6, 77.3, 77.5, 80.6, 81.2, 82.3.
University of Pennsylvania	(1916)	81.6, 83.2
University of Pittsburgh	(1913)	80.2
Woman's Medical College of Pa	(1916)	75.1, 82.3
University of Vermont	(1915)	76.6
Medical College of Virginia	(1914)	83.4
University of Zurich	(1884)	80.2

FAILED		
Howard University	(1907)	71.2
Kentucky School of Medicine	(1906)	67.6
New York Homeo. Med. Coll. and Flower Hosp	(1915)	72.8
University of Naples (1894) 71.5;	(1895)	64.4
University of St. Joseph, Beirut	(1894)	70

LICENSED THROUGH INDORSEMENT FROM JAN. 1 TO JULY 8, 1916

College	Year Grad.	Total No. Licensed Through Indorsement
University of California	(1896)	New York
Georgetown University	(1911)	Dist. Colum.
George Washington University	(1912)	N. Carolina
Howard University (1913) New Hampshire;	(1914)	Dist. Colum.
Baltimore University	(1901)	New York
Johns Hopkins University. (1903) Maryland; (1911)	(1915)	New York
University of Maryland	(1914)	New York
Tufts College Medical School	(1909)	New Hamp.
University of Michigan Medical School	(1896)	New York
Marion Sims College of Medicine	(1896)	Maine
Dartmouth Medical School	(1914)	New Hamp.
Columbia Univ. Coll. of Phys. and Surgs. (1898) (1901) (1912)	(1913)	New York.
Cornell University (1905)	(1913)	New York
Fordham University (1913) Maine;	(1913)	Penna.
Long Island Coll. Hosp. (1900) (1903) (1908) (1914)	(1915)	New York
New York Homeo. Med. Coll. and Flower Hosp.	(1914, 2)	New York
New York Med. Coll. and Hosp. for Women	(1915)	New York
Syracuse University	(1903)	New York
University of Buffalo	(1913)	New York
University and Bellevue Hosp. Med. Coll. (1904) (1912, 2) (1914)	(1915, 2)	New York.
Medical College of Ohio	(1895)	Penna.
Hahnemann Medical Coll. and Hosp., Philadelphia	(1916)	Maine
Jefferson Medical College (1913) Pennsylvania; (1914) New York;	(1915)	Dist. Colum.
Medico-Chirurgical Coll. of Phila. (1901) (1902) Pennsylvania; (1906) New York;	(1914)	Pennsylvania.
University of Pennsylvania (1893) Massachusetts; (1900) (1901) (1902) Pennsylvania;	(1908)	Texas.
Vanderbilt University	(1914)	Tennessee
University of Vermont	(1905)	Mass.
University Coll. of Med., Richmond (1907)	(1913)	Virginia
University of Naples	(1892)	New York

Ohio June Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the practical and written examination held at Columbus, June 6-9, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 162, of whom 159 passed and 3 failed. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Yale University	(1912)	82.4
Rush Medical College	(1873)	75
Eclectic Medical College, Cincinnati (1901) 75;	(1916)	76.3, 80.7, 80.8, 81.1, 81.5, 82.4, 82.7, 82.9, 83.3, 83.7, 85.2, 85.5, 87.9, 88.2, 88.4, 88.7
Ohio State University, College of Medicine	(1916)	78.5, 79.2, 79.8, 80.2, 80.4, 80.5, 81.8, 82.2, 82.2, 82.5, 82.6, 82.7, 82.7, 82.8, 82.8, 82,9, 83.1, 83.2, 83.5, 83.5, 83.8, 83.9, 84.4, 84.4, 84.5, 84.6, 85, 85.1, 85.1, 85.3, 85.3, 85.5, 85.7, 85.7, 85.8, 86, 86, 86.1, 86.1, 86.2, 86.3, 86.3, 86.4, 86.4, 86.5, 86.5, 86.5, 86.6, 86.7, 86.8, 87.4, 87.5, 87.5, 87.6, 88.1, 88.3, 88.7, 89, 89.2, 89.6, 89.6
Ohio State University, Coll. of Homeo-Med.	(1916)	75, 79.1, 79.5, 80.2, 80.3, 82.9, 84.6
University of Cincinnati	(1916)	76.2, 77.5, 78, 79.5, 81.2, 81.2, 82.7, 82.9, 83.1, 83.8, 83.8, 84, 84.6, 84.7, 85.4, 86, 86.4, 86.7, 87.2, 87.5, 87.9
Western Reserve University	(1916)	76.6, 78.1, 78.2, 80.6, 80.9, 81.1, 81.2, 82.4, 82.9, 83.1, 83.1, 83.1, 83.4, 83.5, 83.7, 83.9, 83.9, 84.1, 84.5, 84.6, 84.6, 84.7, 84.9, 85.1, 85.1, 85.3, 85.4, 85.4, 85.5, 85.5, 85.6, 85.8, 85.8, 86.3, 86.5, 86.7, 86.9, 87, 87.1, 87.2, 87.3, 87.8, 89, 90.2, 90.4, 90.9, 91.1
Jefferson Medical College	(1916)	84.2
University of Pennsylvania	(1913)	83
University of Pittsburgh	(1915)	84.6
Woman's Medical College of Pennsylvania	(1915)	84

FAILED		
Eclectic Medical College, Cincinnati	(1916)	72.7, 73.2
Marquette University	(1912)	72.9

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeopathic Medical College	(1894)	W. Virginia
Bowdoin Medical School	(1897)	Maine
Baltimore Medical College	(1898)	Vermont
College of Physicians and Surgeons, Baltimore	(1907)	Maryland
University of Maryland	(1915)	Maryland
University of Michigan Medical School	(1915)	Michigan
University of Michigan Homeo. Medical School	(1915)	Michigan
Columbia University, College of Phys. and Surgs.	(1914)	New York
Eclectic Med. Coll., Cincinnati (1904) Pennsylvania;	(1904)	Illinois
Medical College of Ohio	(1899)	New Jersey
Western Reserve University	(1914)	Illinois
Jefferson Medical College	(1913)	Kentucky
Woman's Medical College of Pennsylvania	(1913)	Maryland

Book Notices

Operative Midwifery. A Guide to the Difficulties and Complications of Midwifery Practice. By J. M. Kerr, M.D., C.M., Professor of Obstetrics and Gynecology, Glasgow University. Third Edition. Cloth. Price, $6 net. Pp. 725, with 308 illustrations. New York: William Wood & Co., 1916.

The title of this work does not indicate its comprehensiveness; it is more than an operative midwifery, for it includes much that belongs to a general treatise on the subject. For example, thirty pages are devoted to the pathology and symptomatology of ectopic gestation.

The author's style is good. A liberal spirit is shown in references to the literature, a large number including the German. The illustrations, though not especially artistic, are instructive. The author's opinions reflect a large experience, and, in the main, are sound. Tinged as they are with British conservatism, they might well be adopted in America, where one must deplore the tendency to wander too far from the time tried, time proved and time honored procedures.

Abdominal examination, considered a new method, is endorsed; but the rectal, though considered valuable, is not given the prominence it deserves. Internal pelvimetry is regarded as of little value—an error. Cephalic version in breech presentation, an operation seldom done here, is practiced by the author frequently. Retroflexion of the gravid uterus is given much space, though it is one of the rarest of obstetric complications nowadays. The advice to give potassium chlorate, 5 grains three times a day, in threatened abortion and to prevent death of the fetus is one of the few anachronisms found in the book.

Craniotomy on the living child, though rarely necessary, is still held justifiable. The induction of labor is limited to pelves of from 8.1 to 8.7 cm., and Krause's method is preferred, the bougies being left in the uterus indefinitely. The author is not fond of the operation, however.

He uses the high longitudinal incision for cesarean section, and believes that the newer methods will soon pass into oblivion. This subject is treated scantily because he has had no experience with the newer operations.

The indications for the forceps operations are the standard nes. In accordance with British (and no other) practice, ne low forceps operation is performed with the patient n the Sims position, the axis traction instrument being sed. The author reiterates the statement that the tracion rods cause no inconvenience, and that the operation s easily performed thus; but neither the illustrations or the arguments (nor actual trial) are convincing. The method is clumsy and bunglesome. The treatment of cciput posterior positions does not sufficiently emphasize the ossibilities of manual correction of such abnormalities. Rupure of the uterus is well handled, and sound advice regardng its management is given. Postpartum hemorrhage is not xhaustively treated. Evidently the author has not yet met a rue hemophilic postpartum hemorrhage. He says gauze will absolutely" control the flow.

In general, the book may be recommended as a safe, sane, nd on the whole satisfactory adviser in obstetric complicaions. Primitive conditions for work are still tolerated (as in Chapter 21), and one cannot escape the conviction that, in Britain, obstetrics is not accorded a place on a level with urgery.

Surgery in War. By Alfred J. Hull, F.R.C.S., Major, Royal Army Medical Corps, with a Preface by Sir Alfred Keogh, K.C.B., M.D., Director-General Army Medical Service. Cloth. Price, $4. Pp. 390, ith 81 illustrations. Philadelphia: P. Blakiston's Son & Co., 1916.

This is a well assembled series of monographs by officers f the Royal Army Medical Corps and others, dealing with he bacteriology of wounds in war; the general condition of he wounded; wounds of the abdomen; treatment of wounds y saline solution; gunshot wounds of the chest, and injuries o the peripheral nerves. These essays are unified by Major Hull so as to give the civilian practitioner a clear idea of he treatment which has proved efficacious in the British ervice during the present war. Much of this information is ew and suggestive. The preface is written by Sir Alfred Keogh, director-general of the Army Medical Service, and he introduction by Lieut.-Col. E. M. Pilcher, R. A. M. C. The book is compact and well illustrated.

The Castle of Cheer. By Charles Henry Lerrigo. Cloth. Price, 1.25 net. Pp. 304, with illustrations. New York: Fleming H. Revell Company, 1916.

The author of "Doc Williams" takes up again his pleasing haracter and builds around him an interesting story. The ew book is dedicated to Dr. Edward L. Trudeau. The cenes of the story are laid in the Middle West, but the chief ote of the work is the method of Saranac Lake. As he tells he story, the author recites many health aphorisms and proverbs. Incidentally he pays his respects to the quack doctor, and particularly to a device which he calls the oxyjuvenator" which will be easily recognized by those who ave followed the career of the "oxydonor" and similar devices.

The Institutional Care of the Insane in the United States and Canada. By Henry M. Hurd, William F. Drewry, Richard Dewey, Charles W. Pilgrim, G. Alder Blumer and T. J. W. Burgess. Edited y Henry M. Hurd, M.D., LL.D., Emeritus Professor of Psychiatry, he Johns Hopkins University. Volume 2. Cloth. Price, $2.50. Pp. 95, with illustrations. Baltimore: The Johns Hopkins Press, 1916.

The second volume of this excellent series is devoted to a discussion of institutions for the insane in states from A to M. The histories of the various institutions are written in imple, direct style. Lists of trustees and superintendents re given, as well as the names of the various members of he staff during the life of each institution. There are numerous illustrations.

Care and Feeding of Infants and Children. A Text-Book for Trained Nurses. By Walter Reeve Ramsey, M.D., Associate Professor f Diseases of Children, University of Minnesota, with Suggestions n Nursing by Margaret B. Lettice, Supervising Nurse of the Baby Welfare Association, and Nann Gossman, Nurse in Charge of Children's Department, University Hospital, Minneapolis. Cloth. Price, $2. Pp. 90, with 112 illustrations. Philadelphia: J. B. Lippincott Company, 916.

This book has been prepared chiefly as a textbook for nurses. The advice is simply stated, and in general is in ccord with modern ideas. The illustrations are excellent. ust what value there is to the illustrations of cows and tables, of which there are about half a dozen, is not clear.

Social Medicine, Medical Economics and Miscellany

THE PRIVATE HOSPITAL: SOME DISADVANTAGES TO THE PHYSICIAN

HENRY GLOVER LANGWORTHY, M.D.
Dubuque, Iowa

As the idea of a private hospital is probably the average physician's dream or "air castle" from the time of near graduation until many early ambitions have been shown to be more or less impracticable, it is the purpose of this paper to set forth some of the arguments, mostly against, physicians fostering such propositions. The deductions at least are gathered from actual experience encountered in carrying out the small hospital idea for a sufficient length of time to have become acquainted with it. From the standpoint of general interest, therefore, it would seem that the results of a determined effort to carry out a venture of this kind under a good deal of stress and strain would seem worth recording. When any man, either business or professional, seeks to go a bit outside the strict boundaries of his training, a good many unlooked for troubles of one kind or another are sure to be encountered, and on the proper solution of some of these rests the ultimate success or failure of the venture. Since it may be said with a good deal of truth that few physicians contemplating the thought of a private hospital will be liable to face conditions that have not been met before, a frank discussion as to why they are started, how they have actually worked out in the great majority of instances, and whether or not the proposition was found in the end really worth the time, labor and money given up to it will be of more than passing interest.

WHY PRIVATE HOSPITALS ARE STARTED

It is a little difficult, of course, to analyze the exact train of thought in every case which leads a physician to branch out into the running of a private hospital. In many instances, no doubt the doctor himself is perhaps a bit hazy as to his underlying motives. Undoubtedly, however, the thought of a well ordered private hospital, from which a more generous income may be derived than seems possible with the average private practice and which furnishes greater opportunity for direct advertisement to the people, are the main reasons. In addition there is, of course, the thought of conspicuous personal achievement as another goal for which he may be seeking. Back of all this, too, and quite clearly exemplified I think in communities which have no hospitals, there lies the unconscious thought of service to humanity, a far stronger motive than most of us would think. Indeed, it would seem only a just tribute to state that the idea of "blazing a trail" for future civilization lies very strong in most of us, and in the main we make no mistake in giving these men who start things the full measure of credit for the city-building plan in which they strive to create rather than to tear down. That this is true, full many a public institution reared on the slender frame of some private enterprise long years past will testify.

NECESSARY VITAL PURPOSE WARRANTING STARTING OF A PRIVATE HOSPITAL

The necessary, and I may say the fundamental purpose in instituting a private hospital by a physician should be that of better service to the people. This means the giving of certain advantages in either special or general lines of cases which the particular community either cannot or else does not give in a satisfactory manner. When there are no hospitals in a small community, it is obvious that the physician is a public benefactor if he starts a hospital of some description. In larger towns in which there is already a public hospital in existence, the question becomes much more complex. It is in the smaller city in which a public hospital has already been started, but which needs time for development, may be sadly in need of money and reorganization and where there is an opportunity for real criticism, perhaps, that the physician who thinks of starting a private hospital should stop and seriously consider whether it is not far better for him to throw all his good will and hearty support to the hospital already existing and strive to perfect the institution which is public property and will be perpetuated long after he may be dead and forgotten, rather than to enter into competition against it. Whatever may be a physician's action in this respect however, I repeat that the idea of service alone should be the building rock and not merely some commercial advantage. Certain it is that unless this is the groundwork, the private hospital is very apt to contain within itself some latent germ for its own destruction.

SOME DISADVANTAGES TO THE PHYSICIAN

Some of the disadvantages, while not so apparent on the surface to outsiders, are very real and formidable. The most important ones may be roughly grouped as follows:

1. Cost of equipment (figuring on the average twelve bed hospital), requiring time and credit to pay for it, with monetary loss if the hospital fails to run a reasonable length of time.

2. Reason for some kind of advertisement, which always offends local competing physicians and gives rise to bad will, etc. Local competition in smaller places is so keen, there being scarcely enough business to go around, that the seeming advantages of the men pushing their private hospital, and its success in gaining business, results often in the most lasting and unforgiving jealousy and bitterness.

3. The responsibility of bearing a heavy monthly expense roll by one or two, which is always felt and keeps the proprietors under high tension. One or two men seldom have the practice to keep successfully a twelve or sixteen bed hospital full all the year round which, coupled with the fact that not all patients pay their hospital bills, increases the wear and tear and general strain.

4. Inability to get a permanent, competent matron to run the hospital, which means for the physician frequent looking after girls who ought to be under a strict matron's control, delving into kitchen finances, looking into the expenses of the drug department, and indeed quite a multitude of both trivial and important matters, all taking that time and thought which should be given solely to the physician's practice.

5. Difficulty in keeping an associate or associates in proper line with one object in view, namely, success. Only too often physicians break down under the strain in one way or another.

6. Detraction from the value of local public hospitals, which so often need to be built up through the cooperation of the very men who enter their particular field as competitors against them.

ADVANTAGES

In the main, the advantages fall naturally into two headings, so far as real importance is concerned:

1. Legitimate opportunity for direct advertisement and appeal to the public for patronage.

2. The advantage of absolutely controlling one's patients within the private hospital.

Other apparent advantages, such as the making of one fee covering professional services, operation, medicines and hospital charges, hospital proximity to the doctor's residence, and team work by a few physicians constantly thrown together and helping each other, are more apparent than real, and so easily overcome by proper use of the public hospital that it might well be considered something of fallacy to class these as possessing any distinct and special advantage.

CONCLUSIONS

1. In small communities in which there are no hospitals, a private hospital is desirable and should be successful. Even here, however, attention should be called to the fact that with ever-changing conditions and increasing requirements, sufficient amounts of money properly to equip and maintain a private hospital are usually lacking by the single individual, and unless a few men can get together and cooperate, any physician alone takes up quite a burden if he attempts to compete along lines for which he is naturally not well trained, and to which it is impossible to give his entire attention.

2. In a town in which a public hospital has already been started, there is little excuse for the creation of a private hospital, as the average physician will make fully as much of a saving, and benefit the public as much and with less personal worry, if he cooperates with the public institution and uses it as a receptacle for his patients.

Medicolegal

Sufficient Information, Admissible Evidence, and Reasonable Requirements

(People vs. Ratledge (Calif.), 156 Pac. R. 455)

The Supreme Court of California, in affirming a judgment of conviction of the defendant, says that the information was attacked on the ground that it charged "the crime of practicing medicine without a certificate from the medical board," the contention being that no such crime is denounced by the law. It is true that the statute does not contain the quoted words, but clearly they were used merely for purposes of general description of the offense as they were followed by the averment that the crime was "committed as follows: That the said T. F. Ratledge on the 30th day of October, 1914, at, and in the county of Los Angeles, state of California, did wilfully and unlawfully practice, attempt to practice and advertise and hold himself out as practicing a system and mode of treating the sick and afflicted in the state of California, without then and there having a valid, unrevoked certificate authorizing him to practice a system or mode of treating the sick and afflicted in this state from the board of medical examiners of the state of California." This sufficiently charged a violation of Section 17 of the medical practice act (Statutes of 1913, page 734), and was not open to the criticism that it sought to impute many offenses to the defendant because any one of the acts or omissions averred and conjunctively pleaded would suffice as the basis of an information.

The defendant complained of the trial court's refusal to strike out parts of certain answers of witnesses who stated that they had received "treatments" from him. It was regarded by him as an unwarranted conclusion of a witness that certain acts constituted a "treatment." The objection was without force. Doubtless the witnesses used the word in its well understood signification; that is, the application of some supposed curative agency to the person seeking relief. Again, a witness was permitted over the defendant's objection to detail the occurrences on the occasion of a visit by her to his office nearly six months before the time set forth in the information. The objection was on the usual grounds of incompetency, etc., and that the time was too remote. But the evidence was competent as tending to show the intent and motive of the defendant in the commission of the acts charged in the information, and it was not too remote. Courts are allowed a wide discretion with respect to the periods of time covered by such testimony.

The defendant offered to prove that the state board of medical examiners held no examination for chiropractors; but the proffered proof was properly rejected. The only question with which the court was concerned was whether or not the defendant was practicing without a license. The fairness or unfairness of the board of medical examiners was not a question before the court. If the defendant was unlawfully excluded from examination, that was something which he might have remedied by application to a court of equity, but it would be no defense to a charge of practicing without a license.

The argument was made that because the law includes such subjects as histology, elementary chemistry, toxicology, physiology, elementary bacteriology, and pathology in the examinations to be taken by applicants for certificates to practice as drugless healers, it is unfair, because these are standard courses of study in the preparation of physicians and surgeons, but are not needed in the art of those who intend to alleviate human suffering by manual and mechanical means only. The answer is that to the legislature is committed the duty of determining the amount and quality of scientific education necessary for the individual to possess before he may hold himself out to practice the healing art. Unless the legislative conclusion on that subject is obviously unfair this court may not interfere, for the scope of the police power is very extensive, and the discretion of the legislature in exercising such power is very broad. The court concludes that there is nothing unreasonable in the curriculum prescribed by the medical practice act for those wishing to secure licenses to practice the art of drugless healing.

Physician Selected by Employee Not Entitled to Compensation from Employer

(Keigher vs. General Electric Co. (N. Y.), 158 N. Y. Supp. 939)

The Supreme Court of New York, Appellant Division, Third Department, had here a controversy submitted on an agreed statement of facts. It says that one Pisarzky was an employee of the defendant, and while in its service, Jan. 19, 1915, sustained an injury for which he was entitled to compensation under the workmen's compensation law. The defendant provided a concededly competent physician and surgeon to care for him until January 23, when he absolutely refused to accept such services, and requested the defendant to provide for him the services of the plaintiff, a physician and surgeon, which the defendant declined to do. The plaintiff thereafter rendered medical services to Pisarzky, and presented a bill therefor to the defendant, amounting to $54, which the defendant refused to pay. The state industrial commission thereafter, without notice to the defendant, approved said bill at $40, and the question for the consideration of the court was whether the defendant was liable therefor to the plaintiff. The court holds that it was not. Section 13 of the New York workmen's compensation law says: "The employer shall promptly provide for an injured employee such medical, surgical or other attendance or treatment, nurse and hospital service, medicines, crutches and apparatus as may be required or be requested by the employee, during sixty days after the injury. If the employer shall fail to provide the same, the injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or services unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so. . . ." The proper construction of this statute is that, if services or supplies of the character indicated are needed, or reasonably and properly requested by the employee, the employer must provide the same, using his own judgment and exercising his own choice as to the person who shall render such services and as to the nature of the supplies, and "if the employer fail to provide the same the injured employee may do so at the expense of the employer." And in such case the charges are subject to regulation by the commission and may be recovered by the employer. The employer, of course, cannot make an unreasonable selection. There may be instances in which the employee would have the right to be consulted and a reasonable and proper deference paid to his wishes. Similar provisions are contained in the workmen's compensation laws of many of the states, but in none of them has any decision been brought to the attention of this court where it has been held that the employee could select the individual to render the services which the employer was requested to provide. The phraseology of the statutes in the various states differs, and consequently no precedent exists for the interpretation which should be placed on the statutes of this state, but the fact that it has nowhere been held that the employee can exercise this privilege is somewhat indicative of the general policy of the law on the subject. Two members of the court concur in the result on the ground that the employee by continuing to receive the treatment of the company's physician for three or four days assented to his employment and could not then repudiate it.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

MEDICAL ASSOCIATION OF THE SOUTHWEST

Eleventh Annual Meeting, held at Fort Smith, Ark., Oct. 3-4, 1916

The President, Dr. Joe Becton, Greenville, Texas, in the Chair

Blood Pressure

Dr. R. L. K. Kimmins, Temple, Texas: You will frequently find a systolic pressure of more than 200, and a diastolic of more than 125, in people who do not know they are sick, and, indeed, they may not be sick; yet these points are far beyond the line of safety, and you would not think of passing an applicant for life insurance with such a pressure, yet this very person may be a better risk than one with a much lower pressure. So long as the ratio between the two is good, so long as the heart load is not above 65 or below 35, the tension may be very high, without immediate danger. When the tension is much above normal, have the patient take a little violent exercise, and if the pressure rises rapidly 30 to 40 points, and regains its former level in three or four minutes, that person is in better condition than one with a normal pressure, who does not respond promptly to exercise and rest. Close application to business, and careless manner of living, lead up to the condition.

DISCUSSION

Dr. William Brumby, Waco, Texas: In aortic and myocardial regurgitation the systolic pressure is 120 or 130, with a diastolic of 50, giving 160 per cent., instead of 50, 120 or 200 per cent. heart load. In some instances on auscultation we can elicit sounds over all arteries without any cuff on the arm. In cases of nephritis in which there is good compensation, in cases of incipient Bright's disease, with very high pressure, insurance companies take the position that a systolic pressure of 145 or over is pathologic. Patients with a diastolic pressure of 105 are considered pathologic, giving 45 per cent. overload.

Dr. Ralph W. Holbrook, Kansas City, Mo.: In cases of toxemia, after several days the blood pressure is 118 or 150. At the end of a long hot summer, with the first two days of cold weather, we find a blood pressure of 118, sometimes 114, or even 96 in the female—94 to 96 systolic.

Dr. C. R. Woodson, St. Joseph, Mo.: I do not think it is necessary to attach as much importance to a high blood pressure as some people are disposed to think. The reason there is high blood pressure is that there is a necessity for it. The thing to do is to remove the cause. Vessel degeneration occurs at a much earlier period of life than has been stated. We may have a marked vessel degeneration as early as 45. We have it in certain families. We have it apparently as a result of kidney lesions; very often as a result of syphilis, especially in the beginning of an endarteritis and thickening of the intima of the vessel and a marked degeneration following. I have seen marked tachycardia with a reasonably high blood pressure in typical cases of exophthalmic goiter at 20, 25 or 40, and at a much younger period than has been stated.

A New Sterilization Operation on the Female Tubes

Dr. A. L. Blesh, Oklahoma City: The operation is founded on the principle of the interposition of two serous surfaces between the severed continuity of the tube at the uterine cornu. Technic of the operation: A lower median abdominal incision is made. The tube is grapsed and under tension cut out deeply from cornua. The cornua are closed over with uterine serosa, with fine catgut. The serosa of the tube is stretched and tacked over the incision in the uterus. This interposes two layers of serosa, with a base of muscularis over the canal.

An Undescribed Physical Sign of Portal Obstruction

Dr. E. H. Martin, Hot Springs, Ark.: A narrow band of enlarged capillaries over the costal cartilages of a red or purple mixed with red is seen frequently after acute attacks of malaria, especially when large doses of purgatives have been used. In other cases difficult to classify, the band will be from 1 to 2 inches wide, varying from all red capillaries to all purple capillaries, or often mixed red and purple, and this band seems to be associated in every instance with symptoms of portal obstruction. More than half of the patients having these bands give a history of hemorrhoids. Another large proportion give a history of gastric indigestion, hepatic colic, cholecystitis, etc. On some cases of ascites, due to cirrhosis of the liver, these capillary bands are so marked that they look as though painted on with a brush. In a recent case of ascites, which gave no liver history, but seemed to be entirely due to cardiac insufficiency, there was no fringe of capillaries over the ends of the ribs. This capillary band, which we usually refer to as a "liver fringe," is usually more marked on the left side than the right. It occurs occasionally without any other sign or symptom of anything pathologic of any kind. It occurs many times more frequently in men than in women.

Focal Infections

Dr. W. H. Livermore, Chickasha, Okla.: We have on record over 600 cases in which the removal of pus foci has either cured or greatly benefited the patient. Two years ago I operated on a man for gastric ulcer, doing a gastro-enterostomy; the results were very satisfactory for about a year, when the symptoms returned. After extracting three teeth, with apical granulomas, and the removal of his tonsils, all symptoms of gastric ulcer vanished within a month, and he is now enjoying better health and working harder than for years. Again, I operated for gallstones in 1912, and removed the gallbladder in 1913. Symptoms returned within five months after operation, and persisted to January, 1916. Diseased teeth were extracted, and the patient has not had a recurrence of the old symptoms since. It is now a routine practice of mine to remove tonsils and extract teeth, which show apical granulomas, in all cases of gallbladder trouble, appendical trouble, fibrocystic conditions in the pelvis, or duodenal and gastric ulcer at the time of the abdominal operation, unless the patient shows signs of shock before I am through with the work in the abdomen.

Focal Infections

Dr. A. B. Leeds, Chickasha, Okla.: We have found that by beginning at the tonsils and teeth and then checking up the other possible foci, the tonsils or one or more teeth are usually affected with a definite strain of streptococcus or some allied or kindred coccus. In removing these foci in the teeth and tonsils with the other foci, we have not only relieved but also cured many patients whose condition had resisted every other known method of treatment, medical or surgical. Our practice is not to correct a chronic pelvic lesion, cystic ovary, appendix, gallbladder, etc., without removing the diseased tonsils and diseased teeth at the time of the operation, and since following this practice our results have been much more satisfactory.

Heat in Cancer of the Uterus

Dr. A. F. Hoge, Fort Smith, Ark.: I agree with Clark that we should not depend on heat alone; that we should, in all suitable cases, follow the heat treatment with a radical Wertheim removal; also, these patients should have after-treatment in the form of Roentgen therapy or radium.

Malignant Growths of the Face

Dr. D. W. Goldstein, Fort Smith, Ark.: Before deciding on the removal of an epithelioma, we have to consider location, size, infiltration, whether ulcerating or not, and length of time the patient has had the growth. Surgery is good in selected cases. Carbon dioxid snow gives good results in selected cases. For senile keratosis and verruca, carbon dioxid snow does very well. I also often use trichloracetic acid applied on a wooden applicator. I am now using radium in these conditions. It seems to destroy the pathologic cells without destruction of the normal cells. I believe that radium offers more than any previous treatment, and that we shall soon accept it as the method of choice in treating epithelioma. The sooner we consider all growths of the face as potential cancers, and treat them as such, the quicker we shall stamp out epithelioma of the face.

Treatment of Certain Types of Goiter with Quinin and Urea Hydrochlorid Injections

Dr. Leigh F. Watson, Oklahoma City: The treatment is suggested only to relieve the symptoms of hyperthyroidism, and is not recommended to remove the tumor in simple goiter. The method is suitable for use only in a hospital by men experienced in the difficulties of thyroid surgery. The danger of destroying too much of the gland must always be borne in mind. The greatest field of usefulness for the injection will be found in those cases of beginning hyperthyroidism not severe enough to justify operative treatment, and as a preparatory measure to partial thyroidectomy in chronic cases of toxic goiter in which the patient is too ill to warrant any form of immediate operative procedure.

When to Operate in Disease of the Biliary Tract

Dr. John G. Sheldon, Kansas City, Mo.: When the jaundice precedes the sepsis, the common duct is obstructed by a foreign body within its lumen. The sepsis comes after the jaundice is well established. In these cases there is no pathologic condition outside of the duct to interfere with its becoming dilated by the back pressure which rapidly increases as a result of the obstruction and sepsis. When the duct dilates, the obstruction is somewhat relieved and the patient improves. Operation should be delayed in this class of patients. When the sepsis has preceded the jaundice, the common duct is not obstructed by a foreign body within its lumen, but by pressure from inflammatory swelling outside the duct. A large stone impacted in the cystic duct, pericholecystitis and enlarged lymph glands are commonly the cause of the pressure and occlusion of the common duct in these cases. When such a condition exists, the duct cannot dilate to relieve the obstruction. Delay, in these cases, is useless and dangerous; operation should be done as soon as possible.

The Transverse Incision in Appendix Operations

Dr. Hugh L. Charles, Atchison, Kan.: Notwithstanding the fact that the transverse incision should not be made from choice where additional abdominal work is expected, it is nevertheless feasible at times to lengthen the transverse incision in order to do such additional work, should the operator unexpectedly find it necessary. The time occupied in this operation varies. In clean, uncomplicated cases, from three to five minutes will usually suffice; in cases with a Lane kink or other bands, from eight to fifteen minutes will be required; in pus cases, when the retrocecal appendix has to be removed and stab drainage provided for, twenty minutes may be consumed. I usually close the skin with a subcuticular stitch.

Operations for Acute Gonorrheal Epididymitis

Dr. Julius Frischer, Kansas City, Mo.: Operation is the method of choice when excruciating pain is present that cannot be relieved by palliative measures. The relief from pain is fairly prompt, from twenty-four to forty-eight hours, and the patient usually is out of bed in four days. Without drainage, the patient is in bed from seven to fourteen days. Better drainage can be obtained. There is less opportunity for a recurrence, which is not infrequent in nonoperative acute epididymitis. In some cases, despite all palliative treatment, abscess formation takes place, and the epididymis has to be opened and drained.

AMERICAN ROENTGEN-RAY SOCIETY

Seventeenth Annual Meeting, held at Chicago, Sept. 27-30, 1916

(Concluded from page 1471)

Capillary Circulation in Chest Roentgenograms

DR. J. G. VAN ZWALUWENBURG, Ann Arbor, Mich.: The capillary blood volume in the lung is an appreciable factor in the density of that organ, and deserves consideration in the study of chest roentgenograms. Local changes in the capillary circulation can be more easily and more certainly recognized by an asymmetry of density. The local hyperradiability of senile and hypertrophic emphysema are probably due to the disappearance of the capillaries in the walls of the air vesicles rather than to the great amount of air in the locally inflated portion of the lung. So too the localized greater density of the lungs in the presence of mediastinal masses may with greater probability be ascribed to obstruction of the return circulation or involvement of the neurovascular mechanism than to obturation atelectasis, as has been done in the past.

Roentgen Diagnosis of Bronchiectasis

DR. A. B. MOORE, Rochester, Minn.: In twenty-five cases studied by combined clinical and roentgenographic methods, average age was 26½ years. The average time since the symptoms were first noted was eight years. In all but seven the onset of the disease was described as a cough following an acute infection, commonly measles, whooping cough and influenza. Two patients had inhaled foreign bodies; one a splinter of wood which he subsequently coughed up; the other a fragment of tooth which was found plugging one of the terminal bronchi at necropsy. Five patients gave roentgenologic evidences of a tuberculous infection, and three had had tubercle bacilli in their sputum. A definite Roentgen diagnosis of bronchiectasis was made in nineteen, and a diagnosis of probable bronchiectasis in two. In four the Roentgen diagnosis was incorrect.

Roentgen Examination as an Aid in Differential Diagnosis of Pneumonia and Empyema, Especially in Children

DR. WILLIAM H. STEWART, New York: Increased vocal resonance in pleural effusion and the absence of bronchial breathing and increase in voice sounds in pneumonia render the differential diagnosis of these lesions most difficult. Not only is the roentgenologist able to give positive information as to the presence or absence of fluid, but he is able, in the vast majority of cases, to give an approximate opinion as to the quantity, to locate the accumulation, and to direct the proper entrance of the aspirating needle, should it be desired to verify the findings. This is especially valuable in sacculated empyemas.

DISCUSSION ON ROENTGENOGRAPHY IN DISEASES OF THE CHEST

DR. W. F. MANGES, Philadelphia: In children, tuberculosis is more prevalent at the base of the lung than at the periphery. Dissemination takes place by continuity and contiguity, through the blood stream as well as through the lymph stream.

DR. GEORGE C. JOHNSTON, Pittsburgh: When a child has aspirated a foreign body not large enough to block a bronchus completely, and when it has been in the lung for a few months, you need not be surprised if you find a lung completely filled with pus with no evidence of lung structure and every appearance of an empyema. After passing the bronchoscope and pumping out several ounces of pus, you will find that it is not an empyema.

DR. L. T. LEWALD, New York: An error may be made in diagnosing an appendicitis as an acute lobular pneumonia in children.

Blood in Cancer Under Roentgen Therapy

DR. R. H. STEVENS, Detroit: The Roentgen ray in repeated large doses, with deep penetration, contrary to most of the reported experiments on small animals, affects the erythrocytes of human beings profoundly. The lymphocytes for the first day or two are suppressed or destroyed by large doses of Roentgen ray in the treatment of cancer. Following this, in favorable cases, there is a reaction with lymphocytosis between the third and the seventh day, which may continue almost uninterruptedly till the fourteenth day, or it may stop shortly after the seventh day, and reappear more strongly and persistently on or about the fourteenth day. We note the striking similarity between this and the action of the ray on the blood of the lower animals. The second reaction may continue as long as forty days. There is a strong resemblance between these lymphocytic reactions and those which constitute the opsonic index. The treatment probably should not be repeated until the reaction is over. The repetition of dose should probably be governed by the reactions in the blood as well as by the reactions in the skin, the former being much more sensitive than the latter. The Roentgen ray in some cases of cancer tends to stimulate a general (though probably temporary) immunity, if lymphocytosis is an indication of immunity. The action of the Roentgen ray in cancer, therefore, would appear to be twofold: (1) local, by its destruction of disease cells, and (2) general, by stimulating lymphocytosis and consequently resistance.

Prognosis in Roentgen Treatment of Malignant Tumors

DR. A. F. HOLDING, New York: From a study of the results observed in over 1,000 cases treated with surgery, Roentgen rays, radium, mixed toxins, colloidal copper, autogenous vaccines, coagulation, effulgation, etc., I would suggest that the treatment indicated in tumors and allied conditions varies according to the classification of the maladies. Lesions which do well under Roentgen ray or radium treatment, as basal cell epithelioma, adenocarcinomas of the ovary, carcinomas of the testis of teratoid origin, carcinomata mammae, embryonal carcinomas, lymphosarcomas, giant cell sarcomas, infectious granulomas, thymomas, tuberculous adenitis, myxomas (malignant), endotheliomas, mixed tumors of the parotid, pseudoleukemia and leukemia, should have Roentgen rays and radium treatment, with or without surgery and effulgation. Lesions in which Roentgen rays and radium at best give only palliation or no result at all, as carcinomas of the abdominal viscera, squamous cell epitheliomas, carcinomata uteri, spindle cell sarcomas, alveolar sarcomas, osteosarcomas, melanomas and hypernephromas, should have radical surgical removal by bloodless methods where possible, with postoperative radioactive treatment.

Carcinoma of the Uterus Treated by Radium and Roentgen Rays

DR. RUSSELL H. BOGGS, Pittsburgh: As a forerunner and a follower up of operation, radium is of unquestionable value. Relief of the symptoms in advanced cases is so marked that every practicing physician should at least familiarize himself with this fact. The offensive discharge and the hemorrhage usually completely disappear. The discharge at the beginning, which is so offensive to the family and nurses, as well as to the patient, usually completely disappears within two or three weeks.

Treatment of Hopeless Malignancy

DR. GEORGE C. JOHNSTON, Pittsburgh: The surgery of malignancy is rather the surgery of removal than the surgery of cure. For this reason the earliest possible diagnosis, followed by wide extirpation of the area under suspicion, is imperative.

DISCUSSION ON ROENTGENOGRAPHY IN MALIGNANT DISEASE

DR. GEORGE E. PFAHLER, Philadelphia: I am sure that there is resistance on the part of many patients to malignant disease, and Roentgen therapy may increase that resistance.

DR. A. L. GRAY, Richmond, Va.: It is important in cases of malignant disease, referred to us for postoperative treatment, to know just how long the Roentgen treatment should be continued. It is my custom to administer just as soon as possible after operation a series of cross fire treatments with the Coolidge tube. The patient returns in three or four weeks for another series, and for a third series in another three or four weeks. Of course, this is in cases in which there is no recurrence or evidence of metastases.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

October, III, No. 10

1 Some Aspects of Special Interest Bearing on Roentgen Diagnosis of Tuberculosis of Lungs. H. Hulst, Grand Rapids, Mich. —p. 465.
2 Appreciation of Roentgen Ray and Warning as to Its Use in Surgical Diagnosis. C. H. Mayo, Rochester, Minn.—p. 474.
3 Routine Technic of Barium Diagnosis. L. L. Jones, Battle Creek, Mich.—p. 477.
4 Use of Thorium in Urology and Roentgenology. J. E. Burns, Baltimore.—p. 482.
5 Sensitizing Effect of Cold on Roentgenized Surfaces. C. A. Simpson, Washington, D. C.—p. 485.

Boston Medical and Surgical Journal

November 2, CLXXV, No. 18

6 *Relation of Deep Culdesac to Prolapse of Rectum and Uterus and to Rectocele. D. F. Jones, Boston.—p. 623.
7 Effect of Alcohol in Rate of Discharge from Stomach. L. T. Wright, Atlanta, Ga.—p. 627.
8 Blood Transfusion in War. W. R. Morrison, Boston.—p. 629.
9 *Undescended Testicle in Children. C. G. Mixter, Boston.—p. 631.
10 Mechanism of Protection Afforded by Drainage of Prostatics as Preliminary to Operation. H. Cabot and E. G. Crabtree, Boston.—p. 633.
11 Pregnancy Complicated with Hernia; Report of Three Cases. J. P. Gardiner, Toledo.—p. 637.

6. **Relation of Deep Culdesac to Prolapse of Rectum and Uterus and to Rectocele.**—The term "prolapse" in Jones' paper is intended to include those cases only in which there is a protrusion into or through the sphincter of the whole rectal wall. Cases of patients under 10 years of age are not considered. Jones cites cases in which colopexy seemed to offer no hope of curing the patients, hence an effort was made to restore the culdesac to its normal appearance, by closing it with purse-string sutures of silk; in addition to this, the rectum was attached to the pelvic peritoneum on either side, as high as the promontory, by silk sutures, in the hope of getting support from many attachments to the peritoneum. In the female, in addition to closing the posterior culdesac, the rectum was sutured to the posterior surface of the vagina and uterus, and a ventral fixation done. In many of these cases, especially the large prolapses, Jones says, it is important to do something else than closure of the culdesac, to aid in the support. At times removal of mucous membrane with the cautery will assist. In many, posterior rectopexy will be of great value. While the giving way of the posterior attachment is not the cause of prolapse, the posterior attachments are loosened and pulled down late in the course of the prolapse. Fixation, therefore, of this portion of the rectum must be of some value in holding up the rectum. While the dangers of closing the posterior culdesac, that is, injury to the ureters and to the great vessels, may seem considerable, Jones has had no complication in about twenty cases.

9. **Undescended Testicle in Children.**—In the past three years, thirty operations have been performed for the relief of this malformation at the Boston Children's Hospital. In seven cases the condition was bilateral; in nine, the right, and in seven, the left side was affected. In three cases the testis was intra-abdominal. In nineteen, it lay within the inguinal canal, and in eight cases it was just outside the external inguinal ring. In two cases, atrophy was noticed at the time of operation. In one, the testicle was enlarged and thought to be tuberculous, and there was an accompanying tuberculous peritonitis. The late result of operation was ascertained in twenty-six instances. The two patients in whom atrophy was noted at operation, showed no improvement in the development of the testicle, although the organ remained in the scrotum. There was atrophy in eight cases following operation. Interference with the enervation of the testicle has been suggested as a cause of atrophy following operation, but nothing to substantiate this view could be deduced from the operative records of these cases. The age at operation had no bearing on the occurrence of atrophy, it being no more frequent in the younger group than in the older in this series. The one factor present in every case in which atrophy occurred, was an interference with the spermatic circulation at operation.

These cases can be divided into three groups; in one, all the spermatic vessels were cut at operation to facilitate the placing of the testicle in the scrotum. In the second, a portion of the lesser vessels were divided and the three or four main trunks were left. In the third, the vessels were left intact; the latter group comprises fifteen operations. Of fourteen cases reporting there was no occurrence of atrophy following operation. There were five instances of partial division of the vessels. One patient did not report and in one there was postoperative atrophy. The vessels were completely divided in nine cases; seven patients reported and in every instance there was marked atrophy. In all the testicle was soft and no larger than a bean. At one operation the testicle could not be brought down and was replaced within the abdomen.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

October, IX, No. 4

12 Reflections of a Medical Teacher. W. T. Councilman, Boston. —p. 52.

Canadian Medical Association Journal, Toronto

October, VI, No. 10

13 Psychogenetic Conditions. C. K. Russel.—p. 877.
14 *Malignant Edema. F. McK. Bell, Ottawa.—p. 882.
15 Epidemic Meningitis. W. T. Connell, Kingston.—p. 886.
16 Posture as Aid to Treatment. S. A. Smith, Granville.—p. 897.
17 Syphilis; Its Cause and Treatment. J. E. R. McDonagh, London. —p. 901.
18 Appendicovesical Fistula. M. Lauterman, Montreal.—p. 910.

14. **Malignant Edema.**—Of twelve patients seen by Bell, four died. The first of these because it was only a skin abrasion, and the disease was treated superficially only, without incisions. Two other patients were moribund on admission to the hospital. The fourth case was a compound comminuted fracture of the femur, at its upper third. An attempt was made to save the limb and several valuable hours were thus wasted. The amputation, which later proved inevitable, was not successful in checking the spread of the disease. In these patients deep incisions, under chloroform, were made almost to the bone by means of a 6-inch blade amputation knife, due care being taken to avoid main arteries or nerves. These incisions were 4 to 6 inches in length; they were afterward kept wide open with fenestrated rubber tubes, 1 inch in diameter and 6 inches long, passed transversely through the muscle to a counter incision. Not less than three, and in one patient six, of these large incisions were made. The wounds were then irrigated with large quantities of hydrogen dioxid, followed by a combination of hydrogen dioxid and phenol, 1 : 100, in equal parts. The wounds were packed lightly, but only temporarily, with gauze, which was left in just long enough to check bleeding. Dressings and irrigation were repeated every three hours, night and day. After the first dressing no gauze was left in the wound, but a very thin layer (two or three strips only) was laid over the opening to exclude dust and flies. No bandages were used. A high cradle held the bed clothes up, in order to admit plenty of air, and in cases in which it was possible the wound was exposed to direct sunlight.

Colorado Medicine, Denver

October, XIII, No. 10

19 Present Status of Roentgen Therapy. S. B. Childs, Denver.—p. 294.
20 Diagnosis of Incipient Tuberculosis. O. M. Gilbert, Boulder. —p. 300.

Florida Medical Association Journal, Jacksonville

October, III, No. 4

21 Cancer Problem. H. C. Taylor, New York.—p. 97.
22 Advantage of Early Diagnosis and Treatment of Tumors of Breast. L. F. Carlton, Tampa.—p. 103.

23 Case of Epithelioma Involving Deeper Tissue. M. Freeman, Perrine.—p. 106.
24 Case of Perithelial Angiosarcoma of Dorsum of Hand. P. C. Perry, Jacksonville.—p. 108.
25 Roentgen Rays and Living Cell. J. D. MacRae, Tampa.—p. 109.
26 Roentgenotherapy, with Special Reference to Certain Malignant Conditions, Tubercular Adenitis and Eczemas. J. P. Long, Lake City.—p. 111.
27 Differential Diagnosis of Lesions in Upper Right Quadrant. L. J. Efird, Tampa.—p. 117.

Journal of Laboratory and Clinical Medicine, St. Louis

October, II, No. 1

28 *Uric Acid in Its Relations to Metabolism. S. R. Benedict, New York.—p. 1.
29 *Poisonous Proteins. V. C. Vaughan, Ann Arbor, Mich.—p. 15.
30 Study of Tests of Liver Function. C. S. Foster and M. Kahn, Pittsburgh.—p. 25.
31 Some Technical Difficulties Involved in Comparison of Diazo and Urochromogen Tests. J. E. Pottenger, Monrovia, Calif.—p. 37.
32 Cases of Infection Terminating in Septicemia. P. G. Woolley, Cincinnati.—p. 44.
33 Clinical Methods for Determining Buffer Action of Blood. J. J. R. Macleod, Cleveland.—p. 54.
34 *Purity of Alcohol. V. C. Vaughan, Ann Arbor, Mich.—p. 57.
35 Water Bath Slide Methods for Complement Fixation and Blood Grouping. N. E. Williamson, Stockton, Calif.—p. 58.

28. **Uric Acid in Its Relations to Metabolism.**—The study of uric acid metabolism has been much hampered by the fact that no animal has been available for experimental purposes in which uric acid is an end product of metabolism or in which the essential features of human purin metabolism appear to be duplicated. It is therefore of interest to know that Benedict found an animal which appears to fulfil these conditions, and in which it seems probable that Benedict will find some of the missing links between the purin metabolism of man and other mammals. The animal in question is the Dalmatian breed of dog. It was at first supposed that the anomaly of purin metabolism existed only in the one individual but further examination has shown that it is probably a peculiarity of the breed of Dalmatians. Benedict has examined five animals more or less pure Dalmatians and in four of them found a very high uric acid elimination. The one exception was obviously not of very pure breed. For a period of nearly a year the animal has been on a purin-free diet and during nearly all this time the uric acid elimination has been determined daily. As a result of this study Benedict concludes that the adult mammal can synthesize purin from nonpurin material. During the period of observation the dog maintained a constant body weight and eliminated a total of more than 100 gm. of uric acid.

Two experiments were made on the Dalmatian to determine the effect of caffein given subcutaneously. A daily dose of 100 mg. of the drug was followed by a slight decrease in the uric acid output. With a larger dose (200 mg. daily) of caffein there was scarcely any perceptible effect on the uric acid output but there was a very notable retention of nitrogen during this period.

A man was placed on a purin-free diet which was kept approximately constant but which was not weighed. During the preliminary period five cups of a caffein-free coffee were ingested daily. During the caffein period the diet was just the same, but to each of the five cups of coffee taken were added 200 mg. of caffein, making a total of 1 gm. of caffein per day. The uric acid figures of the urine showed a slight but definite and progressive increase during the caffein period, which increase was still somewhat apparent for two days after the caffein intake was stopped. This experiment was so carefully conducted and the results were so clear cut that Benedict believes he is justified in concluding from it that caffein may lead to increased uric acid formation in man and furthermore that it may lead to some nitrogen retention. Caffein, even in small doses, probably is not quite so innocuous a substance as has been assumed. On the purin-free diet the uric acid nitrogen is more than double that of the allantoin, while after thymus ingestion the increase in uric acid nitrogen eliminated is only about one half the increase to be found in the allantoin nitrogen. These results might be taken to indicate that exogenous nuclear material undergoes catabolism along different lines from that of the endogenous purin containing material. Uric acid administered subcutaneously is followed by a marked increase in the allantoin output, and this in spite of the fact that the uric acid is recovered quantitatively as such in the urine. It seems probable that uric acid and allantoin are interrelated in metabolism in other ways than have been heretofore assumed.

29. **Poisonous Proteins.**—Vaughan's studies have led him to formulate a theory concerning the nature and operation of living matter. The cell is not the unit of life; life is molecular. Life is function, not form. The cell is not only made up of protein molecules, but its form and function are determined by the chemical structure of its constituent molecules. The lines along which the spore, seed or ovum develop are determined by the chemical structure of its proteins. Growth in other directions is impossible and this accounts for stability in reproduction. However, changes in the chemical structure may and do occur and in these lies the basis of variation. The keystone or archon of the protein molecule is the protein poison. It is common to all protein molecules. Physiologically it is the same in all molecules, that is, when set free it is a poison and it is poison on account of its intense chemism which enables it to tear off groups from other proteins. One protein differs from another in its secondary and tertiary groups. Most native proteins are not poisonous because in them the chemism of the primary group is satisfied by combination with secondary groups. Strip off the secondary groups and the primary becomes poisonous on account of the avidity with which they combine with the secondary groups of other molecules. Biologic relationship between proteins depends on the secondary groups. In this way varieties and species have developed.

The living molecule is never in a state of equilibrium. There is a constant exchange of atoms between it and the outside world. It absorbs, assimilates and eliminates. It is constantly trading in energy. It takes in oxygen and gives off phenol; it takes in nitrogenous material, and, having utilized it, the waste is discarded. The living molecule passes through the period of growth and decay. During the former its functions are largely synthetic; in the latter they are autolytic and finally the structure drops into pieces.

34. **Purity of Alcohol.**—Vaughan has found it inexpensive and safer to take the ordinary alcohol and distil it with quicklime than to use the alcohol imported from Germany (Kahlbaum's).

Medical Record, New York

October 28, XC, No. 18

36 Hydrology in Military Practice. G. Hinsdale, Hot Springs, Va. —p. 751.
37 Agitophasia Associated with Agitographia. J. S. Greene, New York.—p. 754.
38 Arterial Hypertension; Symptoms, Significance, Sequelae and Management. H. F. Stoll, Hartford, Conn.—p. 757.
39 Milk and Communicable Diseases. L. R. Williams, Albany. —p. 760.
40 Rôle of Physicians' Sons in Lincoln Administration. W. Browning, Brooklyn.—p. 762.
41 Lesions of Frontal Lobes; Report of Three Cases. E. M. Williams, Sioux City, Iowa.—p. 764.
42 Eye Injuries as Related to Workmen's Compensation. F. D. Gulliver, New York.—p. 765.
43 Primitive Medicines; Emetics and Purgatives. J. B. Percival, Paramaribo, Dutch Guiana.—p. 768.

New York Medical Journal

October 28, CIV, No. 18

44 Anesthesia Reviewed. J. T. Gwathmey, New York.—p. 825. To be continued.
45 Sources of Errors in Diagnosis. E. C. Hill, Denver.—p. 830.
46 An Accessory Ovary. A. J. Smith and A. C. Wood, Philadelphia. —p. 835.
47 Therapeutics of Cerium. R. W. Wilcox, New York.—p. 836.
48 Treatment of Bladder Tumors. J. T. Geraghty, Baltimore.—p. 838.
49 Tumors of Bladder. L. Buerger, New York.—p. 841.
50 Intestinal Stasis. E. M. Mosher, New York.—p. 843.
51 Rectal Anesthesia. W. M. Johnson, New York.—p. 846.
52 Anesthesia. P. J. Flagg, New York.—p. 847.
53 Case of Rabies. M. B. Wesson, El Paso, Texas.—p. 848.
54 Clinical Thermometer as Carrier of Infection. L. Martocci-Pisculli, New York.—p. 849.
55 Treatment by Subcutaneous Injections of Distilled Water. G. A. Stephens, Swansea, England.—p. 850.

Ophthalmology, Seattle

October, XIII, No. 1

56 Color Interlacing and Perimetry. C. B. Walker, Boston.—p. 1.
57 Color and Its Relation to Tune. G. H. Taylor, Australia.—p. 31.
58 Appearance of Fundus Oculi in General Paresis, Manic Depressive Insanity and Dementia Praecox. C. T. Cooke, Seattle.—p. 34.
59 Operation of Tarsectomy. D. C. Orcutt, Chicago.—p. 43.
60 Salvarsan in Ocular Conditions. D. C. Orcutt, Chicago.—p. 44.
61 Keratitis Neuroparalytica Resulting from Alcohol Injections for Facial Neuralgia; Report of Case. E. E. Maxey, Boise, Idaho.—p. 50.
62 Bony Tumor of Vitreous Chamber Springing from Ciliary Body. H. H. Brown, Chicago.—p. 53.
63 State Legislation Concerning Shop Lighting, Shop Accidents, Shop Conditions, Common Towel, etc. F. Allport, Chicago.—p. 58.

Public Health Journal, Toronto

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64 Civic Problems Caused by Immigrant. J. M. Shaver.—p. 433.
65 Meat Inspection. A. J. Hood, Montreal.—p. 437.
66 International Congress of Diseases of Labor. W. Oldright, Toronto.—p. 440.
67 Sanitation of Modern Military Camp. J. W. S. McCullough, Toronto.—p. 441.
68 Carriers of Disease. J. Grant.—p. 444.

South Carolina Medical Association Journal, Greenville

October, XII, No. 10

69 Hematuria from Diagnostic Standpoint. C. F. Ross, Anderson.—p. 300.
70 Lagging Intestine; Constipation. G. M. Niles, Atlanta, Ga.—p. 305.
71 Tonsillectomy and Prevention of Subsequent Hemorrhage. E. F. Parker, Charleston.—p. 311.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

October, XXIV, No. 10

72 Some New Ipecac Therapy. G. W. West, Eufalfa.—p. 291.
73 Oral Hygiene and Its Relation to Ill Health. L. G. Mitchell, Oklahoma City.—p. 239.
74 Treatment of Acute Cranial Injuries, with Special Reference to Intracranial Pressure. C. von Wedel, Jr., Oklahoma City.—p. 307.

Surgery, Gynecology and Obstetrics, Chicago

November, XXIII, No. 5

75 *Etiology and Pathology of Nontuberculous Renal Infections. H. Cabot and E. G. Crabtree, Boston.—p. 495.
76 *Bastedo Sign in Chronic Appendicitis. J. Rosenbloom, Pittsburgh.—p. 538.
77 Postoperative Complications of Lane Short Circuit and Colectomy. R. Smith, Los Angeles.—p. 539.
78 Circular Constriction in Treatment of Fractures of Long Bones. F. W. Parham, New Orleans.—p. 541.
79 Parham and Martin Band in Oblique Fractures. F. B. Lund, Boston.—p. 545.
80 *Nails and Screws in Joint Surfaces. A. T. Mann, Minneapolis. p. 550.
81 *New Mechanically and Surgically Correct Method of Bone Grafting. P. B. Magnuson, Chicago.—p. 554.
82 *Etiologic Study of Ovaritis. C. H. Davis, Chicago.—p. 560.
83 *Leukocytes in Pregnancy, Labor and Puerperium. J. L. Baer, Chicago.—p. 567.
84 Perithelioma and Endothelioma of Uterus. W. A. N. Dorland, Chicago.—p. 576.
85 Hemangioma Cavernosum; Report of Case. W. E. Lower, Cleveland.—p. 591.
86 Operation for Relief of Epispadias in Male. J. D. Barney, Boston.—p. 594.
87 Ectopia Testis Transversa with Infantile Uterus. A. E. Hertzler, Kansas City, Mo.—p. 597.
88 Primary Chorio-Epithelioma of Fallopian Tube Following Ruptured Ectopic Gestation. H. J. Hartz, Philadelphia.—p. 602.
89 Chondroma of Pelvis; Report of Cases. J. H. Wagner, Pittsburgh.—p. 604.
90 Application of Anoci-Association to Obstetrics. C. L. Hoag, San Francisco.—p. 612.
91 Perineal Anesthesia in Labor. R. W. King, Denver.—p. 615.
92 *Operation for Backward and Downward Displacements of Uterus. J. M. Allen, St. Johnsbury, Vt.—p. 618.
93 Spontaneous Evolution in Shoulder Presentations; Report of Case. R. M. Carter, Green Bay, Wis.—p. 620.
94 Blood Transfusion with Paraffin-Coated Needles and Tubes. B. Vincent, Boston.—p. 621.
95 *Wiring Through Obturator Foramen for Symphysis Pubis Separation. S. J. McNamara, Brooklyn.—p. 625.
96 *Transplantation of Abductor Hallucis Tendon in Surgical Treatment for Hallux Valgus. J. E. Fuld, New York.—p. 626.
97 Apparatus for Use After Harelip Operations. H. L. Smith, Nashua, N. H.—p. 628.
98 An Improved Substitute (Potassium Mercuric Iodid) for Iodized Catgut Sutures. C. H. Watson, Brooklyn.—p. 629.

75. **Nontuberculous Renal Infections.**—A careful and thorough analysis of a considerable number of cases was made by Cabot and Crabtree. They believe they have succeeded in establishing the fact that the pyogenic organisms produce lesions of the kidney essentially different from those produced by nonpyogenic organisms. This fact has an important bearing on diagnosis. Organisms concerned in renal infections appear promptly in the urine though they may not long continue to so appear. Organisms not concerned in renal infections may also appear in the urine. With clinical evidence suggesting a renal infection, the diagnostic importance of a careful examination of the urine can hardly be overestimated. Thus the lesions characteristic of pyogenic organisms will show the bacteria in the urine perhaps only during the early stages. Since, however, these lesions are comparatively shut off from the lower portions of the kidney and as they do not involve the pelvic mucous membrane, pus in any considerable amount, will be found rarely if at all. By the same token, since the lesions of the nonpyogenic group are produced chiefly in the renal pelvis, evidence of this fact is abundantly clear in the urine by the early production of pus accompanying the appearance of the micro-organisms.

A very striking difference is also to be observed in the effect on kidney function as measured by phthalein of these two types of infection. Since the suppurative infections involve chiefly the cortex and comparatively little the convoluted tubules, they would be expected to produce comparatively little effect on kidney function thus measured, and such is in fact the case. On the contrary the chief lesion of acute renal infections with the colon bacillus group is first on the convoluted tubule, the pelvic lesion, though appearing early, being secondary to the tubular lesion. This should, and, in fact, does produce sudden and profound changes in kidney function. Briefly stated, the diagnostic evidence is as follows: If with clinical evidence suggesting a renal infection, freshly drawn urine shows cocci in abundance with a small amount of albumin, a few red blood corpuscles and many leukocytes or a little pus, together with a renal function at or near normal limits, a diagnosis of coccus infection of the kidney is justified. If, on the other hand, a similar examination shows many bacilli, a little albumin and much pus, with a markedly diminished kidney function, a diagnosis of colon bacillus infection of the kidney is unavoidable.

Clearly the suppurative lesions concern those portions of the kidney which are relatively inaccessible to drugs, and if these lesions are such as to require treatment, that treatment must be operative. On the other hand, the lesions produced by the colon bacillus group concern those portions of the kidney relatively accessible to formaldehyd-containing drugs, and the surgeon is therefore justified in persisting in treatment by this method on the assumption that if it be properly planned and efficiently carried out it will succeed in controlling the infection.

76. **Bastedo Sign in Chronic Appendicitis.**—Rosenbloom is convinced that this sign is of great value in the diagnosis of chronic appendicitis. It consists in passing a colon tube 11 to 12 inches into the rectum and injecting air by means of an atomizer bulb. As the colon distends, pain and tenderness to finger-point pressure becomes apparent at McBurney's point, if appendicitis is present.

80. Abstracted in The Journal, Jan. 15, 1916, p. 218.

81. **Correct Method of Bone Grafting.**—Magnuson cuts a short graft from the fractured end of the most convenient fragment, either proximal or distal. This graft is cut in the shape of an extremely long sided truncated cone. The end of the graft which forms part of the fractured surface is exactly the width of the medullary cavity, and the end farthest from the fracture not over an eighth of an inch wider than the medullary cavity, the graft being from 1½ to 2 inches long and covered by periosteum. The sides of the graft being cut out with the circular motor driven saw, the end of the graft is freed with a thin bladed chisel. The opposite fragment is then angulated slightly out of the wound, and the graft driven in to the end of the medullary

cavity to half its length. On account of its wedge shape it fits snugly. The fragment is then brought back into line with its fellow, and the protruding end of the graft is driven down into the slot out of which it came. This being the wider end, allows for the thickness of the saw blade on each side and yet allows the graft to come closely in contact with the walls of the cortex on each side and sink down into the medullary cavity. The result now is that one end of the graft is firmly driven into the end of the medullary cavity of one fragment, the other end being driven into the lower end of the slot out of which it came. There is no way of angulating these fragments except by one end of the graft slipping out of the slot or keyway. This is provided against by drilling through the graft and the opposite cortex, tapping a thread in the bone and putting through an ivory screw which holds the key firmly down in the keyway. The screw is then cut off flush with the graft, leaving nothing protruding beyond the cortex on one side or the graft on the other, and leaving a 1 inch trough above the graft to be filled in with new bone.

82. See The Journal, April 15, 1916, p. 1175.

83. **Leukocytes in Pregnancy, Labor and Puerperium.**—According to Baer there is a leukocytosis of pregnancy, appearing in the ninth month, slight in amount, and especially noticeable in primiparas. The leukocytosis of labor is marked in primiparas, averaging 18,255, and is increased by a duration of labor beyond twenty-four hours. It is less marked in secundiparas, and is slight in women who have borne more than three children. The height of the curve in primiparas and multiparas is reached on the first day of the puerperium, after which there is a rapid and constant decline to the tenth day, at which time the curve is about at the normal level. The onset of lactation does not influence the leukocyte count, except that in the fourth day primiparas there is a slight secondary elevation on the preceding day—about 1,500 to 2,000. Age is not a factor, except in primiparas aged 20 years and under, in whom the leukocytosis is higher than in any other group. Differential analysis showed the increase in leukocytes to be chiefly in the polymorphonuclear neutrophils with a return to normal proportions by the third day of the puerperium, an absence of eosinophils in about half the cases in labor, and their reappearance in normal proportions on the first day of the puerperium. The lymphocytes, large and small, mast cells and transitional types, show nothing unusual. The Arneth analysis showed a displacement toward the left; that is, toward Classes 2 and 3, but this was not constant and no pertinent deductions could be drawn.

92. **Operations for Displacements of Uterus.**—Allen opens the abdomen in the midline by a 4-inch incision, the lower limit of which is about 1½ inches above the symphysis pubis. The skin and fat are pushed back from the edges for one-half inch throughout the whole length of the incision and any work on the adnexa or lower abdominal contents is carried out. Holding the edge of the rectus sheath taut, a strip of this about one fourth of an inch wide is cut from the margin as long as the incision. The upper end is severed and the lower end is left attached. The uterus is next brought up high enough to make the posterior surface easy of access as low as the origin of the round ligaments, and a shallow cut is made across this surface from the origin of one round ligament to the same point on the other side. In making this cut the knife is held at an angle to the uterus of 45 degrees so that later on the incision may be completely closed. The uterus is then drawn to one side and held firmly while the next step is taken. An 8-inch hemostat, with jaws curved to a right angle with the blade, is thrust from behind forward through the broad ligament on a level with the end of the incision on the posterior surface of the uterus and made to traverse the following structures in the order named: the parietal peritoneum and posterior rectus sheath, the fibers of the rectus muscle. Then it is made to emerge at the edge of the wound without having pierced the anterior sheath of the rectus, and at or near the level of the lower end of the incision in this latter structure. The jaws of the hemostat are then opened and the free end of the strip of the rectus sheath previously cut is grasped and the hemostat is withdrawn until the jaws appear at the point at which they entered; that is, at the end of the groove in the uterine wall just below the round ligament.

The same procedure is carried out on the opposite side, the ends of the strips are cut to proper length if too long, and they are then sutured carefully to the bottom of the groove with twenty-day catgut. The ends may be made to meet in the midline of the uterine wall or may overlap. The cut in the uterus is then sutured with fine gut and one or two stitches are made to include the strip, the round ligament and the broad ligament on either side. The uterus will then be in excellent position, hanging free and unattached to other structures and no raw surface for adhesions will be found other than the small area on the two small strips of aponeurotic tissue, which is almost negligible in amount.

95. **Wiring Through Obturator Foramen for Symphysis Pubis Separation.**—McNamara reports a case in which there was a 4-inch separation of the symphysis pubis, protrusion of the bladder between the separated bones, ankylosis of the sacro-iliac joints; invalidism, failure of postural and supportive measures. Restoration of the pelvic girdle was accomplished by wiring through the obturator foramen.

96. **Surgical Treatment of Hallux Valgus.**—Fuld transplants the tendon of the abductor hallucis from its usual insertion in the plantar surface of the base of the first phalanx to the periosteum covering the middle of the inner surface of the same bone. He also does a bone section of the exostosis, when possible, without resection of the head and follows this by suture of the capsule over the denuded bone area, deep to the transplanted abductor tendon, to prevent involvement of the transplanted tendon in the subsequent and inevitable callus.

West Virginia Medical Journal, Huntington

November, XI, No. 5

99 Advances in Study of Syphilis and Recognition of Obscure Forms of Disease. L. F. Barker, Baltimore.—p. 153.
100 Professional Efficiency vs. Professional Inertia. C. O. Henry, Fairmont.—p. 158.
101 Practical Work for Health Officers. H. B. Wood, Charleston.—p. 165.
102 Diagnosis and Treatment of Nontoxic Goiter. C. M. Scott, Bluefield.—p. 169.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 14, II, No. 2911

1 Morphin Hyoscin Method of Painless Childbirth. F. W. N. Haultain and B. H. Swift.—p. 513.
2 *Retraction of Uterine Muscle Associated with Obstructed Labor; Report of Two Cases. H. T. Hicks.—p. 515.
3 Breathlessness in Soldiers Suffering from Irritable Heart. T. Lewis and others.—p. 517.
4 *Estimation of Myocardial Efficiency. J. S. Goodall.—p. 519.
5 Bock's Stethoscope as Aid to Determining Efficiency of Myocardium. J. Ramsay.—p. 521.
6 *Epidemic Cerebrospinal Fever. E. C. Hort and A. H. Caulfeild.—p. 522.
7 Life History of Meningococcus and of Other Bacteria. J. G. Adami.—p. 525.

2. **Retraction of Uterus in Obstructed Labor.**—According to Hicks, this condition is not often recognized. In all these cases there is some form of contraction or distortion at the pelvic brim. The fetal head does not engage and remains high above the brim, and is very mobile. The uterus continues to contract and retract. The membranes rupture early and the cervix hangs down unfilled by the presenting part. At some time after the membranes rupture the uterine muscle passes into a state of tetany, and since the neck of the fetus is high above the brim, it lies within the retractile zone of the uterine muscle. A firm mass of muscle forms round the neck of the fetus and grips it, so that the shoulders can neither pass through nor can the fetal head rise. The uterine cavity has therefore become hour-glass in shape. The upper cavity contains the trunk and the lower the head. As retraction progresses the uterus molds itself to the fetal trunk

and neck, while the lower zone becomes progressively thinner. This condition may come on a few hours after the rupture of the membranes. If there is room enough to allow of forceps delivery, and the fetal head is high above the brim and movable, the patient may be placed deeply under chloroform and morphin. If moderate traction fails to bring the head into the pelvic cavity, and if, when the traction is released, there is an elastic recoil of the fetus and uterus, no further attempt should be made. Cesarean section is the only safe means of delivery, making it even possible to save the child as well as the mother. It is absolutely wrong to persist in any further attempt at delivery from below.

Hicks makes the following suggestions: 1. Be on your guard when dealing with a short. thickset woman with a square head and short long bones. 2. A high position of the fetal head, occurring in a primipara, should at once denote serious trouble. 3. Measure the diameters of the pelvis, but do not place too much store on your estimate. 4. Cut and dried rules on pelvimetry are useful only in severe contractions of the pelvis. 5. To apply forceps to a fetal head which is movable and high above the brim is an obstetric operation requiring the most careful consideration, and should only be undertaken after careful examination of the condition of the uterine muscle around the neck of the fetus. If the examining hand can be passed easily beyond the shoulders of the fetus, an attempt at delivery with instruments may be made. If there is the least evidence that the uterine muscle is retracting round the neck of the fetus, cesarean section should be performed at once. When once the retraction ring has formed around the neck of the fetus, it will grip it firmly until the patient is almost at the point of death.

4. **Estimation of Myocardial Efficiency.**—This article is based on 2,000 observations made on healthy and diseased hearts during the past five years. The physiologic heart of the healthy young adult responds to increased work by increased contraction—the rate increases, the blood pressure rises, and the respirations increase. The increase in the heart rate, in the blood pressure and respirations, is gradual, while a definite relationship is still maintained between the pulse rate and respirations. The slow "super heart" of the well trained athlete also responds to increased work by increased contraction and a raised blood pressure, but whereas the heart of the "ordinarily" trained individual gradually increases in frequency, that of the athlete suddenly "practically" doubles its rate. The pathologic or diseased heart in which the myocardium is at all impaired responds to increased work, not by increased contraction, but by dilatation, so that, although the frequency is increased (often out of all proportion to the amount of exercise taken), the blood pressure either fails to rise or actually falls, according to the amount of myocardial damage present and the amount of work done. Furthermore, the dyspnea and general distress are often marked, while the normal pulse respiration ratio is frequently disturbed. Finally, irregularities of various kinds murmurs, or pulsations, not previously present, may make their appearance. The methods usually adopted by Goodall and found to be quite satisfactory were the simple stair test; the exerciser test; the inclined plane test and the progressive exercise reaction. Concluding Goodall points out that it is not possible at present to cure heart disease, to dilate stenosed orifices, or repair leaky valves, but it may be possible to get the best out of a defective heart by putting that heart to work under the best possible physiologic conditions, and the key to this should be a knowledge of what a normal heart can do, and how it does it.

6. **Epidemic Cerebrospinal Fever.**—The following conclusions based on intraperitoneal and subcutaneous injection are drawn by Hort and Caulfeild. The pathogenicity to monkeys of cerebrospinal fluid from acute cases of cerebrospinal fever appears to tend to vary inversely as its meningococcal content. The cerebrospinal fluid in this disease sometimes contains a filter passing agent which is not the meningococcus, but which is nevertheless capable of producing in monkeys continued fever or death. This filter passing agent appears to be a living virus capable of cultivation in the laboratory, and of passage through monkeys. None of the pathogenic results recorded can be reasonably attributed to the action of living meningococci as such, or to the direct or indirect action of a meningococcal toxin. The pathogenicity of cultures of the meningococcus appears to be due to the concomitant presence of the filter passing virus described. The pathogenic effects observed in the monkeys injected, whether with cultures of meningococci, with filtered or unfiltered cerebrospinal fluid, or with cultures of X, did not include gross pathologic changes in the cerebrospinal system.

Medical Journal of Australia, Sydney

September 30, II, No. 14

8 Drugs in Obstetric Practice. T. W. Lipscomb.—p. 267.
9 Treatment of Adherent Placenta. D. Kelly.—p. 270.
10 Deterioration of Sweetened Condensed Milk. T. Cooksey.—p. 271.
11 Serum Treatment of Hemorrhage of Newborn. E. Ludowici.—p. 273.
12 Dystocia Due to Ventro-Suspension of Uterus. C. E. D'Arcy.—p. 274.

Archives de Médecine des Enfants, Paris

September, XIX, No. 9, pp. 449-504

13 Advantage of Opening Abscesses in the Throat Without Cutting. (Ouverture, sans bistouri, des abcès rétro-pharyngiens et amygdaliens.) J. Comby.—p. 449.
14 *Familial Heart-Liver Syndrome in Children, with Death in Asystole. (Sur une maladie infantile et familiale caractérisée par un syndrome cardio-hépatique et mort en asystolie.) L. Morquio (Montevideo).—p. 465.
15 *Mongolian Idiocy; Four Cases in One Family. L. Babonneix and J. Villette.—p. 478.
16 *Primary Chronic Ileocecal Invagination in Two Children. M. Lavergne.—p. 482.

14. **Familial Heart-Liver Syndrome in Children.**—Morquio insists that the syndrome he describes is special and new, that is, he has not been able to find anything like it on record although adhesive pericarditis has certain features in common with it. He observed it identical in three of the ten children of a healthy couple who had always lived on a farm in Uruguay. The other children are healthy. Those affected were two girls and one boy, apparently healthy until about 6, 8 and 11, when they developed a rapid and progressive malady which proved fatal in a few months to a year. The children suddenly began to grow apathetic and depressed, with puffy face and edema and other signs of heart disease which soon proved fatal from the progressive asystoly. The heart and liver became hypertrophied, with cyanosis, edema and ascites, but the blood picture seemed normal. The spontaneous and familial character of the disease and the total absence of tuberculosis and syphilis in the family distinguished the syndrome from cardiohepatic cirrhosis (Hutinel's disease).

15. **Mongolian Idiocy.**—The four children, all girls, presented this type of idiocy, with malformation of the teeth and certain symptoms suggesting pluriglandular insufficiency. The father is a robust mason with no signs suggesting syphilis except leukoplakia on the tongue. The mother died of tuberculosis at 57. The question arises whether inherited syphilis is responsible for the idiocy of these children. They present none of the usual stigmata of syphilis, but the mother had two abortions and of her ten children six died in early childhood.

16. **Chronic Invagination.**—The two boys were 11 and 13 and the invagination was primary. The appendix was removed but was sound to the naked eye. Blood in the stools of a child should always suggest invagination. The blood may escape detection unless sought for, as it may be masked by mucus. When no tumor can be palpated, the first assumption is dysenteriform enterocolitis, but the abrupt onset of trouble or transient attacks of pain should suggest invagination. In the two cases here related the pulse was 118 and 90 to 100, while the temperature was normal. The abdomen was depressible and not tender, and nothing abnormal could be palpated at first but finally the invagination could be felt in the left flank. Sudden pain, vomiting and bloody stools were the main symptoms. The invagination was easily reduced in both cases when the abdomen was opened but one child succumbed a day or two later. No signs of peritonitis were observed in either case at the laparotomy.

Paris Médical

October 7, VI, No. 41, pp. 289-328

17 *Evaluation of Functional Incapacity. (L'évaluation des incapacités fonctionelles.) J. Camus.—p. 289; (L'appréciation du degré d'invalidité après les blessures de guerre.) A. Broca.—p. 298; (De l'évaluation des incapacités dans les attitudes vicieuses sans rapport avec des lésions organiques appréciables.) H. Claude. p. 300.
18 Capacity for Military Service and Work after Trephining for a Skull Wound. André-Thomas.—p. 306.
19 Electric Tests of Functional Incapacity. (L'électro-diagnostic et le radiodiagnostic du dossier de réforme.) Larat and Haret. —p. 311.
20 Measurement of Functional Impotency. Cololian.—p. 314.
21 Reexamination Later and Supplementary Treatment of the Incapacitated. (Un centre spécial pour examen et traitement complémentaire des blessés réformés.) J. Camus and O. Riche. —p. 320.
22 Pensions for the Incapacitated. (Pensions de retraite et gratifications de réforme.) Dercle.—p. 323.

17. **Evaluation of Functional Incapacity.**—This whole number of the *Paris Médical* is devoted to the questions connected with the discharge of men from the army on account of the results of wounds, and those connected with their right to and the amount of the pension for disability. A number of mechanical devices are described which ensure mathematical accuracy in the findings.

Presse Médicale, Paris

October 5, XXIV, No. 55, pp. 437-444

23 Intramuscular Injections of Colloidal Preparation of Gold in Typhoid. (Comment doit-on employer l'or colloidal dans le traitement des fièvres typhoides?) Salomon.—p. 437.
24 Reflex Motor, Vasomotor and Trophic Disturbances Consecutive to Disarticulation of Finger. Porot.—p. 439.

October 9, No. 56, pp. 445-452

25 *Gastrojejunostomy for Chronic Ulcer of the Stomach. (Traitement de l'ulcère chronique de l'estomac.) V. Pauchet.—p. 445.
26 Chronologic Study of Return of Functions in Injured Nerve. (Chronologie des manifestations de la restauration nerveuse.) Chartier.—p. 448.
27 Fracture of Trapezoid. A. Mouchet.—p. 452.

25. **Treatment of Chronic Gastric Ulcer.**—Pauchet gives twenty illustrations of the principal findings with the various types of chronic gastric ulcer, and the best operative means to combat them, especially when the pancreas or bowel is involved. For cancer and ulcer of the lower part of the stomach he prefers to cut the stomach across, almost at right angles, and suture to this a loop of jejunum, first suturing together the arms of the loop and cutting off the arch of the loop. The duodenum is cut off at the pylorus and this end of the loop is left as a blind pouch. The stomach soon becomes continent after this operation, and the digestive functions clinically normal. He thus insists that the proper treatment for chronic gastric ulcer of the lesser curvature is not gastro-enterostomy but segmental gastrectomy.

Progrès Médical, Paris

September 20, XXXI, No. 18, pp. 163-182

28 *Lessons from Two Years of Warfare in the French Trenches. (Des enseignements de la guerre Germanique sur le front français.) E. Delorme.—p. 163.
29 Biochemical and Biologic Study of Certain Bacilli of Paratyphoid Group. A. Sartory.—p. 178.

October 5, No. 19, pp. 183-192

30 Flaring Up of Malaria in Extinct Foci in France. (Sur la reviviscence d'anciens foyers paludiques en France.) G. Etienne. —p. 183.
31 Contracture from Tardy Tetanus. (Les contractures du tétanos tardif à évolution prolongée et leur diagnostic avec les contractures organiques ou "fonctionnelles.") H. Claude and J. Lhermitte.—p. 185.
32 Partial Epilepsy Subsides after Extraction of Projectile in the Brain. H. Aimé and E. Perrin.—p. 187.

28. **Lessons from Two Years of Warfare.**—This communication from the Inspector General of Medical Affairs in the French army opens with a comparison of this and previous wars, and reviews the new problems that have had to be solved at each of the main epochs of the war, from the battles at the frontier, at the Marne, and in Flanders, down to Verdun. Delorme says of antityphoid vaccination that, although as a preventive it has not proved as effectual as was hoped, it certainly has materially reduced the mortality. He relates that the medical corps of the army has suffered from the enemy's fire almost as much in proportion as the infantry, and more than the artillery, the cavalry, the engineering corps and the staff. He does not agree with those who think that there is only one surgery, declaring that we must accept not only a surgery of peace and a surgery of war, but realize also that war surgery has many and varied aspects. The present war has upset all our preconceived ideas not only in regard to arms but also in regard to the various services. It was not until the war became trench warfare that the medical corps could get the wounded and care for them with comparative facility.

The course of a gunshot or shell wound is generally determined by extrinsic contingencies. At present, fully 85 per cent. of all wounds are from shells and grenades; about 1 per cent. is the average of bayonet wounds, and 10 per cent. bullet wounds. Exploding shells are taking the place of shrapnel. Their effects are more disastrous at short range but the flying scraps soon lose their impetus. The machine gun is particularly deadly when fired from a cellar-way to sweep a street, its muzzle only a foot or two above the ground. This wounds legs and abdomens, the projectiles going through man after man as the troops charge up the street. The destruction of tissues increases at each passage, as the bullet is accompanied by scraps of clothing, etc. The fact that the bombarding is almost incessant often renders the collecting of the wounded practically impossible, but the medical officers and the litter bearers accomplish it somehow. Fully a hundred physicians have already lost their lives at this task alone. The transportation of the wounded in the trenches is hampered by the bringing up of food and munitions, and the wounded are often tended in holes just dug by a big shell. As the war has progressed, the primary surgical measures have been applied closer and closer to the firing line, until now this service is practically concentrated at the front. The arrangements for this at Verdun have been excellent from the first. Surgical measures are applied very close to the battlefield and under convenient and comfortable conditions with the very best surgical skill.

To illustrate different points in his article, Delorme cites instance after instance of almost superhuman devotion, energy and sangfroid on the part of members of the profession tending the wounded. Dr. Espagnon, for example, had his left foot shot off by a shell which wounded two officers near him. He tended their wounds and dressed them before attending to his own wound.

Berliner klinische Wochenschrift

September 18, LIII, No. 38, pp. 1041-1064

33 *Rubbing Off of Substance on Upper Surface of Vertebrae. ("Abwetzung" an den Endflächen der Wirbelkörper.) H. Virchow.—p. 1042.
34 *War Nephritis. (Zur Kenntniss der Kriegsnephritis.) C. Kayser. —p. 1043. (Zur Entstehung der Nierenerkrankungen im Felde.) Hirschstein.—p. 1045; (Ueber die in diesem Kriege beobachtete neue Form akuter Nephritis.) B. Ullmann.—p. 1046.
35 Desiccated Potato. (Ueber die Anwendung eines neuen Kartoffel-Trocken-Präparates für zeitgemässe eiweissarme Ernährung und Diabetes-Diät.) Hochhaus, Küster and H. Wolff.—p. 1050. Concluded.
36 Traumatic Neuroses after War Injuries. (Die traumatischen Neurosen, ihre klinischen Formen und ihr Entstehungsmodus bei Kriegsverletzungen.) L. Mann.—p. 1053.

33. **"Grinding Down" of Upper Surface of Vertebrae.**—Virchow explains that this term does not really apply in these cases as the interposed fibrocartilage prevents actual grinding, but the appearance and effect are practically a flat wearing off of the upper surface of the body of the lumbar or dorsal vertebrae. He has found it in cadavers and in monkeys. It is a simple atrophy and comes, he thinks, from a stooping attitude bringing extra strain on the intervertebral disks.

34. **War Nephritis.**—Kayser reports that a number of cases of acute hemorrhagic nephritis were brought to the hospital in his charge near the front, and each of the men was under surveillance for about ten weeks. Systematic investigation of each case was made to determine the date and place of the onset of the disease, the quarters, the food, vermin, vaccinations, previous infectious diseases, military duties and early symptoms. The data thus collected showed no connecting

links except that all the men had been infested with vermin. This was the only feature common to all cases. The nephritis ran a regular and favorable course as a whole. Some of the men had edema and practically all had albumin, blood and tube-casts in the urine. The tonsils were apparently normal in all but one case, and there was uremia in only two cases. In one of these during convalescence herpes developed over the whole of the lower part of the face, and one eye became inflamed, with optic neuritis and blindness of that eye. The other eye was not affected and complete recovery followed.

The prodromal symptoms were cough, dyspnea and diarrhea or constipation; in a few cases there was fever at first, subsiding as the bowels were regulated. A period of incubation was evident, to a maximum of three weeks. About the third week of the disease, there was a dandruff or bran-like scaling of the scalp and brow to which he paid no attention at first, but when the scaling spread to the cheeks and nostrils he examined for signs of desquamation elsewhere and found the hands peeling as with actual scarlet fever. This desquamation process ran a regular course from the third to the seventh week, and it proved possible to sift out the men who had been having nephritis by this peeling of brow and scalp. The conclusion seems evident that the disease is a scarlatinoid nephritis, possibly transmitted by lice. Kayser remarks that the exceptionally long surveillance over the cases explains the discovery of the desquamation which others may have missed.

Hirschstein draws the conclusions from his experience with war nephritis that climatic influences and a diet making special demands on the kidneys easily explain the development of nephritis in men over 35. Not one of his patients in this category were under this age.

Ullmann emphasizes the points which distinguish the new form of nephritis from the hitherto known types of acute nephritis. Especially the actual desquamative findings in the hemorrhagic urine, and the disappearance of these findings while the blood persisted in the urine. With other types of nephritis, the red corpuscles are the first of the formed elements to vanish from the urine. The findings of merely many casts and few leukocytes in one case of acute nephritis with high fever excluded the new type, and the nephritis proved to be the first manifestation of typhoid. With the new type the onset is sudden and stormy, the face puffing, with edema of hands and feet. The fever soon subsides, the long stage of hematuria and leukocyturia being afebrile. The albuminuria and edema were the last symptoms to subside. In some cases there was rebellious cystitis or pyelitis; in others the edema occurred alone with apparently normal urine. No tonsillitis was known in any case, and the disease did not seem to be contagious. One man returned from a ten-day furlough with it, showing that the diet alone cannot be incriminated. The infection localizes in the urinary apparatus. Injury of the walls of the capillary vessels is responsible for the hematuria and edema, and is the longest to persist of all the lesions. Repose and a bland diet were the main reliance in treatment. The men were transferred to a base hospital before the hematuria and leukocyturia had subsided. There were two deaths from anuria in the total number.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 7, XLVI, No. 41, pp. 1281-1312

37 The Social Instincts and Sentiments in Idiots and Imbeciles. (Die sozialen Gefühle und Triebe bei den Dementen.) P. Sokolow and R. S. Birnbaum.—p. 1281.

Medizinische Klinik, Berlin

September 17, XII, No. 38, pp. 991-1014

38 *Influencing of Diabetes by the War. (Ueber die Beeinflussung des Diabetes mellitus durch den Krieg.) C. von Noorden.—p. 991.

39 Deafmutism from Shell Explosion Nearby Injuring Medulla Oblongata. (Die durch Granatfernwirkung entstandene Taubstummheit, eine medulläre Erkrankung.) A. v. Sarbo.—p. 995.

40 Zones of Hyperalgesia after Skull Wounds and Concussion. (Hyperalgetische Zonen bei Kopfschüssen, Schädelbasisbrüchen, Gehirnerschütterung.) K. Hanusa.—p. 999.

41 Devices to Correct Radial and Peroneal Paralysis. (Radialisschiene und Peroneusschuh. Allgemeine Grundsätze der Wundbehandlung.) Spiegel.—p. 1001.

42 The Instinct for Care of the Young among Mammals. (Brustpflege und Jungenfürsorge bei Säugetieren.) A. Sokolowsky.—p. 1003.

43 Social Insurance and the War. (Sozialversicherung und Krieg.) Hanauer.—p. 1012. Summarized in "War Notes," p. 1459.

38. **Diabetes and the War.**—Von Noorden discusses the influence of the war on patients with diabetes before the war and those who have developed it during the war, treatment and the question whether diabetics are capable of military service. He has briefly examined about 100 diabetic officers and men in the last two years, but does not include these in his discussion, limiting it to fifty-four diabetic patients who have been staying at his private clinic for several weeks or months. Of this number, about a third were long known as diabetics, but in thirty-seven the symptoms have come on since the war began. Four of the old diabetics were officers between 35 and 42 who had kept their severe diabetes under control and did garrison duty efficiently. Under the stress of war, they collapsed entirely in the course of a few months. Those with mild diabetes, after a period of exacerbation, found that their tolerance for carbohydrates was higher than ever before the war, but the sugar content of the blood kept high, and by the end of three months came the collapse. The interval was longer in officers, and up to a year or longer in those never on service on the firing line. All those officers who held out longer than three months at the front were all over 40, and thus had passed the age when diabetes is most liable to a malignant course. No exaggerating influence on the diabetes from a tendency to neurasthenia could be detected. In fact, the manifestations of the neurasthenia became marked only after return home. In very few instances was there any tendency to exacerbation of the diabetes by wounds incurred, but an intercurrent infectious disease was often followed by aggravation of the diabetes. This is readily explained by infectious-toxic injury of the pancreas islands. Diabetes seems to protect against acute nephritis; there were no cases of acute nephritis among the diabetics although this disease occurs so exceptionally often during this war.

He remarks that among the 10,000 diabetics in his charge during the last twenty years, only three developed acute nephritis, which is remarkable, considering the great frequency of chronic nephritis among diabetics. In thirty-seven cases the diabetes developed for the first time during active service; in seventeen in a severe form in from three to eighteen months. In three of the seventeen severer cases and in seven of the twenty milder ones, other members of the family had diabetes. In the mild cases the sugar disappeared from the urine under a few days of rest and dieting, but in all the groups the sugar content of the blood kept high. He emphasizes that the hyperglycemia is of far greater import for the treatment and prognosis than the glycosuria in these mild cases. When it keeps high it shows that the sugar metabolism is deranged much more than would be surmised from the urine findings and general condition. In many cases in which others had diagnosed harmless alimentary or neurogenous glycosuria, his diagnosis from the sugar content of the blood had been "true and progressive diabetes," and it had always been confirmed by the later course of the case. This applies with special force to the "war diabetics" with hyperglycemia of 50 or 100 per cent. higher values.

In these and all cases of diabetes he warns against dropping dietetic restrictions at once when the sugar disappears from the urine. This is the very time when systematic, long continued dietetic restrictions have done the most good with the least possibility of harm. He is convinced that diabetes develops only in those predisposed from birth or with acquired injury of the pancreas. Infectious-toxic changes in the Langerhans islands are probably responsible for it more frequently than generally recognized. This is liable to occur with any infectious disease. Tonsillitis or other acute infectious disease was known in 15 per cent. of his cases, and one man had been vaccinated against both typhoid and cholera, with an exceptionally violent febrile reaction, a few weeks before the sugar appeared in the urine. Nervous stress alone is scarcely able to elicit diabetes although it may transiently increase the glycosuria and entail complications by whipping p the suprarenals to excessive functioning. The experiences f this war, with its enormous demands on the nervous ystem, will solve the question—like a natural experiment on huge scale—whether there is ground for assuming the ossibility of chronic neurogenous and traumatic diabetes. eurogenous impulses may reach the pancreas indirectly; entral nervous system—sympathetic—suprarenals—blood—iver, and the excess of hormones thus produced may in time xhaust a substandard pancreas. Von Noorden adds that hile fat is the mainstay of diabetics and although at present at is the most difficult to procure of all articles of food, yet very satisfactory arrangement has been made in his city to upply certified diabetics with a suitable diet of eggs (ten a eek); butter 500 gm. (later reduced to 300 gm.); fresh eat 250 gm.; with a daily ration of cream to a maximum of 00 gm.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 1, XXXVII, No. 79, pp. 1233-1248

44 *Experimental Cholemia. General Action of Bile Circulating in the Blood. Its Action on the Heart. A. Berti.—p. 1236.

44. **Effect on Heart, etc., of Bile in the Blood Stream.**—erti compares the experiences of various clinicians and esearch workers on the general effects of cholemia and the ction on the heart in particular. He also describes personal esearch in this line on dogs, a fistula into the pericardium ermitting oversight of the heart action after bile had been njected into the blood stream. Under its influence the heart ails to expand normally, while the contracting force is ntensified when the cholemia is of high degree. A small bile ontent of the blood depresses the contractile energy of the eart and slows the beat. Larger doses have a hypertonic ffect, increasing the contractile power but depressing the xpanding power. This hypertonic influence from the cholemia as most evident on the surviving heart of cats. The action n the heart of bile in the blood stream is most pronounced hen the heart is fatigued or the seat of fatty degeneration r other pathologic process. Hence the data obtained by esearch on normal hearts cannot be applied to pathologic onditions.

Policlinico, Rome

October 1, XXIII, No. 40, pp. 1167-1194

45 Bullets with Tip Reversed. (Sui proiettili austriaci da fucile rovesciati.) R. Alessandri.—p. 1167.
46 *Treatment of Cholera. C. Carloni.—p. 1173.

October 8, No. 41, pp. 1195-1222

47 Primary Surgical Treatment of Gunshot and Shell Wounds of the Knee. (Sul modo di comportarsi nelle unita sanitarie avanzate, dinanzi alle ferite d'arma de fuoco, penetranti nell'articolazione del ginocchio, ed alle consecutive artriti suppurate.) U. Camera.—p. 1195.
48 Ligation of Carotid Artery. (Allacciatura dell'arteria carotide esterna.) G. L. Gestro.—p. 1204.
49 Disinfection Service for Troops on Active Service. (Note pratiche per i disinfettori e gli infermieri dei riparti infettivi in guerra.) G. Aperlo.—p. 1206. Commenced in No. 40, p. 1177.

46. **Cholera.**—Carloni advocates, as the consensus of opinon, treatment of cholera by transfusion of a hypertonic olution; oxidation of the cholera toxins by means of peranganates; alkaline injections to ward off uremia, and subutaneous injections of atropin. He cites the reasons and echnic for these four measures.

Riforma Medica, Naples

XXXII, No. 29, pp. 781-808

50 Intravenous Injection of Colloidal Sulphur Preparation in Treatment of Acute and Chronic Polyarticular Rheumatism. R. Massalongo and S. Vivaldi.—p. 781.

No. 30, pp. 809-836

51 Tics and Their Treatment. (Sulla malattia di Gilles de la Tourette.) V. Desogus.—p. 809.

No. 31, pp. 837-864

52 Sarcomatosis of the Bones with Albumosuria. O. D'Alloco.—p. 837.

Cronica Medica, Lima

XXXIII, No. 4, pp. 97-128

53 Injection of Oxygen in Treatment of Gas Gangrene. (La oxigenoterapia para el tratamiento de la gangrena gaseosa.) P. S. Mimbela.—p. 97.
54 The Protozoa of Contaminated Drinking Water. (Protozoarios de ias aguas de Arequipa.) E. Escomel.—p. 103.
55 Operations under Local Anesthesia. F. Wieland.—p. 117.

No. 5, pp. 129-160

56 Peptic Jejunal Ulcer Seven Years after Roux Gastro-Enterostomy. F. Wieland.—p. 133.
57 Painless Delivery under Epidural Anesthesia. (La analgesia obstetrica por inyecciones epidurales de novocaina.) F. Ferreyra.—p. 136.
58 Paroxysmal Tachycardia. M. Villacorta.—p. 145. Continued.
59 Indications and Technic for Prostatectomy. (La prostatectomia en dos tiempos. Como debemos operar?) M. V. Matos.—p. 152. Commenced in No. 3, p. 79.

No. 6, pp. 161-204

60 Surgical Treatment of Gastric Ulcer. L. de la Puente.—p. 161.
61 Prehistoric Skull with Five Trephining Holes, Two Partly Grown Up. (Caso interesante de trepanacion incaica.) E. Escomel. p. 171. With illustrations.

Brazil-Medico, Rio de Janeiro

September 16, XXX, No. 38, pp. 297-304

62 Semeiologic Significance of Direct Abdominal Pain in Woman. III. (A dor nas desordens renaes.) R. Vaz.—p. 297. Commenced in No. 37, p. 289. To be continued.

September 30, No. 40, pp. 313-320

63 The Helminths of the Region South of Rio de Janeiro. II. (Informações sobre a fauna helminthologica sul-fluminense.) L. Travassos.—p. 313.
64 Vaccine Therapy of Whooping Cough. (Tratamento da coqueluche pela vaccina de Krauss.) U. Paranhos.—p. 314.

Russkiy Vrach, Petrograd

XV, No. 34, pp. 793-816

65 *Operative Treatment of Peripheral Nerves Injured by Gunshot and Shell Wounds. (Chirurgia periphericheskikh nervov.) A. D. Pavlovsky.—p. 793. Commenced in No. 32, p. 745.
66 Operative Treatment of Traumatic Aneurysms. V. A. Shaak. —p. 801.
67 Case of Arteriovenous Aneurysm in Portal Vein Region. S. N. Lisovskaia.—p. 805.
68 War Fractures of Long Bones. (K voprosu o liechenii ognestrielnikh perelomov dlinnikh trubchatikh kostei konechnosti.) G. B. Berlatzky.—p. 806.
69 Immobilization with Extension for the Hip Joint during Transportation. (K voprosu o vuityazhenii bedra pri transport.) A. F. Berdiaeff.—p. 807.
70 *Protective Ferments Giving Abderhalden Reaction in Infectious Diseases. (K voprosu o reaktsie Abderhalden'a pri zaraznikh zabolievaniakh.) M. P. Izabolinsky.—p. 808.

65. **Surgery of Peripheral Nerves.**—Pavlovsky here concludes his long account of his experience with twenty-five soldiers suffering from injury of peripheral nerves following a gunshot or shell wound. He operated in twelve of the cases, and from the results observed discusses the indications and technic in various types of injury. He insists that such operations are simple and harmless and they often are important for differential diagnosis. The benefit obtained is rendered durable by enclosing the nerve in a segment of an artery from a cadaver, pig or calf.

70. **Protective Ferments in Infectious Diseases.**—Izabolinsky applied the Abderhalden test with dysentery, typhoid, paratyphoid and cholera antigens to 2 c.c. of serum from patients with typhoid, dysentery, syphilis, or typhus, and to healthy persons. He experimented also with laboratory animals. His tests demonstrated that the blood of man and animals with natural or artificial typhoid forms specific ferments demonstrable by the Abderhalden technic. These ferments must be referred to the group of antibody amboceptors because on heating the serums they lose the faculty of digesting albumin. Only the addition of fresh serum complement restores this faculty. Injection into rabbits of alien albumin in the form of killed cultures of typhoid or paratyphoid bacilli, induces in their blood the production of specific ferments which can be rendered manifest by Abderhalden's technic, as also in the blood of persons already under the influence of the infection in question. Parallel tests with blood from persons with other infections always gave negative findings with antigens other than the one in question. He obtained the same specific response with ten soldiers who had been vaccinated against typhoid, their serum responding specifically to typhoid antigen and only to this, all the other tests proving negative. Izabolinsky is confident that we have in these specific ferments in infectious diseases a field for fruitful research to determine their nature and properties.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

October 7, II, No. 15, pp. 1269-1364

71 *Influencing the Heart Rhythm by Artificial Means. (Een studie van de hartspier volgens de pharmako-physiologische methode.) S. de Boer.—p. 1275.
72 *Tuberculosis among the Natives of the Dutch East Indies. (Over tuberculose bij de inlanders in Nederlandsch Indie.) A. E. Sitsen.—p. 1292.
73 Treatment of Tetanus. Experiences in the War. C. Ten Horn. —p. 1305.

71. **Pharmaco-Physiologic Study of the Heart Muscle.**—De Boer has been applying the usual clinical tests and methods of examination to the heart first placed under the influence of veratrin or other drugs. He gives here the curves from several of the hearts thus tested. The work was done on frog hearts; more than 100 experiments were thus made.

72. **Tuberculosis in Dutch East Indies.**—Sitsen found that 7.5 per cent. were tuberculous among the persons admitted to the clinic in his town in Sumatra from 1891-1902, but the figure was only 6.9 per cent. from 1902 to 1912.

Hygiea, Stockholm

LXXVIII, No. 18, pp. 1393-1472

74 *Diagnosis of Gastric and Duodenal Ulcer. (Om diagnosen av mag och duodenalsår i belysning av opererade fall.) R. Dahl. —p. 1408.
75 *Radiotherapy of Tuberculosis with Mercury Vapor Light. (Om ljusbehandling mot tuberkulos.) V. Malmström.—p. 1420.

74. **Diagnosis of Gastric and Duodenal Ulcers.**—Dahl tabulates the findings in 41 cases in which he operated, comparing them with the symptoms previously observed, the stomach content findings and other details. In 19 cases there had been no bleeding except occult in 2, but all suffered from pain coming on from two to four hours after eating, except 6 whose pain commenced in from one to two hours. In none of them did the pain come on earlier than an hour. The pains appeared always at the same point and after the same range of interval, but the interval was shortest after a small meal and longest after a heavy meal. There was no tender point on pressure in quite a number of the cases, and this proved misleading in some cases. In a number also there was tenderness only during the periods of pain. There was hypersecretion in only 8 cases, and no vomiting in 23 of the 41 cases. Vomiting occurring at the height of the pains is characteristic, but this is rare. The Roentgen findings were not decisive in the 4 cases examined with the screen. In short, the pain is the only constant and reliable symptom of gastric or duodenal ulcer, but this is so characteristic that there can be no mistaking it. The patients were of both sexes, from 18 to 60 years old; the symptoms suggesting ulcer dated from one to thirty-seven years before. In one case of extensive hemorrhage from the stomach, but no pains, the operation failed to reveal any tendency to ulcer, as also in another case of pains without bleeding. In another case the trouble proved to be a cancer in the lesser curvature. The duodenum proved to be sound although it showed a "niche shadow" on roentgenoscopy. Dahl adds that about every sixth one of his patients last year presented symptoms of a gastric or duodenal ulcer, but only a small fraction of them were given operative treatment. He is convinced that these ulcers often escape detection. The first signs of trouble develop usually between 20 and 30. The sooner the ulcer is given proper treatment, the better the outcome.

75. **Radiotherapy of Tuberculosis.**—Malmström has applied the mercury vapor light in over 100 cases of internal and external tuberculous processes, including eighty with pulmonary lesions. The entire body was exposed to the light for an hour every day or second day, commencing cautiously. No untoward by-effects were noted and the improvement in the general health was striking. Large tuberculous glands, with or without fistulas, subsided completely or leaving but slight relics. The fistulas healed without disfiguring scars. One empyema fistula, which had persisted for two years, healed over in three and a half months under the radiotherapy. Tuberculous processes in the larynx, bones and peritoneum, as also lupus, were cured or materially improved. He expatiates on the importance of radiotherapy with the sun, arc light or mercury light as a valuable adjuvant in combating tuberculosis, and suggests that a course might be found useful as a preventive when the pleura or the glands at the hilus are affected. This might ward off secondary pulmonary tuberculosis.

Ugeskrift for Læger, Copenhagen

September 28, LXXVIII, No. 39, pp. 1655-1702

76 *Clinical and Roentgenologic Study of Chronic and Habitual Constipation. II. T. E. H. Thaysen.—p. 1655.
77 *Inversion of the Uterus. E. Henningsen.—p. 1663.
78 Eclampsia at the Sixth and Seventh Months of Pregnancy; Two Cases. E. Bilsted.—p. 1671.
79 The Duties and Ethics of a Health Officer. (Embedslægens Forhold til Myndigheder, Publikum og Kolleger.) J. Lunddahl. —p. 1676.

76. **Habitual Constipation.**—Thaysen discusses in particular the constipation from atony of the large intestine whether due to physical inferiority of the walls of the bowel or to nervous influences inhibiting peristalsis. The vagus stimulates peristalsis, the sympathetic checks it, and the assumption that the preponderance of the latter is responsible for habitual constipation is accepted by many clinicians. The findings ascribed by Nothnagel to a congenital atrophy of the bowel walls have since been shown to be cadaveric changes. The degenerative changes in the nervous system in the elderly amply explain the senile tendency to habitual constipation. Thaysen has never found the lower bowel particularly abnormally distended with habitual constipation, except in one patient, a man of 26 with melancholia requiring institutional treatment. The transverse colon in this case was extremely distended its entire length, with insufficient peristalsis, but as a rule it is impossible to determine hypotonicity and hypomotility of the large intestine, not even with the Roentgen rays. The findings are not characteristic for constipation of the atony type except that it is not accompanied by the severe pains of the spastic type of constipation. Both are merely symptomatic conceptions, as in the majority of cases no pathologic anatomic or pathologic physiologic findings are discoverable.

77. **Inversion of the Uterus.**—The inversion occurred at the birth of the third child after Credé expression. The uterus was easily restored to place and the young woman seemed to be doing well until the ninth day when on straining to urinate the inversion occurred again. Various efforts to reduce it failed, and as the mucosa began to show damage, a Küstner-Borelius operation was done. Fatal peritonitis followed. Spontaneous inversion is very rare. Pulling on the umbilical cord or Credé's expression on a uterus not capable of contracting properly is usually responsible for it. Even very light pressure on the empty, slack muscular bag may be enough to induce inversion, but cases are known —one occurred recently at the Copenhagen maternity—in which inversion occurred following spontaneous delivery of both child and afterbirth. Recovery was uneventful after prompt reduction of the uterus. It is an easy matter to reduce most of the uterus, the left hand on the abdominal wall, but the region of the external os is harder to conquer. Holzapfel accomplished it in one case by working his finger down through the relaxed abdominal wall into the inverted passage, his assistant doing the same, and by their pulling apart, they thus stretched the passage enough to complete the inversion. The inflatable bag, correctly placed, may reduce the inversion, even when it has lasted a long time. In Barsony's case it failed although kept up for three weeks, but the uterus slid back into place soon after fixation by tamponing. The obstructing ring gradually dilates under these measures and, when the lumen has become large enough, the uterus slides rapidly back into place with pains suggesting labor. The mucosa is liable to be damaged with any of these maneuvers so that removal of the inverted uterus seems the simplest and safest measure. With the Küstner-Borelius operation, the roof of the posterior fornix is opened with a transverse incision, and the posterior wall of the uterus is slit. The uterus is then turned and sutured thus bringing the mucosa inside. The sutured uterus is then pushed back into the abdominal cavity through the incision in the posterior lacuna.

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FURTHER STUDIES OF THE PROTEIN POISON *

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During the past year our knowledge of the protein poison has been extended in several particulars. Underhill and Hendrix[1] have compared the action of the protein poison with that of the proteoses, and find a close resemblance. They state that the poison differs from the proteoses in that the former produces marked symptoms and even death in rabbits in relatively small doses. They call especial attention to this fact on account of the known refractoriness of rabbits to the proteoses. The protein poison also kills dogs, as shown by Underhill, in doses in which the proteoses have only a temporary effect, but the symptoms are the same. Edmunds did not find that the protein poison inhibits the coagulation of the blood in dogs, but Underhill has shown that this is a matter of dosage, and when the dose is large enough the blood remains permanently fluid. The so-called peptone poison, proteoses and the protein poison are closely related, as shown by chemical reactions and physiologic effects, and it seems reasonable to assume that the active groups in all consist of identical or closely related bodies.

In a research carried on under my direction, Pryer[2] has presented evidence of the following conclusions:

1. All proteins contain a poisonous group, which is identical or closely similar in action.
2. From 1 gm. of casein enough of this poison can be obtained to kill 800 guinea-pigs when injected intravenously.
3. The protein poison is not beta-imidazolylethylamin or histamin, although the physiologic effects of the two are very similar.
4. The poison is not a cholin derivative.
5. The poison is a protein cleavage product, acid in reaction, capable of forming compounds and reacting much like the globulins in its behavior to neutral salts.

Levin, in a study conducted in my laboratory, has shown that the protein poison combines with Witte's peptone, egg white and other proteins, both in vitro and in vivo, and in doing so the action of this poison on animals is modified and partially neutralized. This matter needs further study.

In a research in my laboratory, Cumming and Chambers[3] have reached the following conclusions:

1. The protein poison can be obtained by the method of Vaughan and Wheeler from the tissues and organs of exsanguinated mammals.
2. Poisons thus obtained are toxic not only for heterologous, but also for homologous species.
3. The minimum lethal dose of these poisons is for the guinea-pig and rabbit in proportion to their relative body weights when given intraperitoneally; when given intravenously, however, it is, in proportion to body weight, twenty-five times as toxic for the guinea-pig as for the rabbit.
4. Tissue protein poison hastens the clotting of blood in vivo in the guinea-pig, rabbit and dog. On the other hand, casein protein poison retards or wholly prevents the clotting of dog's blood.
5. All the protein poisons tested inhibit the clotting of blood from the guinea-pig, rabbit and dog when added in vitro in certain percentages.
6. Witte's peptone does not inhibit the clotting of rabbit's blood in vitro when added in any amount from 1 to 10 per cent.

I have held most earnestly that the method employed by Wheeler and myself in the cleavage of proteins into poisonous and nonpoisonous parts, crude as I admit it to be, splits the protein molecule along definite lines, and that the fragments obtained are definite cleavage products and not mere degradation products. This claim has found confirmation in a research recently reported from my laboratory by Emerson and Chambers.[4] These investigators have applied a number of protein tests to the original protein and its fragments obtained by this method. Their findings are stated as follows:

1. The proteins and their fragments give the biuret test. The poisons give this test in much higher dilutions than the residues. This indicates that the proteins and their fragments contain acid amid groups and other substituted amid groups and that the products have not been deamidized in the cleavage.
2. Gies' biuret reagent gives similar results.
3. The proteins and their split products give the xanthoprotein test, the poisons in higher dilution than the original proteins and the residues, indicating that all contain benzin nuclei, and in the cleavage these nuclei are concentrated in the poisonous part.
4. The original proteins and the poisonous fragments give the Millon test, the latter in higher dilutions than the former, while the residues do not give this test, thus indicating that all the monohydroxybenzin nuclei are concentrated in the poisonous protein in the cleavage.
5. The original proteins and the poisonous fragments give the Bardach test, while the residues do not.

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* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Underhill and Hendrix: Jour. Biol. Chem., 1915, xxii, 465.

[2] Pryer: Jour. Lab. and Clin. Med., i, No. 7.

[3] Chambers: Jour. Lab. and Clin. Med., i, No. 6.

[4] Emerson and Chambers: Jour. Lab. and Clin. Med., i, No. 8.

According to the accepted idea, this indicates that the residues should not be classed as proteins.

6. The proteins and the residues give the Molisch test, while the poisons do not, indicating that all the carbohydrate group is concentrated in the residue in the cleavage.

7. Proteins and both fragments give the Adamkiewicz test, but the color produced with the poisons is uniform whatever the source of the poison and different from that given by the residue. This test is usually considered as indicating the presence of tryptophan, but the shade of color may be influenced by the presence of tyrosin, which is concentrated in the poisonous protein.

8. The proteins and residues give the Hopkins-Cole reaction, while the poisons do not. The poisons fail to give this reaction because they contain no carbohydrate. When furfurol is added, the poisons do respond to this reaction.

9. Similar results are obtained with Benedict's modification of the Hopkins-Cole reagent.

10. The proteins and residues give the benzaldehyd test, while the poisons do not.

In a second communication, Emerson and Chambers[4] report on the relative responses of the proteins and the split products to the ninhydrin test. Their conclusions are as follows:

1. The proteins respond to this test in dilutions up to 1 : 10,000. The poisons are equally responsive to the test. The residues fail in dilutions of 1 : 100.

2. Dilute acids and alkalies interfere with this test.

3. Sodium chlorid slightly interferes.

4. Prolonged heating develops the delicacy of this test.

I have found that when a drop of an aqueous solution of the protein poison is placed on the skin and scratched in with some blunt instrument, a well marked local reaction develops within a few minutes. Local tumefaction accompanied by itching results. The possible relation of this to the hives and to the urticaria of serum disease suggests itself.

Recently Smith and I have found that substances resembling the protein poisons can be extracted from normal tissues. The resemblance of these bodies to the protein poisons are both chemical and physiologic. They have been obtained from brain, heart, lungs, spleen, liver, stomach and intestinal walls, kidneys, and most abundantly from the voluntary muscle. In small doses they cause typical anaphylactic shock and death with the usual postmortem findings. Should it prove that such bodies are normal metabolic products, the protein poisons will become more interesting. Acidosis, eclampsia, uremia and other phenomena may be involved in their studies.

ABSTRACT OF DISCUSSION

Dr. Frederick P. Gay, Berkeley, Calif.: As Dr. Vaughan's work has gradually evolved and become identified particularly with the phenomena of anaphylaxis, the real significance of the work has appeared, and that would seem to be the relation between the toxic and nontoxic substances in proteins. Dr. Vaughan was one of the first to find and to point this out, and particularly the method by which in the whole protein the toxic substance is masked by another substance, the toxic substance only appearing after the masking substance has been removed, either in the animal by the action of ferments formed by the injection of the whole protein, or in the test tube, as he was the first clearly to demonstrate. For some time I have been impressed, as have others, with the possibility of separating the true immunizing substance from the toxic substance. Dr. Vaughan has shown that that is possible. The protein poison is not the substance primarily that gives rise to the sensitization that splits the protein. We have a great future in bacterial therapy in the possibility of getting nontoxic substances which will give rise to high degrees of immunity without intoxication. Dr. Vaughan has stated conclusions which do not absolutely agree in two different respects. He has referred to these substances as probably proteoses in nature, and yet he regards the substance he produced by splitting with alcoholic potash as different from the degradation products. I wish he would make it a little clearer why he regards these substances as probably proteoses, and at the same time not the same as proteoses produced by the digestion of the proteins. It has been interesting in some work done in splitting proteins in endeavoring to determine the substance which would give antibodies to find that as you split the casein you eventually get a toxic substance when you reach the stage of polypeptids, and the minute you reach a toxic stage in the splitting of protein you lose the property of producing the antibodies. That agrees with the work of Dr. Vaughan. In a general way one may say that a protein that has become split up into a form where it is toxic ceases to be antigenic in nature.

I would like to ask Dr. Vaughan if he has done any transfer experiments. We have tried some of them in connection with typhoid immunity, and found that we could transfer this sensitivity of an immune animal to split up the whole protein. We have split up the typhoid bacillus by grinding and then macerating it and simply leaching out a poisonous substance, and we have found that the residue which was left as a sediment of such treated bacteria was more highly immunizing than the whole substance itself. It was not only more highly immunizing, but it was less toxic.

Dr. Robert Curtis Brown, Milwaukee, Wis.: A hypothesis of my own is that the protein of our food, especially the animal protein, is a poison, and the reason that, as a rule, it does little harm is that the body has developed certain defenses to counteract it, among which defenses are the ductless glands. If you remove the thyroids from sheep or goats, they, being herbivorous animals, are not affected, but if you remove the thyroids from dogs, though they will live for a considerable time on bread and milk, they will die in convulsions in a few hours if fed on meat. This shows conclusively that the meat contains a poison which Dr. Vaughan has shown is the protein which will kill a dog when one of his natural defenses is removed. I have found by experiment on myself and others that if an excess of meat, meat soup, eggs or cheese is taken, the natural defenses of the body against protein are overcome and certain morbid manifestations are produced, such as headache, gouty pains in the muscles, nerves or joints, turgescence of the nasal mucous membrane, bronchial asthma and certain skin manifestations. I believe that protein poisoning is really the true explanation of the old lithemic diathesis. It is peculiar that certain people have an inherited susceptibility to protein poisoning and you will find various different symptoms of protein poisoning in different members of a susceptible family. These manifestations are continued through many generations; some will have gouty fingers, neuralgia; others respiratory manifestations; others intestinal or skin manifestations. Goiter is often found in these families. The explanation of goiter is that the gland enlarges in its attempt to manufacture more of the needed secretion for defense. If the oversecretion is large in amount the symptoms of exophthalmic goiter ensue. We can prove this by withdrawing the animal protein (which I have often done) and noting the rapid improvement. Acne, follicular tonsillitis and even ulcer of the stomach occur so frequently in persons having other manifestions of protein poisoning that it seems quite possible that the elimination of the protein poison is the primary cause and infection is secondary. Moles, warts and keratosis are so common in persons having symptoms of protein poisoning that it seems even possible that carcinoma may have for its primary cause the animal protein in our food. I believe the French school claims that carcinoma is found principally in gouty families.

Dr. S. A. Matthews, Lawrence, Kan.: If we shut out the liver in animals such as dogs, by means of an Eck fistula, we bring on a condition of protein poisoning which is very peculiar, and which has been known since 1893. This poison seems to be something like the poison which brings about the symptoms observed in parathyroid tetany. When you bring on that condition, the injection of calcium salts will relieve it for several hours. This seems to be true in the convulsions which are brought on by meat feeding in Eck fistula dogs. If you add bone ash to the food you can keep dogs for a long time in good health and if you inject calcium salts, such as calcium lactate, it seems to have an inhibiting action on the poison and the animals can go for a long time without showing any symptoms.

Dr. F. M. Pottenger, Monrovia, Calif.: Dr. Vaughan's studies in protein give us a clue to the explanation of the phenomena of the tuberculin reaction. Recent observers have claimed that every phase of the tuberculin reaction can be explained on the basis of anaphylaxis. My studies in visceral neurology lead me to believe that the general tuberculin reaction is not wholly an anaphylactic reaction, but a toxic reaction, dependent on a shortened incubation period, during which time toxic molecules are constantly set free in large quantities. The rise of temperature and other toxic symptoms which are well known in the general tuberculin reaction are symptoms produced by stimulation of the sympathetic nervous system—such as fever, malaise, aching, chilliness, rapid heart action, decreased appetite, and inhibition of secretion and motility of the gastro-intestinal tract. Anaphylaxis, on the other hand, is an expression of stimulation of the greater vagus—thus we have spasm of the bronchial musculature, tendency to vomit (dog), involuntary expulsion of feces and urine, low blood pressure, low temperature, and collapse. From this it can be seen that the general tuberculin reaction is expressed through the sympathetic system, while the anaphylactic is expressed through the vagus system. Extreme toxemia, such as is represented by lowered blood pressure, sweating, and lowered temperature, probably results from a condition approaching sympathetic paralysis, which is more nearly like anaphylactic reaction. Extreme toxemia, however, fails to give other symptoms which are due to vagus stimulation, and which make up so prominent a part of the syndrome of anaphylaxis. Vaughan's work on the split products of the tubercle bacillus shows us how these two may be brought about. When tuberculin is injected into the patient having tuberculosis, the protein molecule is split up, liberating both the toxic and the sensitizing portions. If the dose is sufficiently large and a sufficient amount of the toxic molecules are set free, there results the toxic syndrome; if, on the other hand, there are sufficient of the sensitizing molecules set free, the phenomena of sensitization appear. This fact shows that the general tuberculin reaction is a reaction due to a shortened incubation period. Shortening of the period is due to the fact that the patient has previously been endowed with specific cellular defense against the products of the tubercle bacillus, whereby specific enzymes are present which split the tubercle products quickly, liberating large quantities of the toxins which result in the toxic syndrome. The sensitizing phenomena manifest themselves either with a local inflammation at the point of inoculation, or as a focal reaction in or near the focus of infection.

Dr. A. B. Wadsworth, Albany, N. Y.: I have been very much interested in Dr. Vaughan's work from the time it first came out, and also in some phenomena which developed in the course of experimental pneumococcus infections of the rabbit. One observation in particular, for which I have been unable to get any satisfactory explanation, is that following the inoculation of rabbits intravenously with the living pneumococcus, and with serum, there have been developed in certain series of experiments after varying intervals suddenly very acute convulsions, typical anaphylaxis—a reaction which I have been unable to explain. Series of five or six animals were inoculated, and in some of the experiments in from ten to twelve hours the animals would die in a few minutes with the same symptoms, all within half an hour, and the whole series would die inside of an hour. I have noted the same phenomenon following inoculation with living virulent organisms even up to thirty-six hours. I want to ask Dr. Vaughan if he has any suggestion explaining the toxicology of the reaction; should the poison be attributed to the splitting of the proteins of the pneumococcus cell or could the enzymes of the pneumococcus possibly develop poisons in the tissue substances comparable with the toxic element in the proteins which he has studied so extensively.

Dr. A. W. Crane, Kalamazoo, Mich.: I would like to ask Dr. Vaughan whether he has done anything with that part of the alcoholic mixture which is not soluble in water.

Dr. Victor C. Vaughan, Ann Arbor, Mich.: The idea I mentioned that the protein poison is closely related to the proteoses is founded altogether on the similarity in their action and the simplicity and comparative relationship of the chemistry of the two. I do not know how better to explain it than to say that I regard a protein as a neutral salt, sodium sulphate, for instance, which is relatively innocuous. Split off a part of the base and you get an acid salt, which is a little more poisonous. Cut out the base entirely, and then you get free acid which has a very toxic action. I consider the protein molecule as made up of base and acid, the acid being the poisonous substance, and the base the nonpoisonous substance. We have found that calcium has some neutralizing effect on the protein poison. If we take certain protein poisons, that obtained from casein, for instance, and incubate that poison with calcium, it is less poisonous. Years ago it was found that a certain degree of tolerance or immunity was induced in animals by simply injecting some foreign protein into the peritoneal cavity. One of my students found that by injecting some egg white or peptone into the peritoneal cavity and then injecting a fatal dose of the poison, it will not kill the animal. I went over those experiments, and he was right up to a certain point. It has a certain neutralizing effect, but a very limited one. I suppose it is because the free protein poison in the peritoneal cavity, when the peptone or egg white is injected just before, combines with the protein poison and to some extent neutralizes it. Two or three years ago I suggested that we might speak of "albuminal" diseases—diseases that are due to toxic products formed by the splitting up of proteins. I do not believe that Bright's disease is in all cases due to infection. I think it is often due to the absorption of unbroken proteins, or partially broken up proteins from the alimentary canal, and the poisonous action of these split proteins directly on the kidney cells. Longcope has gone a long way to show that. I believe that it is by no means uncommon to find kidney changes in long continued tuberculosis. Dr. Wadsworth mentioned some exceedingly interesting things. We have observed them but do not know how to explain it. We have simply called it delayed action. In injecting the protein poison into guinea-pigs, even intravenously, we sometimes find that the guinea-pig will have marked convulsions immediately afterward, but will recover from these, and be up on its feet and apparently perfectly normal for one or more hours, and then go into convulsions again and die. I do not know where the poison comes from or what the explanation of it is.

I have very definite ideas about gastric and duodenal ulcer. I think it is a physiologic law that when a poison is introduced into the blood, or into the system, Nature makes an attempt to eliminate that poison either through the kidneys, through the intestines, through the skin or possibly through the lungs. Many years ago I found beautiful ulcers in the stomach in a case of arsenical poisoning. Some of the arsenic was undissolved, and I thought that undissolved arsenic had corroded the mucous membrane of the stomach and led to this ulceration. I looked up the subject, and found that in 1750 a man by the name of Spoegel had observed that duodenal and stomach ulceration was likely to follow the application of arsenic to wounds. I made some experiments, although I never published them. I tried to induce arsenic ulceration in rabbits by feeding arsenic and by giving them arsenic subcutaneously and intravenously. I got better and more constant results in the subcutaneous and intravenous injection of arsenic in the production of stomach and duodenal ulcers than I did by feeding. I believe that ulceration in the stomach and intestine is due to the elimination of the poison from the system into the alimentary canal. I have made a great many experiments in injecting egg white into the ear vein of a rabbit and finding it in the alimentary canal.

There is no question but what the protein poisons and various other poisons are eliminated into the alimentary canal.

Dr. Crane asks me whether I have done anything with the part of the alcoholic mixture that is not soluble in water. I have not. Dr. Gay asked if I had done anything in transferring this sensitization to other animals by means of serum. I have not.

A STUDY OF DIARRHEAS IN BOSTON FOR 1915 *

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It was proposed early in 1915 that investigators from several parts of the country should make a simultaneous study of the diarrheas in their own locality, and that these findings would be compared, and perhaps some common valuable essentials exposed. This paper concerns the study of diarrheas in Boston. It is hoped that some of the following statistics are of sufficient value to have made the task worth while. In order to make these findings as uniform and useful as possible, I used all the outpatient department cases of the Children's Hospital for the whole year 1915. I did not start out to prove anything. No experiments were carried out for this paper. Every record was examined personally every day at the close of the clinic. In this way only rarely were cases of diarrhea missed. At the end of the year all the records of the diarrhea cases were placed together and used for this investigation. By grouping them in different ways, an attempt was made only to find what they offered as matter for thought.

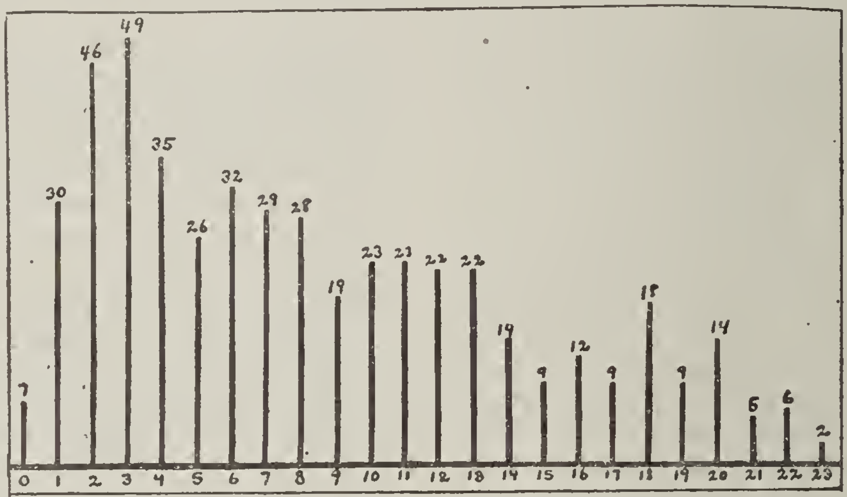

Chart 1.—Number of cases of the diarrheas for each month of age up to 2 years.

Not only were the infectious diarrheas and the sick diarrheas included, but every case that had frequent loose stools. Five or more stools a day was always called diarrhea. Continued loose stools when less frequent were also considered as diarrhea. Many of them occurred and were relieved by home treatment. Many were obviously secondary to some other disturbance or medication. Several were of very short duration. All these types have been included.

Over 14,000 visits by patients were made to the medical outpatient department during the year. Of these, about 3,500 were new cases; 588 patients, new and old, had diarrhea; a few of these were recurrences.

The hospital is located in Boston proper near Brookline. Over one third of the patients come from the Roxbury and Dorchester districts, which are from 3 to 7 miles distant. Not 5 per cent. are within walking distance. More than 75 per cent. have to change cars twice and spend more than an hour in getting to the hospital. About 20 per cent. come from beyond the 5-cent fare limit. Two years ago I located 600 consecutive new cases on a mounted map of Boston. It showed how scattered the cases were all over the whole territory. It proved that it was a Greater Boston clinic, and not a neighborhood one. The clinic is not representative of the poorest and most ignorant classes. The great distance forbids it. The greater proportion can pay any reasonable amount for milk and medicine. A milk fund, supported by private philanthropies and distributed by the social service department, helps or fully pays for the milk of the very needy while the child is ill.

Boston, of course, is very cosmopolitan. It would be difficult to determine from the records, however, just which nationality bore the honor of numbers in the clinic. As an estimate I should think that about 70 per cent. of the mothers were foreign born.

The outpatient records as a whole are complete as to history, physical examination and treatment. In not a few instances, details that I have attempted to study in the histories were missing. In other cases the facts stated were so indefinite that they could not be used. This accounts for what seem to be errors in arithmetic in totaling or proportioning the various statistics. In many cases, the patient saw a different doctor at each visit. This complicated matters as to diagnosis and treatment. It must be understood that the findings in this investigation are conclusions for Boston alone. They are not expected to hold for other localities where the premises are apt to be very different.

The outpatient records do not mention the milk supply. Boston is largely supplied by the big milk dealers. Most all of this milk is pasteurized. As the treatment of milk is fully as important after it has been left on the back door step as before, I have considered the milk question as too big and outside the scope of this paper. It is a matter of common knowledge that when the cows go out to pasture in the spring, their milk often has a laxative effect on the babies. The same condition may possibly hold throughout the summer and have some influence, although secondary, on the prevalence of the diarrheas during that season. Household cleanliness, good nursing, the prevalence of flies, etc., all require house to house investigation. The study of these conditions would also have to be controlled by a similar study of households in which there had been no diarrhea. I have not touched this problem for the present.

Of the whole series of cases, 56 per cent. of the diarrheas developed before admission of the patients to the outpatient department. Forty-four per cent. developed after they had been seen in the clinic.

Geographic Distribution.—The geographic distribution of the diarrhea cases shows no difference from that of the entire clinic. For example, Roxbury furnished 23.64 per cent. of all the outpatient cases for the six months from April to September, 1915; it also furnished 21.47 per cent. of all the diarrheas. Dorchester's share of the clinic was 11.37 per cent., while the diarrheas were 13.42 per cent. The figures for Cambridge, 4 miles off, are 7.04 and 7.38 per cent. Those of Charlestown, 7 miles away, and a rather poor section, are 3.48 and 3.19 per cent. Table 1 shows the number of new patients for six months of the year from April to September, 1915, coming from several sections of Greater Boston. It also shows what proportion in per cent. each section represents of the entire clinic. Parallel with this is given the number and percentage of all the diarrhea cases for the entire year. The difference in the two figures was never more than 2.17 per cent. (Roxbury) in all of the twenty-six different districts represented. It is astonishing how parallel they run even in the suburbs over 10 miles distant from the hospital.

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* From the Outpatient Department of the Children's Hospital, Boston.

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The geographic distribution of the infectious diarrheas, of the patients who died, and of those sick enough for ward treatment did not differ materially from the foregoing figures.

Sex.—Fifty-six per cent. of all the patients were males. It is of interest to note how this proportion holds for the different groups arranged according to age (Table 2).

Weight.—Over 80 per cent. of all the patients were underweight at the onset of the diarrhea, or at least when they were first seen for treatment. The curve of their weights was compared to a similar curve of normal weights which I incorporated in a recent study of weights and measures in the same clinic a year before. The curve of weights of the diarrhea cases almost always ran well below the normal curve except in an occasional instance. This difference in weight is so marked and so frequent that it cannot be accidental, and was more than could be accounted for by the diarrhea itself. It seems that the diarrhea is more apt to occur in those children who are underweight.

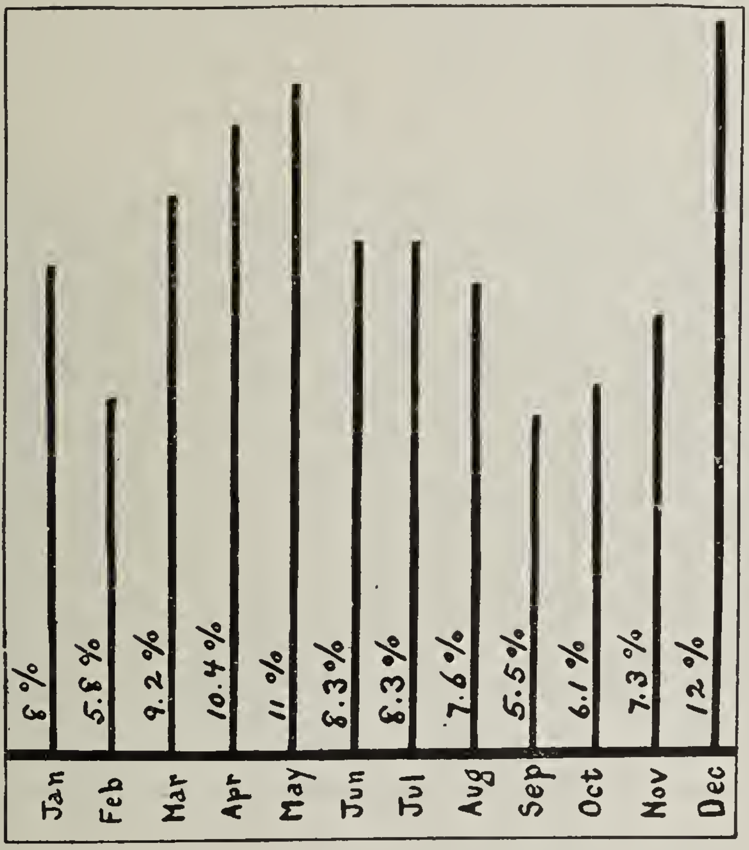

Chart 2.—Percentage weaned in each month of the year.

Birth Weight.—As the birth weight is so often a rough guess — and a high guess — nothing can be learned as to comparison with the normal birth weight. The average birth weight for boys in the series was 8 pounds; the average for the girls was 7 pounds, 9 ounces. These figures show only the tendency of doctors and attendants to guess too high on the weight unless it is a tiny baby, when the guess weight is diminished to make the baby seem still more of a curiosity.

TABLE 1.—GEOGRAPHIC DISTRIBUTION

District	General Clinic		Diarrheas	
	Number	Per Cent.	Number	Per Cent.
Roxbury	453	23.64	128	21.47
Dorchester	218	11.37	80	13.42
City	201	10.49	55	9.22
Cambridge	135	7.04	44	7.38
Somerville	110	5.74	39	6.54
East Boston	90	4.69	32	5.37
Charlestown	67	3.48	19	3.19
Brookline	43	2.24	20	3.35
South Boston	42	2.19	16	2.69
Brighton	37	1.93	15	2.51
Malden	36	1.87	9	1.51
Revere	28	1.46	5	0.84
Medford	20	1.04	4	0.67
Winthrop	11	0.57	3	0.50
Beachmont	10	0.52	2	0.33
Quincy	9	0.46	3	0.50
Hyde Park	7	0.36	3	0.50
Others	399	20.86	119	19.93

There were fifty-five patients whose birth weight was reported as less than 6 pounds. Of these, twenty-one were over 1 year of age. There were thirty-four patients under 1 year old who weighed less than 6 pounds at birth. Of these, 11.7 per cent. (four patients) died. This mortality is almost twice as large as the total mortality for the same age in this series. It is evident that the prognosis is worse for diarrheas developing in babies who were born much underweight or premature, as some must have been.

Age.—Three hundred and forty-seven cases occurred in children under 1 year of age, 143 in children between 1 and 2 years, and ninety-six in children between 2 and 12 years.

Chart 1 shows the number of cases that occurred in each month of the first two years. The largest number of diarrheas developed in babies from 2 to 4 months old, over 37 per cent. of the first year's occurring then. More occurred during the third month of age than any other. As the age increases, the incidence of diarrhea decreases, very few appearing for treatment after the age of 3 years.

Relation to Weaning.—There were 325 babies under 2 years old who had been entirely weaned from the breast. Chart 2 shows the percentage weaned in each month; 42.6 per cent. were weaned in March, April, May and December. Only 21.4 per cent. were weaned from July to September, the diarrhea months. It seems that weaning in the spring is somewhat closely related to diarrhea in the summer. December is an important month also. In many of the earlier diarrheas of the year the patients were weaned then. I can account for this only by the incidence of Thanksgiving and Christmas, when the mother and baby are apt to eat objectionable food and thus hasten an indigestion and weaning. Lack of exercise on account of the cold weather may also be partly responsible. There seems to be a close relation between the time of weaning and the onset of the diarrhea. The more recent the weaning, the more apt the diarrhea. Chart 3 shows the percentage of all the babies under 1 year for each month elapsed since weaning. It shows that 25 per cent. of all the babies under 1 year were still nursing, wholly or partly. It also shows that half of those wholly weaned had their diarrheas within three months of the weaning.

Duration of Nursing.—It has been stated above that 75 per cent. of the babies under a year were off the breast entirely. These 331 babies had been nursed an average of only ten weeks. The average nursing period of those that died was six weeks, and of those sick enough to be admitted to a hospital, also six weeks. The average duration of nursing for the babies from 1 to 2 years of age was eight and one-third months; of those who died at that age, the duration averaged six and one-third months; of those sick enough to be admitted to a hospital, it was seven and one-half months. The average duration of nursing of the cases diagnosed as infectious diarrhea was longer than the average for all the diarrhea cases for both the younger and older babies.

TABLE 2.—SEX OF DIFFERENT GROUPS

Groups	Sex	Per Cent.
Babies under 1 year	Boys	56.5
Children from 1 to 2 years	Boys	56.0
Children from 2 to 12 years	Boys	53.25

Seasonal Occurrence.—The largest numbers of all the diarrhea cases occurred in July, August and September — more in August than in the other two. The first week in August contained more than any other week of the year.

Relation to Temperature and Humidity. — Certainly temperature and humidity must play a great part in this seasonal occurrence. For these deductions I have used the highest daily temperature, the average humidity taken at 8 a. m. and 8 p. m., and the absolute humidity, reckoned from the temperature and humidity. The absolute humidity represents the weight in grains of the moisture in a cubic foot of atmosphere. It varies more with the temperature than with the humidity, that is, air can hold far more moisture on a hot clear day than on a cool day even when it is raining. I have plotted curves of the daily incidence of the diarrheas, together with that of the temperature, humidity and absolute humidity for each day. There were also made similar curves for the weekly and monthly averages. The daily chart was too irregular for much deduction. Chart 4 shows the weekly averages. The curves are more regular. Each month was divided into four parts, some of seven and some of eight days each. It shows how the temperature rose to above 60 and remained so in the middle of April. It rose to above 73 and remained above that point early in June. It rose above 81 twice — in the middle of August, and in the middle of September. It fell off rather abruptly toward the end of September, and did not rise again. The diarrhea curve reached its highest point earlier in the season than the highest temperatures were recorded. The humidity curve was very irregular because of its rise on overcast days. Nevertheless it was highest early in August at the same point that marks the height of the diarrhea curve. The two curves reach their maximum points fairly well together. On the whole, the important points to notice in this comparison are that the diarrhea curve reached its maximum one month after beginning to rise, while the temperature and humidity were four months in rising to the same point. It seems as if it required a long siege of temperature and humidity to start things going. Then there was a storm of diarrhea which subsided much slower than it began. Throughout the year there are marked rises of temperature or humidity. These were never attended by a shower of diarrheas. This point is well shown by the sharp rises of temperature in August and September. These rises were record breakers; but there was no accompanying rise in the number of diarrheas.

The humidity in January and early February was very high, but there were very few diarrheas. Chart 5 shows the monthly averages. It is seen that the temperature, humidity and absolute humidity are all highest in July. The diarrhea curve reached its maximum in August. It shows that while the height of temperature, humidity and absolute humidity is being maintained for a few weeks, the numbers of diarrheas rapidly increase, and that the numbers rapidly decrease just as soon as the temperature and humidity begin to abate. We may readily deduce from these two charts that the incidence of the diarrheas depends more on the absolute humidity than on any other one factor. The diarrhea curve conforms most closely to that of the absolute humidity in both instances.

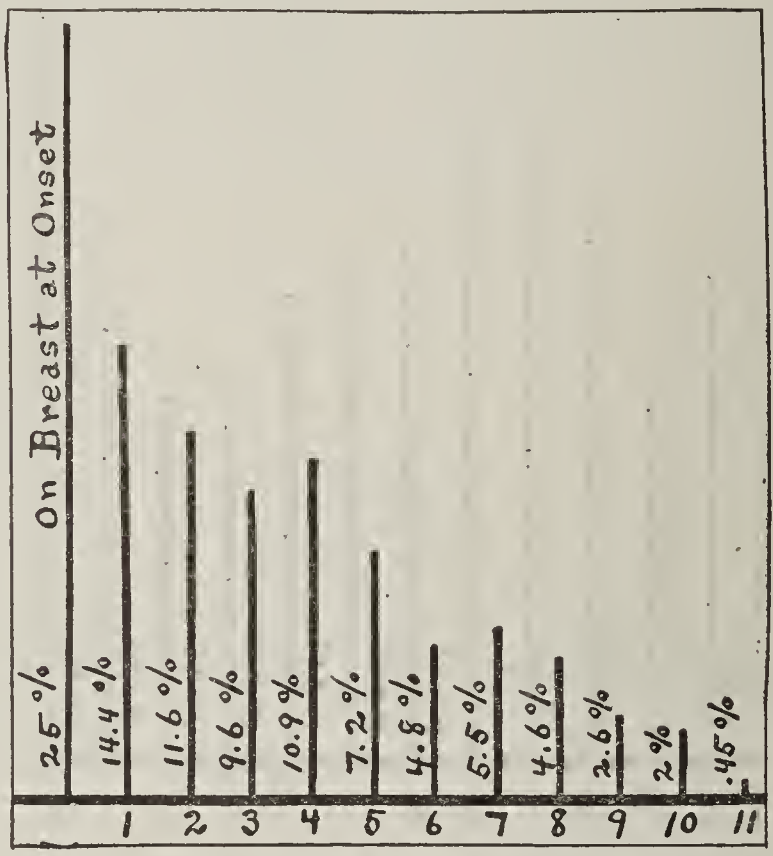

Chart 3.—Percentage developing for each month elapsed since weaning in babies under 1 year of age.

Special Kinds of Cases Affected by the Summer Conditions. — Of all the cases of diarrhea, 64.6 per cent. had their onset in July, August and September. Several groups of cases influenced this high proportion more than others. Each will be discussed in turn, but this seems a fitting place to at least mention them. Every baby over the age of 1 year that was still wholly or partly on the breast had its diarrhea from July to September. During these months started the diarrheas of 75 per cent. of all those that died, had infectious diarrhea, or were sick enough to be admitted into a hospital. Ninety per cent. of the bloody diarrheas occurred then. Seventy-five per cent. of the diarrheas in the older children

TABLE 3.—TYPES OF BOTTLE FEEDINGS ON WHICH DIARRHEAS DEVELOPED IN BABIES UNDER ONE YEAR OLD

Type	Number	Per Cent.
Good formulas	80	28.8
Maltose formulas	67	24.2
Sucrose formulas	27	9.7
High starch formula	22	7.9
Milk and water dilutions	22	7.9
High lactose formulas	18	6.5
High fat formulas	14	5.0
Injurious extras	11	3.9
Mead's Dextrimaltose formulas	10	3.6
Fat-free milk	4	1.4
Buttermilk	2	0.7

complicating or complicated by some digestive disease occurred from July to September. About 77 per cent. of the diarrheas occurring in children who had been fed proprietary foods occurred from July to September.

Relation to Diet.—Of the infants under 1 year of age, fifty-two (14 per cent.) were entirely breast-fed when the diarrhea began; fifty-five (15 per cent.) were getting part breast and part bottle or other food; 261 (71 per cent.) were entirely weaned, taking the bottle with or without other extras. The babies fed on the bottle were more apt to have their diarrheas from July to September than those still nursing; 65 per cent. of the bottle babies, and 40 per cent. of the nursing babies occurring at that time. Fifty-eight per cent. of those on mixed feeding happened from July to September. Seven babies over a year were still wholly breast-fed, and six were partly breast-fed. Every one of these thirteen cases had their diarrhea from July to September. It was found that twenty-two children had been kept on the breast for over twelve months before weaning. Of the diarrheas of these children, 86.5 per cent. also occurred from July to September.

At the onset of the diarrhea, the records show that 91 per cent. of the children over 2 years of age were on good ordinary diets, with no special food mentioned to which the diarrhea could be laid. Of the babies between the ages of 1 and 2 years, 65 per cent. were on obviously faultless diets. Of the babies under a year of age, excluding the wholly breast-fed, only 29 per cent. were on a faultless formula. All the other infants were being fed some element in excess which proved to be laxative on fermentation. Table 3 is a list of the various foods on which babies under 1 year of age were being fed when the diarrhea started. Of special note is the fact that 24 per cent. were getting some form of maltose, including Mellin's Food. Ten per cent. were getting sucrose alone or in condensed milk. Eight per cent. were being overfed on the starchy proprietary foods. Only 5 per cent. were on mixtures too high in fat, and only 3.6 per cent. on Mead's dextrimaltose—a food which is being used a great deal in our formulas.

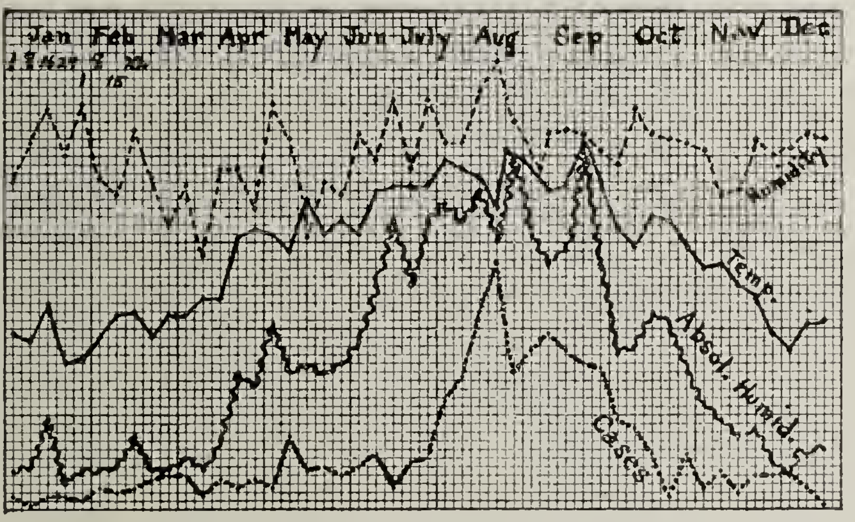

Chart 4.—Average temperature, humidity, absolute humidity and number of diarrheas for each week of the year.

Proprietary Foods.—One third of all the infants having diarrhea had been getting one or more of the proprietary foods when the diarrhea started, or not many days previously. I do not include as proprietary foods lactose, Mead's dextrimaltose, Brooks' or Robinson's barley, sucrose, or malt soups. Seventy-four per cent. of these diarrheas occurred from July to September, and 80 per cent. of the older children who had ever been fed one of the proprietary foods had their diarrheas during these months. The babies fed on proprietary foods were more prone to excoriations. The figures of this series show that 18 per cent. more babies fed on proprietary foods than on all other sorts of feeding died, or left the clinic unrelieved.

Carbohydrate Fermentation.—Of all the babies under 1 year of age getting the bottle wholly or partly, 57 per cent. of their diarrheas were due directly to carbohydrate fermentation. This was proved in every case by either the therapeutic test of relief with less sugar or starch or by an unmistakable history of carbohydrate overfeeding with the usual accompanying signs and symptoms. Only 19 per cent. of the babies between 1 and 2 years could be proved to have carbohydrate indigestion, and only 5 per cent. of those between 2 and 12 years. These cases did not appear in July, August and September to any greater extent than the average for all the diarrheas.

Excoriated Buttocks.—About 29 per cent. of all the babies under 1 year of age were excoriated. Of those fed on the breast alone, 15 per cent. were excoriated. Of those partly breast-fed, 19 per cent., and of those entirely on the bottle, 34 per cent. were excoriated. These cases were not more frequent from July to September than the average diarrhea cases. Forty-one per cent. of those babies fed on proprietary foods were excoriated.

Coexisting Disturbances.—Eighty per cent. of all the babies under a year of age had some other ailment at the time of the diarrhea, or within a short period just previous to the onset. Among the most frequent in order were eczema, otitis, indigestions, malnutrition, bronchitis, scurvy, tuberculosis and common colds. Forty-two per cent. of these complications were dis-

TABLE 4.—TREATMENT OF THE BABIES UNDER ONE YEAR OLD WITH ITS RESULTS

Type	Relieved		Not Relieved		Died		Never Returned		Totals	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent	Number	Per Cent.	Number	Per Cent.
Ordinary	88	69.8	10	7.9	2	1.5	26	20.6	126	36.9
Reduced sugar	63	91.3	2	2.9	0	....	4	5.8	69	20.2
No treatment	31	86.1	1	2.7	0	....	4	11.1	36	10.5
Calcium casein	12	50.0	7	29.1	1	4.1	4	16.4	24	6.6
Reduced fat	15	78.9	3	15.7	0	....	1	5.2	19	5.5
Lactose free	13	86.6	0	....	1	6.7	1	6.7	15	4.4
Buttermilk	5	38.4	4	30.7	4	30.7	0	....	13	3.8
Dextrimaltose formulas	6	66.6	0	....	1	11.1	2	22.2	9	2.4
Lactose solution	4	50.0	3	37.5	0	....	1	12.5	8	2.2
Indirect treatment	4	80.0	0	....	1	20.0	0	....	5	1.4
Maltose formulas	1	25.0	3	75.0	0	....	0	....	4	1.1
Varied treatments	0	....	4	100	0	....	0	....	4	1.1
Same formulas boiled	1	33.3	0	....	1	33.3	1	33.3	3	0.8
Reduced starch	2	100	0	....	0	....	0	....	2	0.5
Proprietary food	2	100	0	....	0	....	0	....	2	0.5
Breast milk	0	....	0	....	1	100	0	....	1	0.3
Olive oil mixture	1	100	0	....	0	....	0	....	1	0.3

eases of the digestive tract, excluding diseases of the rectum.

Of the older children, 55 per cent. had coexisting diseases, of which 32 per cent. were digestive disorders. The most frequent of these complications were, in order: the contagious diseases, indigestions, nasopharyngitis, otitis, diseases of malnutrition, pyelonephritis, cerebral affections, constipation, bronchitis and tuberculosis. About every imaginable disease was included. Of the diarrheas in the children over 1 year of age that were complicated with digestive disorders, 75.5 per cent. occurred from July to September.

TABLE 5.—TREATMENT OF THE INFECTIOUS DIARRHEAS IN CHILDREN OVER ONE YEAR OLD, WITH RESULTS

Type	Relieved	Not Relieved	Died	Not Returned	Totals
Lactose solution......	9	0	1	3	13
Buttermilk.	9	1	0	2	12
Sent to hospitals......	0	0	0	4	4
Skimmed milk.........	3	0	0	0	3
Barley water..........	0	0	0	1	1
Reduced sugar...	1	0	0	0	1
Carbohydrate foods..	1	0	0	0	1
Bismuth..	0	0	0	1	1

Blood.—In forty-nine cases, blood in greater or lesser amount was noted in the stools. Of these, eighteen were in infants under 1 year, and thirty-one in children over 1 year. Cases in which blood was noticed were not always considered as infectious diarrheas. On the other hand, many cases were classed as infectious diarrheas that did not show blood in the stools.

Of the babies under a year, 17 per cent. of those showing blood in the stools were breast-fed entirely, 22 per cent. on mixed feedings, and 61 per cent. on the bottle alone. All but one of these eighteen cases occurred in July, August or September. Of the older children, 83 per cent. occurred during these months.

Infectious Diarrheas.—The diagnosis of infectious diarrhea seems to have been rather an elastic one. This can easily be explained, as many of the cases were seen but once, and a fair understanding of the case could not be obtained. On the whole, the case was apt to be called infectious diarrhea if the patient was very sick with a fever, and loose stools containing blood and pus. Many were called infectious without blood. The sick children with gas bacilli found in the stools were also called infectious. There were sixty cases in the whole series diagnosed as infectious diarrhea. Twenty-five were under a year old, twenty-two between 1 and 2 years, and thirteen patients were over 2 years of age. Seventy-eight per cent. of all the infectious diarrheas occurred from July to September. The geographic distribution of the infectious diarrheas was not remarkable.

Gas Bacillus.—A great many of the stools were planted in dextrimaltose solution for the growth of the gas bacillus. Many of these tests were not recorded. Several were placed on the records as positive or negative. The treatment and outcome of these are stated below.

Treatment.—The statistics on treatment are very complicated, owing to the large variety of causes and complications, and to the large number of doctors with their more or less varied ideas of feeding and general treatment. A majority of the patients received a cleaning out, followed by water or barley water, and then a weak milk mixture. Many did not need an initial catharsis, but were given suitable formulas or diets immediately. Table 4 shows in a very rough way the number of babies under a year old receiving the various kinds of treatment. Not a few cases received more than one kind of treatment; in this event they were all recorded. The table shows the result of the treatment as relieved, not relieved or died. If the patient did not appear at the clinic again, and could not be followed, it is included under the column marked "Never Returned."

It is to be noted that 36.9 per cent. of all the cases received the simple cleansing treatment with slight or no change in the food. Ten per cent. received no treatment for the diarrhea at all; 20.2 per cent. received mixtures with a reduction of the carbohydrate element; this includes the cases in which maltose was omitted from the formula; 4.4 per cent. were put on mixtures extremely low in lactose by using 32 per cent. cream and precipitated casein. This gets the sugar below 0.5 per cent. This treatment is called "lactose-free" in the table. One doctor used precipitated casein with skimmed milk or diluted whole milk. This treatment is called "calcium casein" in the table. "Olive oil" refers to homogenized mixture of olive oil, skimmed milk, water and sugar. "Lactose solution" refers to a 5 or 6 per cent. solution of lactose in water with or without a little barley.

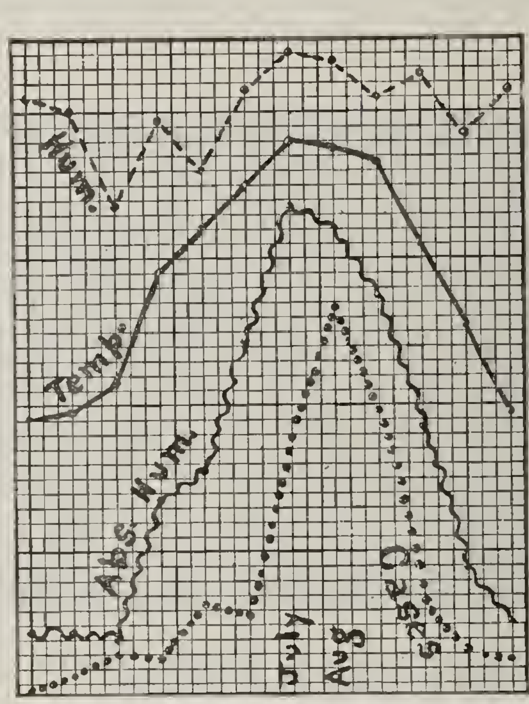

Chart 5.—Monthly averages for temperature, humidity, absolute humidity and diarrheas.

The important points to note in Table 4 are that 91 per cent. of the babies treated with lower sugar formulas were relieved immediately; 86.5 per cent. of those getting the "lactose-free" formulas get better immediately. Only 38 per cent. of those getting buttermilk were relieved; 30 per cent. died, and 30 per cent. were lost from the clinic. Only 50 per cent. of those getting lactose solution were relieved. Fifteen per cent. of those getting a reduced fat percentage were not relieved. Three out of the four that were put on mixtures containing maltose were not relieved, necessitating an omission of the maltose finally.

TABLE 6.—TREATMENT OF INFECTIOUS DIARRHEAS IN BABIES UNDER ONE YEAR OLD, WITH RESULTS

Type	Relieved	Not Relieved	Died	Not Returned	Totals
Buttermilk.................	4	3	3	0	10
Fat-free diet...............	1	1	2	0	4
Lactose solution...........	3	1	0	0	4
Milk and water dilution....	2	0	0	0	2
Calcium casein.............	0	0	1	0	1
Dextrimaltose formula....	0	0	1	0	1

All the varieties of treatment for children over 1 year of age were very successful. Only three died, and seven were unrelieved out of 203 cases. Just 25 er cent. never returned and could not be followed.

The most successful treatment for the children over year and a half old was a cleaning out with castor il followed by barley water for from twelve to ighteen hours. The child then received boiled kimmed milk, barley jelly, farina, toast and toasted rackers. Potato, butter, fruits, etc., were omitted for t least a week.

Relation of Gas Bacillus to Treatment.—The test for he gas bacillus was reported positive in ten cases in hildren over 1 year old. Six received buttermilk. Four received ordinary mixtures. The test was eported negative in nineteen cases. Two were given uttermilk, and seventeen ordinary mixtures. All did vell. Of the babies under 1 year of age, there were lso ten positive reports for the gas bacillus. Three vere fed ordinary formulas and did well. Seven were iven buttermilk. Of these, two died, one was not elieved, and four did well.

The varieties and results of treatment of the infecious diarrhea cases in children over 1 year is shown n Table 5. "Hospital" refers to four cases that were ent to some hospital but did not appear there, and vere lost altogether. All forms of treatment worked vell. There was only one death, that patient being iven lactose solution. Table 6 shows the variety and esults of treatment of the infectious diarrhea cases n children under 1 year of age. Ten of these received uttermilk, of whom three died and three were not elieved. Poor results were obtained from the use of kimmed milk.

Mortality, Etc.—Of all the patients under 1 year of ge, 6.9 per cent. died; 11.2 per cent. were not relieved. The mortality of the infectious diarrheas for this age vas 36 per cent.; for the noninfectious, 4.6 per cent.

Of all the patients between the ages of 1 and 2 years, .1 per cent. died. and 2.8 per cent. were not relieved. The mortality for the infectious diarrheas for this age vas zero; for the noninfectious, 2.4 per cent.

Of all the patients between the ages of 2 and 12 'ears, 1 per cent died and 1 per cent. were not relieved. The mortality of the infectious diarrheas for this age vas 7.7 per cent.; for the noninfectious, zero.

CONCLUSIONS

It would be very difficult to prove that any one or wo factors were wholly responsible for the diarrheas n children. From the foregoing statistics, however, nany helpful inferences may be drawn. No part of Boston is freer from the diarrheas than another. The tiologic factors reach everywhere. Children not up o the physical standard and those born congenitally veak are very susceptible. Babies between the ages of 2 and 4 months, especially those that have been ecently weaned, seem to be marked for this disease. Weaning in the spring is closely related to diarrhea n the summer. It is regrettable that so many babies nave to be weaned before they are 3 months old, as his seems directly responsible for much of the trouble. Nursing for over twelve months is also pernicious, as t seems from these statistics to do more harm than good. The seasonal occurrence from July to September depends more on the absolute humidity than on any other one factor. The infectious diarrheas occurred especially in the summer months, as did the diarrheas of those that had been nursed over a year, and hose that had been fed on the proprietary foods. The proprietary foods and malt soups were directly responsible for a great deal of the trouble. Carbohydrate fermentation, excoriated buttocks and the diarrheas were always closely associated. Children with other diseases and ailments are the most susceptible. The most favorable form of treatment for the infants on the bottle was a catharsis, a temporary weak food, and then a formula low in sugar; that for older children, barley jelly, boiled skimmed milk, toast and toasted crackers.

On the whole, as next important factors to absolute humidity in the etiology of the diarrheas, carbohydrate fermentation and a susceptible physical condition stand out most prominently.

272 Newbury Street.

AN ANALYSIS OF THE MORTALITY FOR 1915 IN THE INFANT WELFARE STATIONS OF CHICAGO *

H. F. HELMHOLZ, M.D.
AND
WALTER HOFFMANN, M.D.
CHICAGO

The Infant Welfare Society of Chicago operated twenty-one stations during the year 1915 in the most congested districts of the city. During the year, the organization cared for 9,313 babies, representing about one sixth of the babies born in Chicago during 1915; of these 9,313 babies, 320 died, making the death rate 3.4 per cent. For various reasons twenty of the cases were not available, so that only 300 of the cases could be tabulated. As we have no complete birth registration in Chicago, it is very difficult to determine how effective our work is in reducing infant mortality. We have undertaken to analyze our results from a

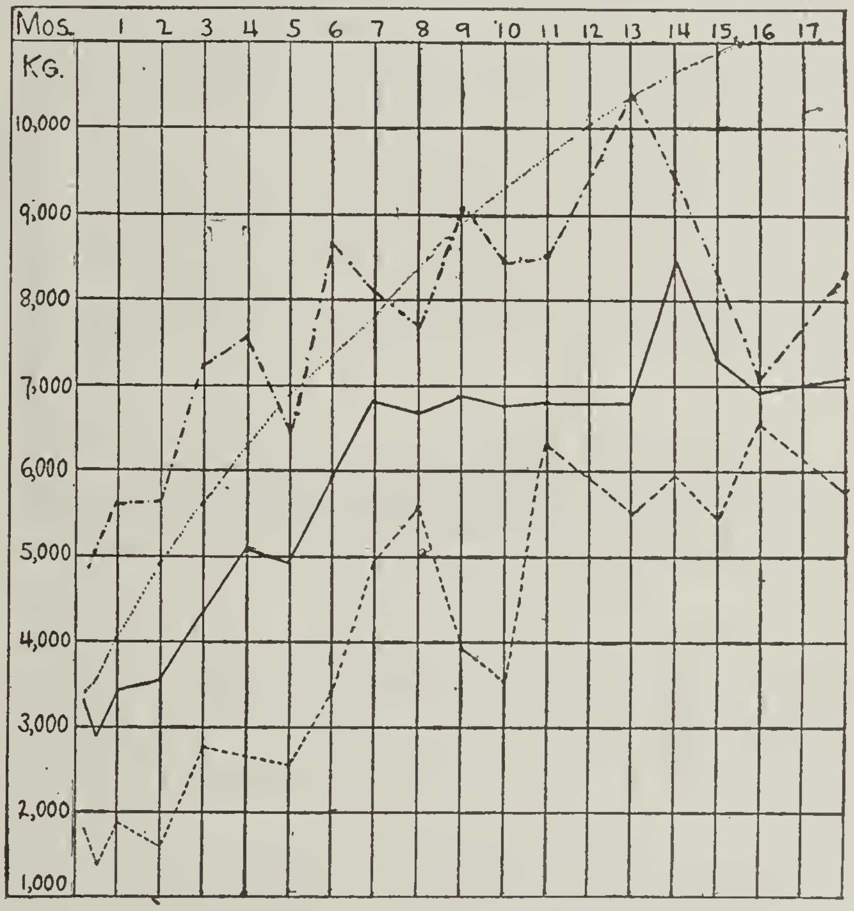

Chart 1.—Admission weight: solid line, average weight at entrance; dotted line, normal curve; broken line, minimum weight at entrance; line of dots and dashes, maximum weight at entrance.

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* From the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital.

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

number of angles, in order to determine how our work might be improved to save even a larger percentage of those infants entrusted to our care.

Just a word in explanation of the type of work done in an infant welfare station. Two conferences are held each week for mothers. At these conferences the infants are weighed and examined and their mothers instructed as to their feeding and general care. The station nurse later goes into the homes and shows the mothers how to prepare the babies' food and instructs her in the care of the baby. The aim of the work is "To keep the baby well." The work is largely prophylactic, and does not aim at special care of the sick infant.

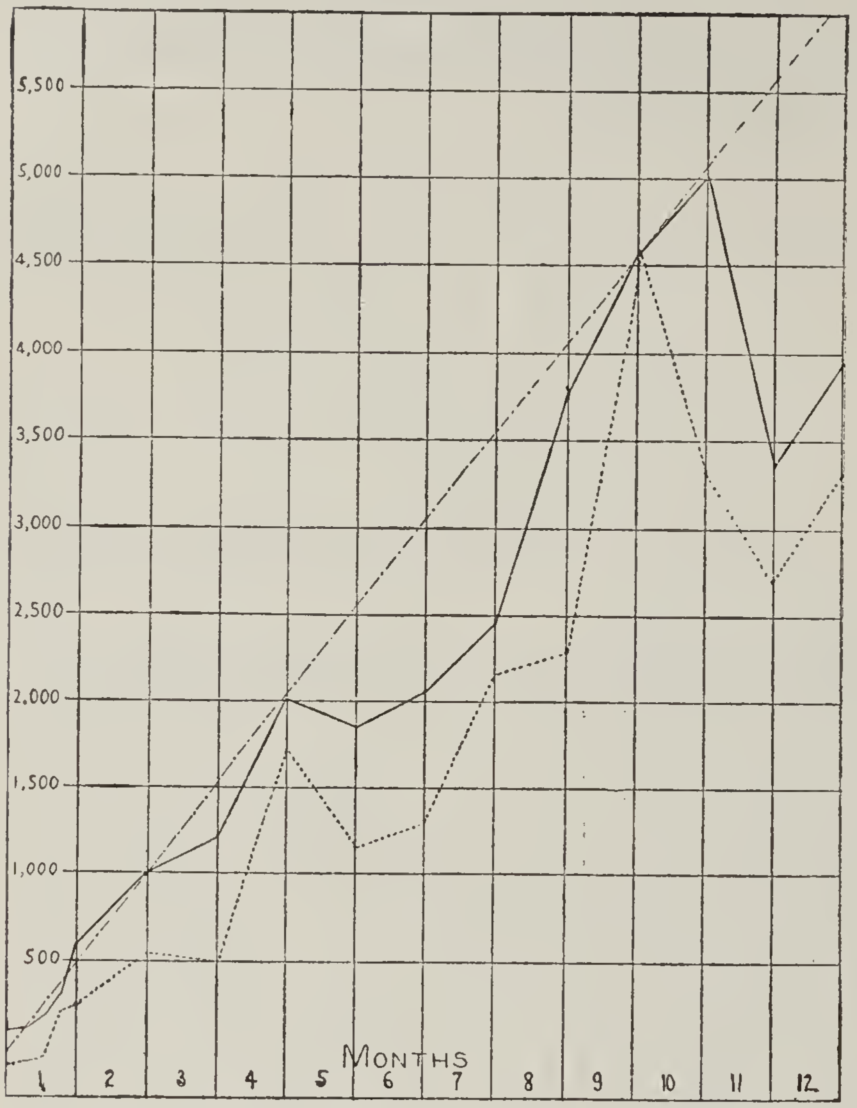

Chart 2.—Comparison with normal of gain of weight of infants who attended more than one conference: solid line, average gain of infants per month; broken line, net gain of infants per month; line of dots and dashes, normal gain of 525 gm. per month.

In our analysis we have taken the following factors into account:

1. Nationality.
2. Wages.
3. Condition on admission: (*a*) age; (*b*) feeding.
4. Conferences: (*a*) attendance; (*b*) greatest gain while at conference; (*c*) losses in weight; (*d*) interval until death.
5. Deaths: (*a*) feeding; (*b*) time of year; (*c*) causes.

1. Nationality: Of the 300 babies registered, only fifty-four were born of American parents. The remaining 246 were distributed among fifteen different nationalities, of which the two most prominent were the Poles with 127 deaths and the Italians with forty-five. At this time we have no figures available as to how large a percentage of our total number of patients are Polish, so we cannot say definitely that this is excessive, though it would appear so. It can be said, however, that our worst hygienic conditions are found in districts inhabited largely by Poles.

2. Wages: In ninety of the 300 cases, the families had no regular income, the expenses being largely met by charity. In ninety-seven families the regular income per week was $10 or less, and in eighty-six families between $10 and $15 per week. In only twenty-seven families was the income over $15 per week. In the matter of wages as in nationality we need a large control series of families in which the wages were equally low and the babies lived. Low wages are unquestionably an important factor in the high death rate of the slums.

3. Admission: The youngest child brought to a station was 8 days old. About one half were admitted before they were 4 months old. Fifty-four were admitted in the first month, ninety-two in the second and third, and sixty-nine from the fourth to the seventh, and forty-five from 8 to 12 months of age. The most interesting points in connection with the admission weight are best seen in Chart 1. During the early months of life the babies vary considerably in their admission weight, some are admitted above the normal and some very much below the normal; after the sixth month, however, there were no infants admitted above the normal in weight. From the seventh month on the admission weight remains practically stationary, even when the children are over 1 year of age. As a probable explanation of this fact we would suggest the weaning of children at about the sixth month with resultant disturbance when feeding is not supervised.

FEEDING OF INFANTS

	Breast	Allaitement Mixte	Bottle	Mixed Diet
On admission....	112	57	107	24
At last conference	49	76	113	62

The other point of interest is the relative number of infants on the breast alone, on allaitement mixte, on the bottle and on mixed diet.

Allowing for those that were on allaitement mixte at their last conference, only forty-four were taken from the breast. The number on the bottle remained practically the same. The ratio of bottle fed to breast fed is 6:1. This figure may be a trifle high because our figures for type of feeding are for the last conference attended and not at the time of death.

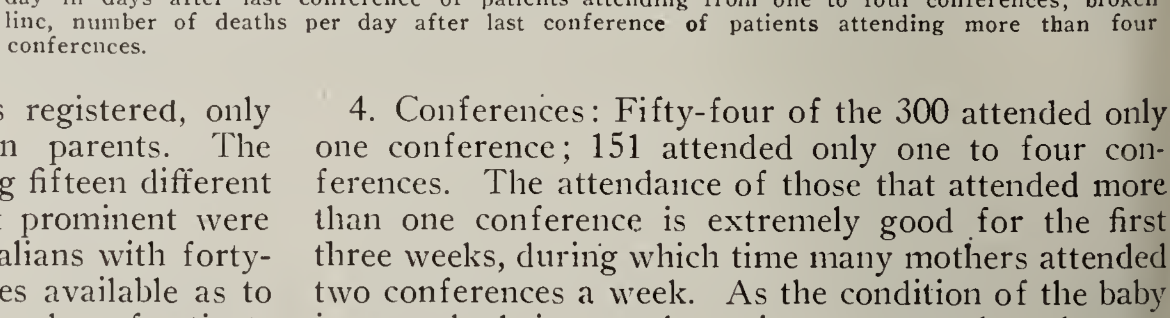

Chart 3.—Time after the last conference that infants died: solid line, number of deaths per day in days after last conference of patients attending from one to four conferences; broken line, number of deaths per day after last conference of patients attending more than four conferences.

4. Conferences: Fifty-four of the 300 attended only one conference; 151 attended only one to four conferences. The attendance of those that attended more than one conference is extremely good for the first three weeks, during which time many mothers attended two conferences a week. As the condition of the baby improved, their attendance is not so good, and many

eturn only when the baby again becomes sick. In rder to compare the gain in weight of these infants vith the normal, we have prepared Chart 2 in which he normal gain per month is figured at 525 gm. The olid line indicates the gain in weight per month up to he time when the infant reached its greatest weight, he broken line the net gain per month of the infant vhen its last weight was taken. It is surprising to see low nearly parallel the normal curve and the curve of hese infants run. In other words, we are able to make hese babies gain practically normally only to lose them vith acute disturbances. Of the 254 that attended nore than one conference, 68 had no losses in weight, 31 had one loss, 36 two losses, and 62 three or more osses.

Chart 3, indicating the time in days after the last onference that the infants died, was somewhat of a urprise to us. We had assumed that our greatest umber of deaths was among the group of patients who ad neglected to come to conferences. Just exactly ne half of the infants died within two weeks of the ast conference attended. Of those that attended only ne to four conferences, a very much larger percentage ied in the first two weeks. The general attendance vas good during the first four months after registraion, after which it fell off very considerably.

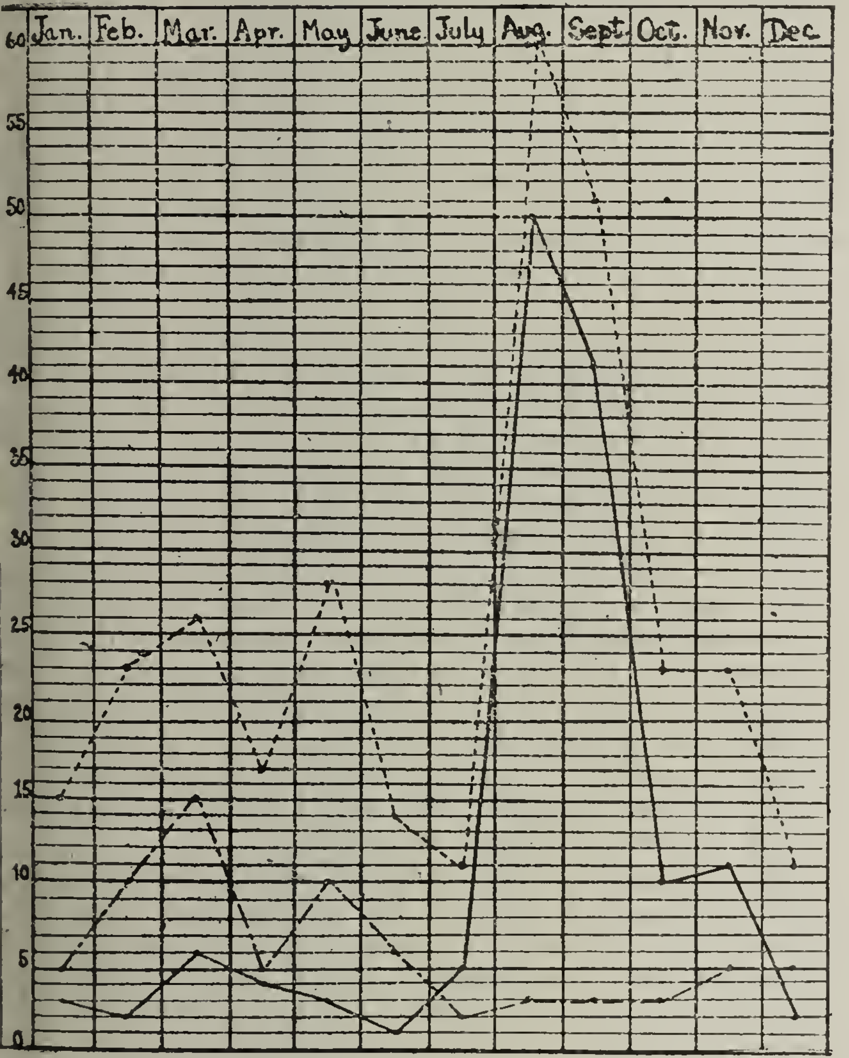

Chart 4.—Deaths by months: solid line, number of deaths due to astro-intestinal diseases; line of dots and dashes, number of deaths ue to respiratory diseases; broken line, total deaths.

5. Deaths: Forty-nine of the infants were breast ed, 251 artificially fed. In Chart 4 we have charted he deaths by months. In addition we have subdivided he deaths into respiratory, gastro-intestinal and misellaneous. The first two we have charted by months lso. As a rule the summer peak of mortality is highst during July and August. The summer of 1915 was xceptional, however, inasmuch as the deaths for July were only eleven, as few deaths as December and less than any other month in the year. In August, however, there was a very marked increase, the number of deaths jumping to sixty, one fifth of the total deaths of the year. September, which usually shows a marked diminution in the mortality, had fifty-one deaths, while October is again down to the average with twenty-three. These figures are especially interesting when taken in connection with the dates of admission of the ninety-one patients who died of gastro-intestinal disease during August and September. Of these ninety-one cases, twenty-two were admitted in July, twenty-six in August and six in September, so that 60 per cent. of the patients came to us sick, and so do not represent babies that we had been caring for for a long period of time, a group of patients whom we must reach earlier if we are to save them. Charting the respiratory and gastro-intestinal deaths separately, it is evident how the total deaths follow the respiratory deaths in the winter and the gastro-intestinal in the summer.

SUMMARY

1. Ninety-three per cent. of the deaths were in families with an income of $15 or less per week.

2. Up to 6 months of age the average admission weight is approximately normal, after that it remains practically stationary.

3. The average monthly gain of the babies while attending conferences was practically normal (525 gm. per month).

4. About one half of the babies died within two weeks of the last conferences attended.

5. About 60 per cent. of the deaths from the summer gastro-intestinal disturbances were in children who were admitted to the stations during July, August and September.

CHRONIC DIGESTIVE DISORDERS IN CHILDREN

WITH ROENTGEN-RAY FINDINGS *

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Chronic digestive disorders in children are usually looked on as being due to bacterial infection, food intoxication, perversion of functions, or chronic appendicitis. That some of these conditions may at times be dependent on mechanical agencies operating in the digestive tract has received but little thought.

By chronic disturbances in children we refer to those characterized by one or more of the following symptoms: repeated attacks of acute indigestion with vomiting; abdominal distention, transient or habitual; repeated attacks of intestinal colic; habitually loose evacuations; extreme constipation, or periodic fever with intestinal association.

Children with persistent digestive disorders are habitually irritable, sleep poorly, and nearly all show malnutrition of varying degrees. In the vast majority of cases there is a secondary anemia. Many of these patients respond to properly directed treatment. There

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* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

remain a few, however, who are difficult to cure, and these come to the hands of the specialist.

We found that examination of the gastric contents, the blood, the urine and the stools did not supply the necessary information. It occurred to us that a Roentgen-ray study of the digestive tract might be of assistance, that mechanical defects might be at the bottom of the persistently disturbed physiologic and chemical processes which resisted treatment in some cases that was successful in others. That we have been aided in a manner far beyond our expectations will be brought out in the detailed report of cases.

Roentgen-ray examination of the digestive tract in babies and children has opened up an entirely new chapter in medicine. Valuable as the rays have proved themselves to be in the diagnosis of digestive troubles in adults, they have become of inestimable value in the determination of obscure diseases of the infant.

The exact size, shape and position of the stomach can be accurately determined. The presence and amount of air or gas can be detected and can be readily distinguished from a similar condition in either the small or the large intestine. The process of digestion can be studied, especially with reference to the normal or abnormal time of retention of food in the stomach or intestine. The cause of vomiting may be determined. Congenital deformities, such as pyloric stenosis, together with a determination of its exact degree may be detected. Congenital diseases, such as syphilis, may be discovered.

Intestinal disorders are found in many cases to be dependent on hitherto unsuspected factors, such as abnormal length or size of the intestinal canal, or some part of it, as the sigmoid flexure. Reflex nervous conditions, convulsions, asthmatic attacks, food idiosyncrasies, etc., may be found to have their cause here, and may be cured by appropriate medical or surgical treatment based on the Roentgen-ray disclosures.

The degree and cause of constipation may be determined in a definite manner heretofore impossible. Relaxation of the abdominal viscera may be detected in its incipience and corrected before it has become the disabling condition which it is known to assume in the adult, the treatment of which is one of the most difficult problems presented to the physician or surgeon today.

The problem of the long sigmoid merits most careful consideration from the anatomic, physiologic and medical and surgical points of view. The condition is frequently encountered. It is of congenital nature and does not apparently disappear with the growth of the child. The former view of anatomists and pediatrists that the rest of the colon grows at the expense of the sigmoid flexure is no longer tenable in view of the accumulated evidence brought forward by the Roentgen-ray study of the living anatomy of individual children over a period of months and years. Once a long sigmoid, always a long sigmoid. But when recognized and properly reckoned with and treated, its evils may be greatly mitigated or entirely eradicated.

The recognition of varying degrees of pyloric stenosis in older infants or children is of the greatest aid in treatment. Whether some of these cases are of congenital origin, but not of the degree to demand surgical intervention in infancy, is a problem which we hope to be able to throw some light on in the near future.

CASE REPORTS

Case 1.—A boy, poorly nourished, aged 5½ years, weighing 41½ pounds, was referred to Dr. Bumsted, Newark, N. J. The hemoglobin was 52 per cent., red blood cells 4,640,000, and urine negative. The child had seven convulsions of intestinal origin in the previous three years, and had been habitually constipated, requiring medication every day from birth. He was very irritable and unhappy. Milk had been stopped for one year because it had been thought not to agree with him. The Roentgen ray revealed the sigmoid extending upward almost to the splenic flexure. As a result of treatment in three months he gained 6 pounds, 4 ounces, the constipation was relieved and the disposition was much improved. There was no further trouble, and the boy is well.

Case 2.—A girl, aged 3½ months, weighing 10 pounds, was suffering with malnutrition, extreme colic night and day, and constipation. An enema was required daily. The Roentgen ray revealed hyperperistalsis of stomach. The sigmoid was elongated, passing 1 inch above the umbilicus, and the stomach was distended with gas. The blood and urine were not examined. As a result of treatment the child gained 5 pounds, 14 ounces, in four months. There was no colic, and evacuations were normal.

Case 3.—A girl, aged 9½ years, and weighting 54 pounds, showed hemoglobin 40 per cent., and red blood cells 4,000,000. She was of delicate appearance, had moderate malnutrition, and showed very slow gain in weight. About every two months she had so-called bilious attacks simulating recurrent vomiting. The bowels were habitually constipated, and daily medication was required. The breath was offensive. The Roentgen ray revealed ptosis of stomach, and that it failed to empty itself in seven hours. There was marked ptosis of the transverse colon and marked elongation of the sigmoid. The child had one vomiting attack after the excitement of traveling, but as a result of treatment she gained 7 pounds in ten months, and a blood examination showed hemoglobin 60 per cent., and red blood cells 4,700,000. She required 7 drops of aromatic cascara three times daily.

Case 4.—A girl, aged 9 years, weighing 52½ pounds, showed hemoglobin 60 per cent., and red blood cells 4,700,000. She was suffering from malnutrition, nausea and frequent abdominal pain and discomfort, but not constipation. The Roentgen ray revealed an elongated sigmoid with a loop in the pelvis and another above the crest of the ileum. As a result of treatment, the abdominal pain and nausea completely subsided. The child was well, but the parents failed to report the amount of gain in weight.

Case 5.—A boy, aged 2 years, weighing 14 pounds, 5 ounces, showed hemoglobin 30 per cent., and red blood cells 3,000,000. He was pale, very irritable and poorly nourished and had laryngismus with frequent seizures. The stools showed evidence of tendency to diarrhea. There was persistent distention of the abdomen, and the appetite was poor. The urine showed few pus cells. The Roentgen ray revealed elongated sigmoid markedly dilated and passing 2 inches above the umbilicus. The boy was given two blood transfusions. At first 120 c.c. of mother's blood were given, and four weeks later 200 c.c. were given without improvement in anemia. As a result of treatment in four months, the boy gained 3 pounds, 13 ounces. The hemoglobin was 37 per cent., and red blood cells 2,700,000. The boy's disposition was much improved, and his appetite was very good. An interesting feature in this case was the gain in weight, the cessation of the laryngismus, and the general improvement in strength, nothwithstanding the persistency of a high degree of secondary anemia.

Case 6.—A boy, aged 18½ months, weighing 25 pounds, 2 ounces, showed hemoglobin 38 per cent., and red blood cells 4,400,000. He was well nourished, but had a poor appetite, and suffered with habitual constipation, requiring medication daily. The Roentgen ray revealed the sigmoid loop passing 3½ inches above the umbilicus. The long sigmoid was mostly to the left of the median line. As a result of treatment the boy gained 2 pounds, 10 ounces, in two and a half months. He requires one tablespoonful of liquid petrolatum ily, and his massage twice a week. His appetite is satisctory, and the stools are normal.

Case 7.—A boy, aged 3½ years, weighing 23 pounds, 4 unces, had hemoglobin 65 per cent., and red blood cells 200,000. There was marked malnutrition, as no gain in eight had occurred for six months. There were frequent tacks of diarrhea, and the stools frequently contained ucus. There was marked abdominal distention, and the ppetite was indifferent. There were frequent fever periods ith temperature from 100 to 104.5, with or without intestinal anifestations. The urine was negative. The Roentgen ray evealed elongated sigmoid passing 2½ inches above the mbilicus and 1 inch above the transverse colon. There as, moreover, some pyloric obstruction. As a result of eatment the boy gained 4 pounds, 6 ounces, in seven onths, and there was a complete cessation of fever and iarrhea. The child is well.

Case 8.—A boy, aged 5 years, weighing 33 pounds, showed emoglobin 69 per cent., and red blood cells 4,960,000. He ad frequent attacks of asthma, severe eczema, persistent disention of the abdomen and habitual constipation, requiring edication daily. Scratch skin test showed positive reaction barley. The Roentgen ray revealed the sigmoid to be nusually redundant. It passed over to the right side until e shadow merged with that of the cecum, and then to a oint 3 cm. above the umbilicus and down again into the elvis. It was fully three times the normal length. As a esult of treatment, the boy gained 2 pounds, 12 ounces, in n months. He now has asthma very rarely, and is troubled ut very slightly by eczema. He required 3 tablespoonfuls of quid petrolatum daily.

Case 9.—A boy, aged 5 years, weighing 32 pounds, 4 unces, with failure to gain weight, showed hemoglobin 50 er cent., and red blood cells 5,300,000. Vomiting attacks ccurred about every three months. There was persistent istention of the abdomen, habitual constipation and marked pasm of the anal sphincter. The Roentgen ray revealed longation and dilation of the sigmoid, with an extra loop far ver to the right, so that its shadow touched that of the ecum. As a result of treatment the boy gained 4 pounds, ounces, in eleven months. The vomiting attacks ceased, nd the evacuations became normal. The sphincter was tretched under anesthesia.

Case 10.—A girl, aged 2½ years, weighing 25 pounds, howed hemoglobin 55 per cent., and red blood cells 4,600,000. here was malnutrition. She had three convulsions of gastrontestinal origin in the previous year. There was habitual onstipation, and medication or an enema was required daily. he urine showed a moderate amount of acetone. The oentgen ray revealed an elongated sigmoid passing 2 inches bove the umbilicus. When the child was in the prone posiion the sigmoid passed to the right side as far as the abdomnal wall. As a result of treatment she gained 4 pounds in our months, and convulsions ceased. The bowels require ne-half teaspoonful of aromatic cascara daily.

Case 11.—A girl, aged 2 years, weighing 21 pounds, 2 unces, was poorly nourished. Blood examination showed emoglobin 50 per cent., and red blood cells 4,200,000. The rine was negative. There had been no gain in weight for ne year. The abdomen was markedly distended, and there vas constipation requiring daily medication or an enema. he child was habitually irritable. The Roentgen ray evealed reduplication of the sigmoid, passing 2 inches above he umbilicus, across to the left and downward into the elvis before it joined the descending colon. As a result of reatment the patient's disposition was much improved, and he gained 2 pounds, 12 ounces, in seven months in spite of very severe attack of pertussis. She required one-half easpoonful of aromatic cascara daily.

Case 12.—A boy, aged 10 years, weighing 52 pounds, 12 unces, showed hemoglobin 52 per cent., and red blood cells ,000,000. He was thin and pale, and subject to frequent ttacks of vomiting (about once a month), with elevation of emperature. There was frequent bronchitis, and the bowels howed a tendency to looseness. The urine showed a slight race of indican. The Roentgen ray revealed elongated sigmoid, about three times the normal length. There was an obstruction of the pylorus, ptosis of cecum, and gastric retention. As a result of treatment the boy gained 6 pounds, 4 ounces, in six months, the evacuations became normal, and there were no more vomiting attacks. The blood was unchanged.

Case 13.—A girl, aged 10 years, weighing 63½ pounds, showed hemoglobin 60 per cent., and red blood cells 4,800,000. She was fairly well nourished but subject to persistent urticaria, occasionally asthmatic bronchitis, slight distention of the abdomen, and intermittent abdominal pain. Mucus was present in the stools in considerable amount, but there was no constipation. The Roentgen ray revealed ptosis of the stomach 1½ inches below the umbilicus. The stomach did not empty itself in seven hours. The colon was sluggish. The sigmoid was normal in length. As a result of treatment the girl gained 1¼ pounds in four weeks. The urticaria is much improved, and the evacuations are normal.

Case 14.—A girl, aged 9 years, weighing 61 pounds, 12 ounces, fairly well nourished, showed hemoglobin 58 per cent., and red blood cells 4,800,000. She had habitual constipation requiring medication or enema daily, and was subject to recurrent vomiting and frequent eczema. She had had two attacks of acute intestinal indigestion in the previous six months, with temperature as high as 105. There were evidences of intestinal obstruction with frequent bowel movements. The Roentgen ray revealed marked elongation of the sigmoid, passing 1 inch above the umbilicus. There was prolapse of the colon at the splenic and hepatic flexures, with ptosis of the stomach. As a result of treatment there were no further intestinal attacks, and the child gained 6 pounds, 4 ounces, in four months.

Case 15.—A boy, aged 5 years, 9 months, weighing 53 pounds, 4 ounces, well nourished, showed hemoglobin 45 per cent., and the urine negative. There were marked distention of the abdomen and considerable gas in the stomach and intestines. There was loss of weight, 2 pounds in three weeks. Pain was present in the abdomen at frequent intervals, and rarely a day passed without complaint. The Roentgen ray revealed an enormously dilated stomach, emptying very slowly, marked distention of the colon with gas, and a markedly elongated sigmoid, the loop passing to the right as far as the crest of the iliac bone, crossing over to the median line before joining the descending colon. The boy has just come under treatment.

Case 16.—A boy, aged 2 years, 8 months, weighing 32 pounds, showed hemoglobin 57 per cent., and red blood cells 4,800,000. He was well nourished and the urine was negative. He had so-called bilious attacks, fever and abdominal distention every three to five weeks. There was extreme constipation, requiring an enema every day. The Roentgen ray revealed spasm of the pylorus. There was an elongated sigmoid passing 3 inches above the umbilicus, descending into the pelvis and again ascending several inches before returning to the pelvis. The child lives in a distant city and has been under the care of a local physician. The mother reports the child has not gained in weight but shows great general improvement.

Case 17.—A boy, aged 11 years, weighing 65 pounds, was thin and showed habitual constipation, requiring medication every day. There were frequent attacks of very severe colic with abdominal distention at the time. The Roentgen ray revealed ptosis of stomach, and sharp angulation of the colon at the hepatic and splenic flexures with ptosis of the transverse colon. As a result of treatment there was no further colic, constipation decreased, requiring only 1 grain cascara three times a day. The Roentgen ray one year later revealed the greater curvature of the stomach ¼ inch above the umbilicus, with the belt on. With the belt off the greater curvature of the stomach was 2 inches below the umbilicus.

Case 18.—A boy, aged 6½ years, weighing 39 pounds, showed malnutrition, slow gain in weight, and constipation, requiring medication daily. The blood and urine were not examined. The Roentgen ray revealed spastic condition of the colon without undue length. The boy has been under treatment only two weeks.

MANAGEMENT

Those patients who showed a ptosis of the stomach and transverse colon were fitted with a Dr. Aaron band, modified for children's use, with a transverse ridge or shelf so placed as to support the prolapsed part. The child was allowed but 2 ounces of milk or water with each meal. Immediately after eating he was made to rest on the right side for one hour to accelerate the emptying of the stomach, which was always retarded. Two and one half hours after the meal he was given milk or water to drink. In this way the weight of the food in the stomach at one time was lessened.

In cases with the sigmoid loop and intestinal stasis and constipation, massage and gymnastics were of great service. Liquid petrolatum and olive oil usually give better results than other laxatives, but in some instances it was necessary to give fluidextract aromatic cascara three times daily in sufficient amounts to produce an evacuation. We found in these cases, as in hundreds of others of ordinary constipation, that drugs in cathartic dosage may be harmful. Much better results are obtained by small doses of a laxative frequently repeated. We found that with massage and right food, the oil and cascara might be gradually eliminated. Massage and suitable feeding may have to be continued for a long time, probably until the child has grown sufficiently for the pelvis to accommodate itself to the redundant sigmoid.

Our dietetic regulations for the constipation cases are somewhat as follows: White bread, toast and crackers are omitted. Potatoes, rice, milk and eggs are given sparingly. Milk is often replaced by malted milk. Green vegetables are given twice a day. Stewed or raw fruits are given the preference as desserts. Fresh meats and fish are allowed. Whole wheat bread and oatmeal crackers are advised. Raw fruits are given with the stomach supposedly empty an hour to an hour and a half before meals. Strange as it may seem, this rarely interferes with the appetite. We have found the giving of raw fruits with the stomach empty one of the most valuable dietetic means of managing constipation. We are speaking now of cases without stomach involvement.

The Enema Habit.—The Roentgen ray in the above series of cases demonstrates the uselessness and possible dangers of the daily enema, high or low. It dilates and enfeebles the parts not involved, gives only very temporary relief and lays up trouble for future years.

Diarrhea.—In those cases with diarrhea or loose evacuations, all fruits, raw or stewed, and all vegetables were omitted from the diet. This symptom gave us little trouble, and responded readily to diet and simple medication. The patients with diarrhea gave an early history of constipation.

CONCLUSION

There are cases of gastro-intestinal disorders in children due to mechanical agencies. Such disorders will only be satisfactorily managed when the cause is known.

When the child's parents are shown the nature of the trouble by the Roentgen-ray findings they give much better cooperation and have much less criticism of slow improvement.

Probably many of the cases of ptosis of the stomach and intestine found in adults are of a congenital nature, or have their origin during child life because of erroneous habits in eating. The child of 5, 6 or 8 years eats a large meal three times a day and with this drinks two or three glasses of milk, which he is urged to take. All of which means that 2 pounds of food or more are placed in the stomach (more weight than many can accommodate), and ptosis results.

ABSTRACT OF DISCUSSION

Dr. Henry D. Chapin, New York: I presented a paper on this subject several years ago. I showed a series of roentgenograms, the first to demonstrate the rapidity with which food would go through the intestinal tract of infants, and clinically to find out, so far as possible, the location of the pylorus. This study was limited to infants, and I would emphasize one point and that is that the sigmoid of the infant is a much larger structure than is ordinarily supposed. I had a series of fifteen plates. These babies were not sick; I was simply making a study. In several cases the sigmoid went above the umbilicus. In others the sigmoid was a figure-of-eight—in some cases it laid to the right and in others to the left; it was very movable and very large. The sigmoid proved to be much larger and more convoluted than previous anatomic studies had led us to believe. The practical point I made at that time, and which I still believe, is that these pictures show the utter uselessness of trying to give what is known as a "high" enema to a baby. You cannot possibly pass a soft tube through the sigmoid flexure of a baby. It simply curves around and around and it does not pass through.

If you simply pass a catheter from 2 to 3 inches beyond the rectum, having the bag only a foot or two above the level of the bed, and I proved it roentgenographically, you can fill the whole lower bowel in a minute or two. By reversed peristalsis we can soon fill the large bowel. Careful feeding is not enough in these cases. There is at times a structural cause for poor nutrition.

Dr. L. R. DeBuys, New Orleans: At the same meeting at which Dr. Chapin read the paper he just referred to, I reported a case in which there was obstruction—pylorospasm. It was a case of syphilis of the stomach, and showed the peristaltic waves and other symptoms usually seen in pyloric obstruction. The case cleared up with specific treatment. The air ball is nicely seen in these cases. I believe that the projectile character of the vomiting in these cases is due to the air ball. It is rather hard to conceive how the involuntary muscular fibers of the stomach can throw material the distance it does, and my explanation is that air in the baby's stomach along with the food becomes so compressed that in a pneumatic manner it causes the food to be thrown in the direction of least resistance, that is, through the mouth and nose.

Dr. Harry Lowenburg, Philadelphia: I have been following up some cases in the same way in the hope that it would lead somewhere in the treatment of obscure conditions, especially in cases of obstinate constipation. I must confess that my results have been disappointing and after careful, and sometimes expensive, roentgenographic studies I have not found myself much advanced in the therapeutics of these conditions. I wish Dr. Kerley would go a little more into detail as to what his treatment was in some of his special cases; for instance, in the case of colic that he said was the worst he had ever seen. These cases frequently try our own and our patient's patience to the breaking point, not to mention the jeopardy in which they place our professional reputation. Mere talking to these women and showing them a roentgenogram will not suffice. They want their babies to be relieved. They often force us to resort to artificial nourishment. I do think that the point which he brought out with reference to pyloric obstruction is exceedingly valuable, and that it emphasizes the fact, which I have long maintained, that the mere presence of visible peristaltic waves and of a palpable pylorus do not, in themselves, constitute indications for operation. I think that the charcoal test, together with the roentgenographic studies, provides valuable data in reference to the nount of material which passes through; thus permitting to have some idea as to whether this is sufficient or not sustain life, and it further enables us to decide for or ainst operation. I have also demonstrated that all surgical ses present a weight curve resembling the crisis of pneuonia, while all nonsurgical cases present a weight curve sembling the fastigium of typhoid fever.

Dr. John Zahorsky, St. Louis: I was led astray by the ates in one case. A child about 5 years of age had vomited erything for the last two months; this was the history tained from the mother. Two or three doctors had treated e child for dyspepsia. On a careful examination I could t little information. I had a roentgenogram made, and apparently showed a positive obstruction at the ileocecal ifice. Nothing seemed to pass through for hours and hours. could not explain it. I did not know of any such thing as asm of the valve. I thought it better to have an exploratry operation. A few days later the child was sent to the spital. On arriving there, a history was given of a slight asm. I again examined the cerebrospinal system. I had eye specialist examine the eyes. It proved to be the beginng of a cerebral tumor.

Dr. C. G. Kerley, New York: The management in these ses consisted largely in the use of massage and gymnastics. the little baby with the very severe colic, massage was ven twice a day. In addition to this, one-half ounce of olive was given daily in divided doses. Aromatic cascara in nall doses three times a day was given temporarily in a few ses, always after meals.

Dr. L. T. LeWald, New York: The question of so-called eocecal spasm brings up a whole host of other questions. his question of correct interpretation bothers us all more less. Either the roentgenologist has to go over the clinical cord, or have the most close cooperation with the clinician, ich as Dr. Kerley and I have had, otherwise we will go tray.

CARE OF TROOPS ON THE MEXICAN BORDER

FOUR MONTHS' MEDICAL EXPERIENCE WITH AN ARMY OF ONE HUNDRED AND FIFTY THOUSAND MEN

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The mobilization of the national guard on the Mexian border has offered unique opportunity for taking tock of our degree of medicomilitary preparedness, nd for making a just estimate regarding the advances military sanitation which have taken place since the ast general call on the state troops in 1898. The obilization of militia organizations began May 10, 916, when the Texas, New Mexico and Arizona troops ere called on and mobilized at San Antonio, Texas, olumbus, N. M., and Douglas, Ariz. The total numer of men mustered in was about 5,000. Recruiting o increase the size of these southern organizations as soon undertaken. June 18, 1916, the remainder f the national guard was called out, and began mobiizing at the respective state encampments. June 30, ertain northern contingents arrived on the border, nd by July 31 the primary southward movement was ractically completed, and approximately 110,000 ational guardsmen in federal service were encamped long the frontier line from Yuma to Brownsville. ubsequently certain organizations were ordered home or muster out, and were replaced by troops which had een held for training and equipment at the home amps. The number of men sent south during the econd and third movement in August and October, respectively, was about 20,000, making the aggregate of state troops which have served on the border approximately 130,000. The largest number of militia on duty at any one time in the Southern Department has been about 110,600. Sept. 15, 1916, there were 101,684 officers and men present.

Prior to the arrival of the militia on the border, practically all of the regular organizations of the mobile army in the United States had been distributed along the frontier. This force numbered approximately 41,000 men, and was subsequently augmented by about 2,500 coast artillery troops of the regular army, employed in the emergency as infantry. Of the total number of regulars on the border, about 13,000 were employed in General Pershing's expeditionary force in Mexico, which used Columbus, N. M., as a base.

MOBILIZATION OF MILITIA

The mobilization of the militia clearly demonstrated many of the weak features in all branches of our militia system, but only those matters pertaining to the sanitary troops will be referred to here. The first point worthy of note has to do with the physical examination of officers and enlisted men in the national guard. In the regular army a high standard of physical fitness is demanded of both commissioned and enlisted personnel before entry into the military service. As a result of periodic examination, and elimination of the unfit, this high standard is maintained. In the case of the organized militia, the law provided, when a state certified that it conformed to the physical standards of the regular army, that its troops should be mustered into the federal service without physical examination, and that the men should, as soon as practicable thereafter, be examined under the supervision of a medical officer of the regular service. Most of the states reported that they complied with regular army standards, and their organizations were consequently mustered into the service of the United States. On examination by the regular medical officers detailed for the purpose, however, it was found that large numbers of the officers and men were unfitted for the military service because of physical defects, often of long standing. The proportion so disqualified varied greatly in different states, but in several reached from 30 to 40 per cent. of those mustered in. Aside from numerous instances of diseases, such as venereal infections, tuberculosis, nephritis, heart lesions and epilepsy, there were great numbers who were found to be disqualified because of conditions which could have been detected by a cursory examination; such were underheight, underweight, absence of teeth, defective vision and hearing, hernias, flatfeet, obvious deformities, immaturity, senility, etc. As extreme instances, men blind in one eye and wearing glass eyes, and one man with an artificial leg had been accepted. This failure on the part of the national guard to conform to the desired physical standard is due partially to lack of experience, time and care on the part of militia medical officers, and partially to the pressure which is often brought to bear by organization commanders in the interest of men whom they specially desire for one reason or another to enlist in their companies.

Such laxity in physical examination is a fundamental defect in the militia system of many states. A unit which loses at mobilization 15, 25 or 40 per cent. of its personnel because of physical defects is seriously handicapped at the outset by reason of shortage of men, and if it goes into active service still retaining this defective material, the handicap is still greater; such soldiers will fail under the stress of campaign and become a burden on their comrades and on the sanitary service.

In the case of our recent mobilization, a part of the ineligibles were at once discharged from the service at the muster-in camps. In other instances, the regiments were moved to the border before this could be accomplished, and the defectives have been, or are now being, discharged on surgeon's certificate of disability. The government has been put to the expense in each case of equipping a useless man, transporting him to the border, subsisting him while there, and returning him to his home, all through failure of the militia medical officer to maintain a high standard of physical requirements. The number of discharges for disability among the militia in the Southern Department between June 1 and September 30 was 1,174. The records of causes of discharge in June are not now available in the Southern Department, but Table 1 shows numbers discharged during the period from July 1 to Sept. 30, 1916, for both regulars and militia, and the causes which led to their separation from the army. Large numbers of militiamen who did not come up to the required standard still remain in the service, notably those undersized or those having defective vision and hearing, or bad teeth or hernias. Many of the latter have been operated on. Certificates of disability for discharge continue to come in at the rate of about fifteen a day.

TABLE 1.—CAUSES OF DISCHARGE FOR DISABILITY IN SOUTHERN DEPARTMENT, JULY 1 TO SEPT. 30, 1916

Causes of Discharge	Number Discharged	
	Regulars	Militia
Pulmonary tuberculosis	4	55
Tuberculosis of other parts	7	9
Syphilis	..	10
Chronic rheumatism	1	12
Goiter	4	9
Nervous diseases and insanity	24	49
Epilepsy	8	36
Eye conditions	4	81
Ear conditions	8	45
Diseases of heart and arteries	6	49
Varicocele, varicose veins and hemorrhoids	1	25
Diseases of digestive apparatus	4	45
Genito-urinary diseases (nonvenereal)	7	30
Venereal diseases and complications	17	38
Hernia	6	114
Diseases of skin	3	9
Diseases of bones and joints	26	77
Deformities and diseases of feet	14	94
Underweight	..	23
Respiratory diseases other than tuberculosis	3	36
Deficient mentality	2	5
Miscellaneous	2	27
Total	151	878

The second weak point which was demonstrated in the militia system had to do with deficient personnel, lack of training and incomplete or improperly cared-for equipment. These defects apply to the combatant branches equally with the sanitary troops, but whereas the combatant branches are likely to be given at least some time in preparation for hostilities, the sanitary troops are allowed no time to prepare to combat disease, because sickness will begin the day the troops are mobilized and is apt to be more marked at the outset, when the troops are unseasoned, than at a later date when they have become inured to the hardships of field service and when the weaklings have been eliminated. Many regiments had insufficient sanitary personnel, and one at least was mustered in without any. The number of ambulance companies and field hospitals was not nearly sufficient to provide for the needs of an offensive campaign. The endless stream of urgent requisitions for property clearly indicated that many sanitary units had not kept their equipment up to the standard. The situation as regards sanitary equipment and supplies was still further complicated by the appearance, almost coincident with the mobilization, of the 1916 edition of the "Manual for the Medical Department," which radically altered the equipment of sanitary units.

The third weak point in the militia system had to do with typhoid and smallpox prophylaxis. Antityphoid vaccination has never been made compulsory in the national guard, as it has been, since 1912, in the regular army. A few states had inoculated a considerable part of their troops through the voluntary system, but by far the larger number of the militia had to be immunized during the rush of mobilization and physical examination. The difficulty of the procedure was increased by the movement of many regiments to the border before the full course of three inoculations had been completed. This vital procedure has been pushed most vigorously, and now the entire national guard has been immunized, with the possible exception of an occasional straggler. No ill effects have attended the inoculation. The highly satisfactory results which have been attained by typhoid prophylaxis will be discussed at a later time. Fortunately, the Army Medical School in Washington was supplied with the personnel and equipment to produce almost unlimited amounts of typhoid vaccine. Between June 19 and September 30, 745 liters (quarts) of antityphoid vaccine were prepared, and no delay in furnishing it to organizations occurred. The need for smallpox vaccination was well shown by the very high percentage of "takes" in many organizations.

HOSPITAL PREPARATIONS ON THE BORDER

At the time the state troops were mobilized, there were on the border two base hospitals of about 200 beds each, one at San Antonio and one at El Paso; also a temporary hospital at Columbus, N. M., with a capacity of about 150 beds. The state troops brought with them thirty-two field hospitals, and there were also present in the Southern Department six field hospitals of the regular service. The field hospitals, however, were not available for the permanent care of the sick for two reasons; first, they must always be kept mobile so that they may accompany troops if active operations begin; and, secondly, field hospitals are not really "hospitals," but merely meagerly equipped shelters for temporary care of the sick and wounded in actual war while they are on the way to the base hospitals at the rear. Consequently the immediate need of greatly increasing the hospital facilities on the border was foreseen, and construction was promptly started. By building temporary pavilion wards at San Antonio and El Paso, the capacity of the existing base hospitals was

TABLE 2.—NUMBERS AND PERCENTAGES SICK IN BASE AND CAMP HOSPITALS AT TEN DAY INTERVALS

Date	Sick			Number of Those with Venereal Diseases	Approximate Strength of Command	Percentage of Command in Hospital	Number of Vacant Beds
	Regulars	Militia	Total				
Aug. 20	692	1,112	1,804	294	149,000	1.2	467
Aug. 30	832	1,284	2,116	371	151,800	1.4	620
Sept. 10	855	1,306	2,161	323	141,000	1.5	1,188
Sept. 20	899	1,545	2,444	364	146,000	1.7	1,245
Sept. 30	950	1,585	2,535	420	146,000	1.8	1,275
Oct. 10	910	1,478	2,398	434	147,000	1.6	1,686
Oct. 20	989	1,493	2,482	442	147,000	1.7	1,821
Oct. 31	1,016	1,571	2,587	569	142,600	1.8	2,100

increased to 750 and 900 beds, respectively. Base hospitals of 500 beds each were constructed at Brownsville and Eagle Pass, Texas, and Nogales, Ariz., and smaller hospitals, ranging in size from 100 to 350 beds, were built at McAllen, Llano Grande, Del Rio, Fort Clark, Laredo and Marfa, Texas, at Douglas, Ariz., and at Deming, N. M. The amount expended on this construction has been about $450,000, and the total bed capacity, October 27, was over 4,600. At this date all of these hospitals were practically completed, but they opened up for patients at a much earlier period, some of the new ones receiving a limited number of sick in the latter part of July. Nearly one half of the beds were unoccupied October 27. The movement of sick in the base and camp hospitals since August 20 is shown in Table 2.

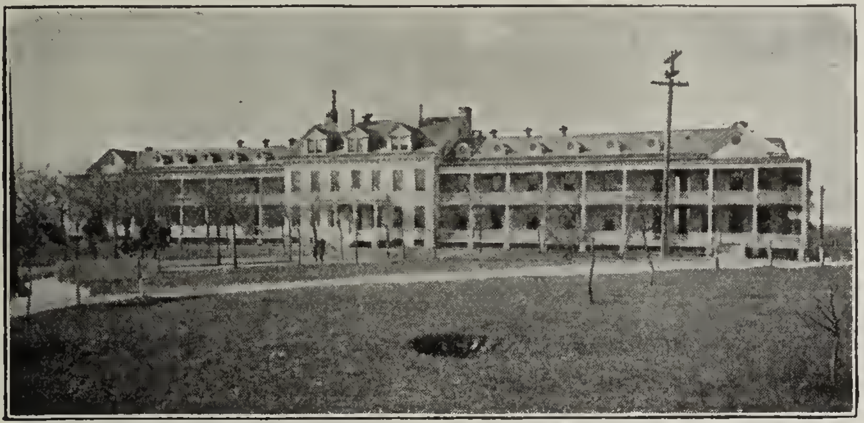

Fig. 1.—Base Hospital 1, Fort Sam Houston, San Antonio, Tex., prior to the construction of the temporary pavilion wards.

For enlarging the permanent base hospitals and for building the new hospitals a uniform type of construction has been used. The standard unit building, whether ward, office, operating suite, nurses' quarters or dining room is a wooden pavilion 100 feet long by 20 feet wide, having ridge ventilation and an 8 foot porch on all four sides. It is completely screened. Such a building when used as a ward has at one end two small rooms, one for property and one for the wardmaster's quarters. These wards accommodate thirty-four beds comfortably, and by crowding, in emergency could shelter forty. Detached shower baths are provided, and all buildings are connected by covered corridors. The pavilions cost from $1,800 to $2,500 each, depending on the local prices for lumber and labor.

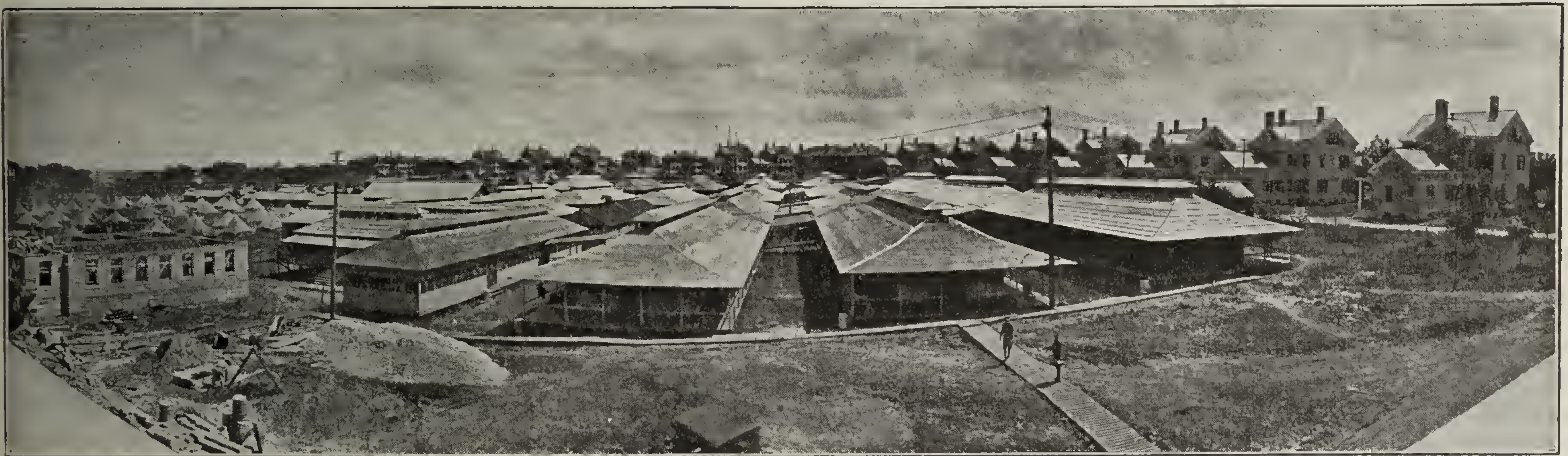

Fig. 2.—Temporary pavilion wards at Base Hospital 1, Fort Sam Houston, San Antonio, Tex. Brick buildings in rear and to right are cavalry officers' quarters. Building under construction on left is the new laboratory for Department Laboratory 1. Tentage on left is a part of Field Hospital Company 6.

The obtaining of equipment for the new hospitals from the large medical supply depots at St. Louis and New York was inaugurated as soon as construction commenced, and the more essential articles were on the ground by the time the first buildings had been sufficiently advanced to receive patients. By the first of September the new hospitals were practically complete in their equipments. Standard white enameled hospital beds with hair mattresses are provided. Each hospital has a well equipped operating room with sterilizing outfit heated by gas or coal oil. An excellent Roentgen ray machine is installed. These hospitals, as a rule, are manned by officers of the regular Medical Corps and the Medical Reserve Corps, and by enlisted men of the Medical Department. Female nurses from the Army Nurse Corps are serving at all but three of the hospitals, the three not so supplied being of small capacity. In some of the border hospitals, selected medical officers and enlisted men of the militia formed a part of the personnel and rendered valuable assistance.

LABORATORIES

Prior to the mobilization of the militia, there was at San Antonio a department laboratory under the charge of Major Joseph F. Siler, Medical Corps. On the coming of the state troops, Department Laboratory No. 2 was established at El Paso, Texas, by Major Charles F. Craig, Medical Corps, and Department Laboratory No. 3 at Nogales, Ariz., by Major Edward B. Vedder, Medical Corps. All of these laboratories are prepared to perform every variety of advanced laboratory work. In addition, each hospital has a laboratory equipped for ordinary clinical work. There are also in the Southern Department two field laboratories available to send where needed. One of these has recently been functioning at McAllen, Texas, where there was an outbreak of paratyphoid fever among the New York troops. The work of the laboratories has been of great practical as well as scientific value. But for the laboratories, the presence of paratyphoid fever, nearly all of a mild type, would have been unknown. The reports which will later be rendered on this disease by the heads of the laboratories will undoubtedly be the most extensive productions on this subject ever published in this country.

FIELD HOSPITALS, AMBULANCE COMPANIES AND MOTOR AMBULANCES

There have been in the Southern Department thirty-two militia field hospital companies and twenty-two ambulance companies, besides the six field hospital companies and an equal number of ambulance companies belonging to the regular army. For both the regular and the militia, preparedness demands that more of these important sanitary formations should be organized, until we have ready for immediate service sufficient field hospitals and ambulance companies to provide four of each for every division of troops, this being the minimum necessary for efficiency in campaign. Some progress in this direction is being made by the Militia Bureau.

During the summer, motorization of the field hospitals and ambulance companies has been proceeding. Four of the six regular field hospitals are already motorized, the standard equipment being ten 1½ ton trucks and one touring car. A part of the trucks are for transporting the enlisted personnel, and the touring car is for the officers. Three of the regular ambulance companies have been motorized, and motor transportation has been found of great use in evacuating sick to the bases from Mexico and on division practice marches. The standard motor equipment for an ambulance company consists of two 1½ ton trucks, one spare-parts truck, and twelve ambulances, two of the latter being specially designed for comfortable transportation of sitting up patients. There are, however, certain military limitations to the use of motor transportation for field hospitals and ambulance companies. In the first place, road conditions will be encountered at times, especially in wet weather, which will preclude the use of automobile ambulances or trucks. Secondly, none of the ambulances at present obtainable are able to keep down to the speed of a marching command (from 2½ to 3 miles an hour) without overheating the engine. There appears, therefore, to be a distinct field of usefulness for the mule-drawn ambulance and army wagon, and the present plan contemplates motorizing three fourths of the independent sanitary units and leaving one fourth equipped with animal transportation. Trailer ambulances have not been found successful over the rough roads in Mexico, but have a limited usefulness on good highways.

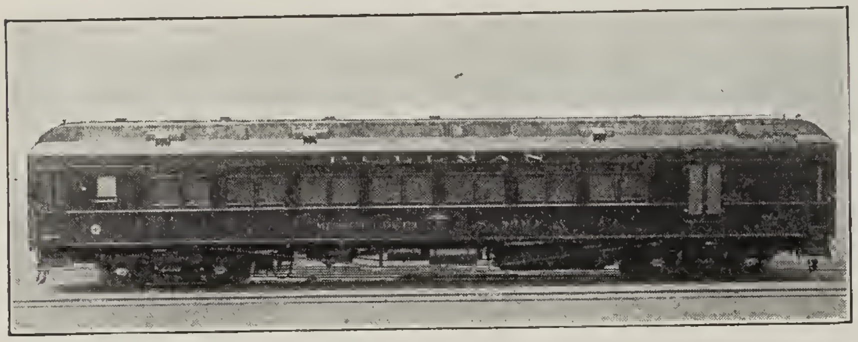

Fig. 3.—Car 4, Hospital Train 1. Note side doors for loading litter patients.

September 30, there were 135 motor ambulances in the Southern Department, and many more *en route* or in process of building. Part of those already received were supplied to the ambulance companies, two or more were in use at each of the base and camp hospitals, and the remainder in store awaiting distribution.

HOSPITAL TRAIN

To provide for possible active service in Mexico and to evacuate sick in case of need to general hospitals in the North required the services of a hospital train. This train consists of ten Pullman cars especially reconstructed for the purpose and leased by the War Department. It carries a staff of officers and enlisted men of the Medical Department and seven female nurses of the Army Nurse Corps, and also cooks and porters. The ward cars accommodate 160 patients. In place of the lower berths, iron bedsteads with springs and hair mattresses are provided. A well equipped operating room occupies a part of one car, and a kitchen is located in another. Doors on the sides and wide corridors allow ready access of litters to every part of the train. In all respects this train is much more complete and luxurious in its appointments than any of those used in the Spanish-American War. The train has already made several trips to the Brownsville District, evacuating sick from the camp hospitals to the base hospital at San Antonio, and has made one trip to evacuate the sick from the latter point to the Army and Navy General Hospital at Hot Springs, Ark.

SANITARY PERSONNEL

With the mobilization of the state troops, a severe strain was thrown on the personnel of the Medical Department of the regular army. The sanitary personnel of the organized militia is not even sufficient to provide fully for the service at the front; that is, the service with regiments, field hospitals and ambulance companies. Consequently, the duty of building and manning new hospitals and hospital trains, of running supply depots, and of providing physical examiners and sanitary inspectors and instructors devolved on the Medical Department of the regular army. Had invasion of Mexico occurred, the strain would have been very much more severe. As was to be expected, the number of medical officers of the regular army allowed by law was found insufficient. All other parts of the United States were stripped of regular medical officers to supply the needs of the Southern Department. Extensive use was made of officers of the Medical Reserve Corps, the Army Directory of Aug. 20, 1916, showing that 340 were then in the active service. Of these, 141 were on duty in the Southern Department, Aug. 31, 1916, the remainder being at the foreign stations and in the North at posts stripped of regular officers. The number of regular officers on duty the same date was 209. It was found necessary to recall medical officers from Panama, Hawaii and the Philippines to supplement the supply available in the

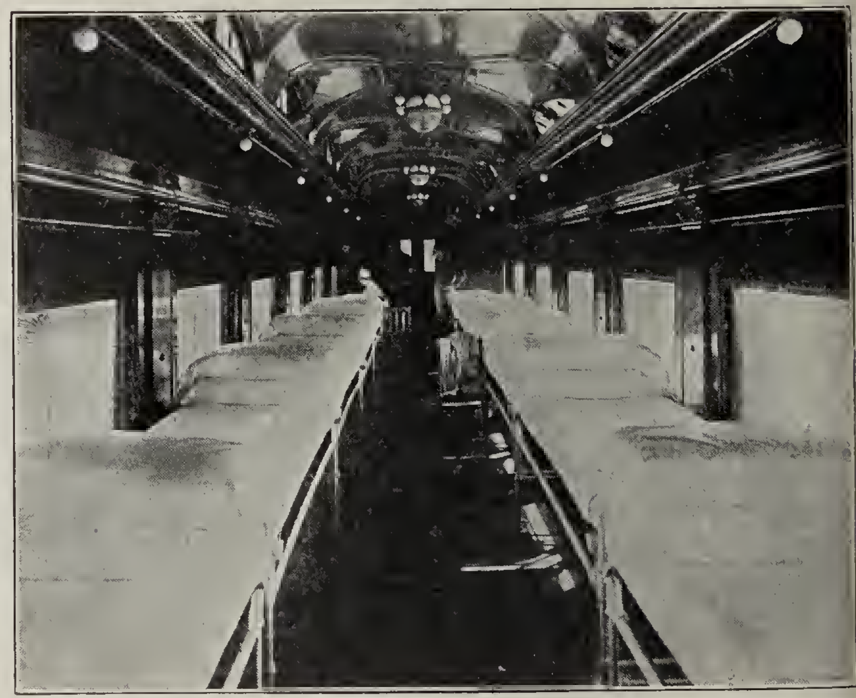

Fig. 4.—Inside view of Car 5, Hospital Train 1. In the other ward cars the upper berths have been retained for less serious cases, while the beds are reserved for the more serious.

United States. The number of militia medical officers in the Southern Department, Sept. 30, 1916, was about 700. The enlisted men of the Medical Department of the regular army in the Southern Department, Sept. 30, 1916, aggregated over 3,000. There were 197 female nurses of the Army Nurse Corps, a part of these being nurses on the Red Cross reserve list who were hired by the government. Aug. 31, 1916, there were thirty-nine dental surgeons of the regular army on duty in the Southern Department. They were serving the needs of the regulars and militia alike, a force of 150,000 men. A considerable number of dental surgeons of the militia were appointed in September, but owing to the inability to obtain portable dental outfits promptly from the makers, it has been impossible to provide all of them with the necessary instruments.

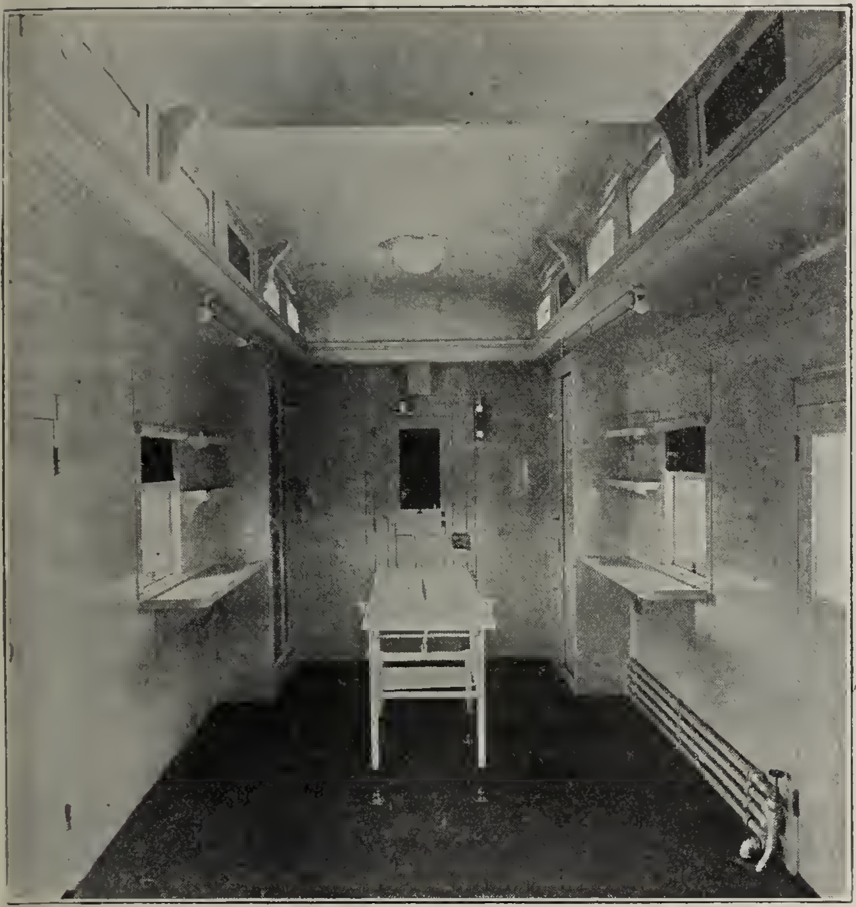

Fig. 5.—Operating room in Hospital Train 1.

The officers of the Medical Reserve Corps responded freely to the call for active duty, in many instances to their great personal disadvantage. The same applies to the medical officers of the militia who are serving on the border, in numerous cases at large financial loss. The result of the insistent calls of family and practice has been the resignation of many officers, both in the Medical Reserve Corps and in the militia. Also, many requests for return to the inactive list are received from members of the Reserve Corps. These losses are especially notable since the prospect of active service in Mexico has become less and less. The work to be done on the border has not diminished, and those who have acquired a certain degree of medicomilitary experience, and then return home, have to be replaced by others who usually have no experience. This feature of the situation constitutes a serious defect in our present system. It has, however, one bright side, which is that it offers a certain amount of medicomilitary training and experience to a considerable number of physicians who would doubtless again volunteer for service with the colors in any real national emergency.

MEDICAL SUPPLIES PROMPTLY FURNISHED

With few minor exceptions, medical property of all kinds has been promptly obtainable by the troops on the border, and no suffering or hardship has resulted from shortage of medical or surgical supplies. To expedite issues, medical supply depots were established at El Paso and San Antonio. Requisitions referred to these depots are usually filled on the day of receipt, and, except in the case of very bulky articles, shipment is made by express or mail. The equipping of the new hospitals, the stocking of the new supply depots and the issuing of thousands of shipments has thrown an amount of work on the supply department which was undreamed of since 1898, and which, fortunately, has been accomplished without the delays and confusion characteristic of that period.

No call has been made on the national Red Cross for furnishing either personnel or supplies. The published statement that Red Cross nurses have been sent to the border is correct only to the extent that the nurses in question were selected from the Red Cross enrolled list of nurses; but these nurses, as soon as their military duties began, were paid, quartered and rationed by the government in exactly the same way as other members of the Army Nurse Corps.

SANITARY INSPECTORS AND INSTRUCTORS

The national guard and the regular army have been grouped along the border for the most part in large camps ranging in size from 4,000 to 15,000 men each. In certain regions there have been small detachments scattered about for special patrol work. The sanitation of the larger camps has presented important problems for solution, and these have been met most successfully, as will be learned from the later remarks on the morbidity and mortality. The natural advantages of the camp locations have varied, but on the whole the sites have been least satisfactory in the Brownsville District along the Rio Grande, partly because this region is lower both in latitude and elevation than other sections of the Southern Department, and partly because of the unusual and almost continuous rainfall which has characterized this section during the past summer. To each camp has been assigned one or more experienced regular medical officers to act as camp sanitary inspectors, and when sev-

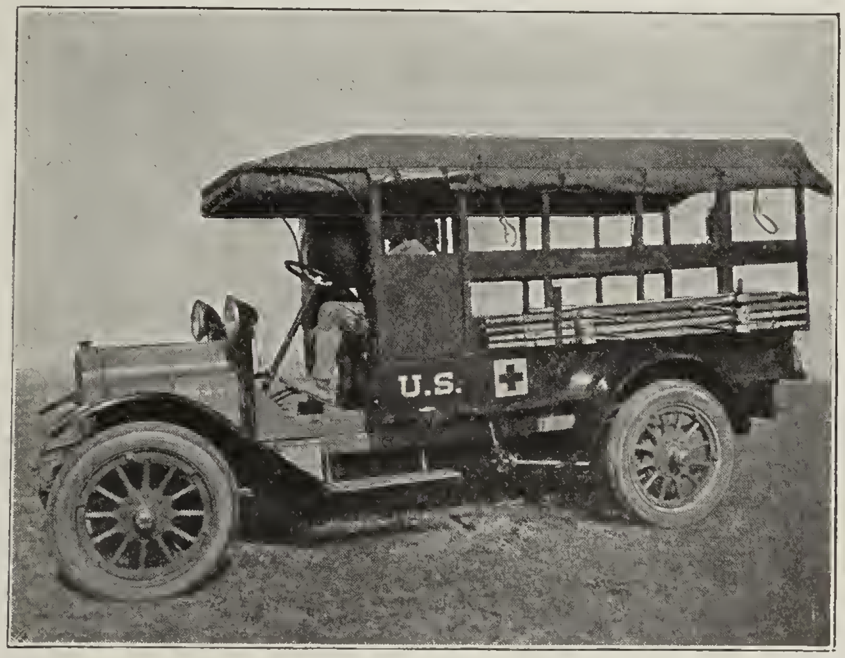

Fig. 6.—Type of motor ambulance being furnished to army; mounted on General Motors, Buick or Service truck chassis; it carries four recumbent or eight sitting patients; the upper litters are supported by the strap slings shown in the photograph illustration.

eral camps are located in one military district, a district sanitary inspector supervises all. The functions of the sanitary inspectors comprise not only the correction of faulty conditions and the giving of expert advice in sanitary matters, but also teaching in all of the duties pertaining to medical department administration in the field. A comprehensive and graded course of instruction in medicomilitary matters has been prepared and is being carried out in the entire Southern Department under the supervision of officers of the regular army. This course applies not only to the officers, but also to the enlisted men of the Medical Department (formerly known as Hospital Corps men).

In addition to the above-mentioned sanitary inspectors, certain selected officers from the Medical Corps of the regular army have been detailed as general sanitary inspectors. It is their duty to visit the camps, investigate sanitary conditions and to report thereon to the adjutant-general of the army. These general sanitary inspectors are authorized to issue, in the name of the commanding general of the department, the necessary orders for the immediate correction of any sanitary defects prejudicial to the health of the troops.

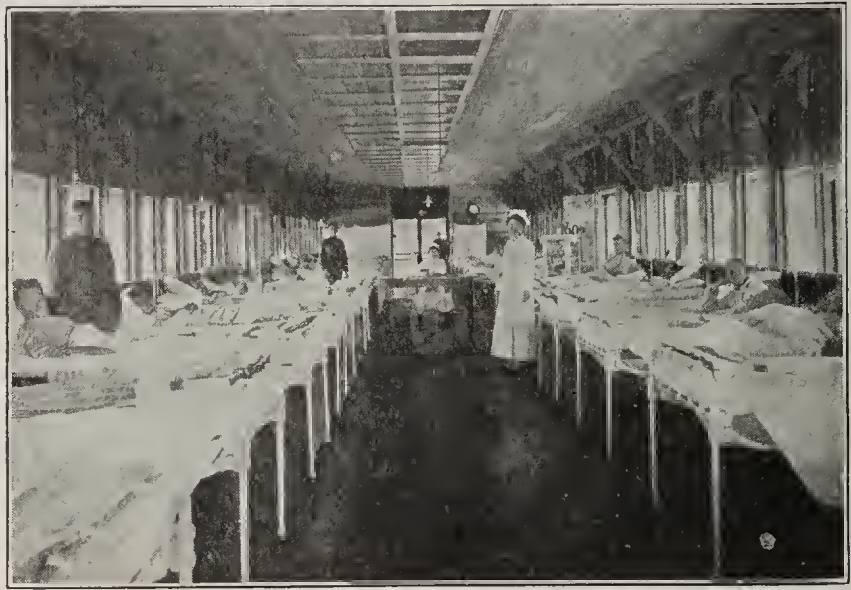

Fig. 7.—Interior of temporary pavilion ward of the type used at all the base and camp hospitals on the border. Note ventilating space in ceiling which can be closed when necessary by sliding panels; capacity, thirty-four beds.

SANITARY PROCEDURES

No new sanitary procedures of importance have been employed, and success in preserving health has depended on the continuous and stringent enforcement of well known sanitary principles. First, and probably most important, has been the rigorous smallpox and antityphoid vaccination. Water supplies, when not in themselves above suspicion, have been for the most part purified by the calcium hypochlorite process, the Lyster bag being used. Kitchen garbage, both solid and liquid, has been disposed of in company incinerators adjacent to the kitchen. Human excreta have been received in pits covered by fly-proof Havard boxes with automatically closing covers. Urinal troughs are swabbed with crude oil daily. In most camps the pits have been burned out daily with crude oil and straw. In some camps spraying of the interior of box and pit with a mixture of coal oil and lampblack has been practiced. This procedure has proved very successful in keeping flies out of the pits. The latrines are located on the side of the camp most remote from the kitchens. Flies have been combated by prompt incineration of garbage, cleanliness of picket lines, early removal of manure, catching of flies in

TABLE 3.—WEEKLY REPORT OF SICK FOR REGULARS AND MILITIA IN SOUTHERN DEPARTMENT; MEAN STRENGTH OF REGULARS APPROXIMATELY 43,000 AND OF MILITIA APPROXIMATELY 105,000

		Number Sick			Cause of Presence on Sick Report						
		In Hospital	In Quarters	Total	Injury	Diarrhea	Dysentery	Malaria	Paratyphoid	Typhoid	Other Diseases
July 31	Regulars	660	190	850	188	89	2	13	...	...	558
	Militia	428	486	914	76	270	4	4	...	...	560
August 5	Regulars	455	175	630	146	68	9	3	...	1	403
	Militia	596	501	1,097	120	298	13	...	...	1	665
August 12	Regulars	547	178	725	118	56	6	6	...	2	537
	Militia	629	382	1,011	258	62	14	9	...	2	666
August 19	Regulars	722	296	1,018	185	57	14	16	...	3	743
	Militia	928	1,224	2,152	382	209	21	20	5	1	1,514
August 26	Regulars	762	283	1,045	216	49	20	22	...	3	735
	Militia	1,022	1,054	2,076	324	241	14	16	6	2	1,473
September 2	Regulars	711	299	1,010	185	40	30	39	2	2	712
	Militia	1,155	860	2,015	263	202	15	28	35	8	1,464
September 9	Regulars	863	244	1,107	174	44	19	36	2	1	831
	Militia	1,371	722	2,093	271	131	20	53	67	8	1,543
September 16	Regulars	863	228	1,091	174	49	29	34	1	...	804
	Militia	1,351	861	2,212	294	158	32	90	70	4	1,564
September 23	Regulars	843	385	1,228	193	61	27	37	18	...	892
	Militia	1,457	939	2,396	361	118	24	93	69	5	1,726
September 30	Regulars	994	406	1,400	209	35	30	29	23	3	1,073
	Militia	1,564	856	2,420	390	103	16	108	47	11	1,745
October 7	Regulars	1,150	252	1,402	175	40	10	32	33*	3	1,087
	Militia	1,261	579	1,840	282	66	13	63	50	11	1,378
October 14	Regulars	922	272	1,194	170	20	25	13	53*	2	911
	Militia	1,354	593	1,947	252	52	10	49	51	14	1,519
October 21	Regulars	958	262	1,220	183	33	14	20	62*	1	882
	Militia	1,376	693	2,069	284	41	8	56	44	14	1,569
October 27	Regulars	895	253	1,148	175	20	17	16	21	1	929
	Militia	1,306	828	2,134	311	29	10	62	55	16	1,704

* Nearly all of this paratyphoid occurred in Mexico.

traps and fly-paper, and by poisoning them with formaldehyd solution. Kitchens and mess-shacks have been screened as soon as possible, but there has been considerable delay owing to difficulty in obtaining promptly the great amount of netting required. The usual methods for preventing the breeding of mosquitoes have been practiced. Mosquito bars for the entire militia command could not be furnished for a long time, because the Quartermaster Department found it impossible to purchase such large quantities in the United States. A small malarial outbreak in September, at Llano Grande, Texas, was handled by prophylactic use of quinin pending the eradication of mosquitoes and their breeding places. Excellent shower baths were installed as soon as possible in all camps. Venereal prophylaxis has been carried out with the usual protargol injections and calomel-ointment inunctions. Instruction in personal hygiene has been given to all troops.

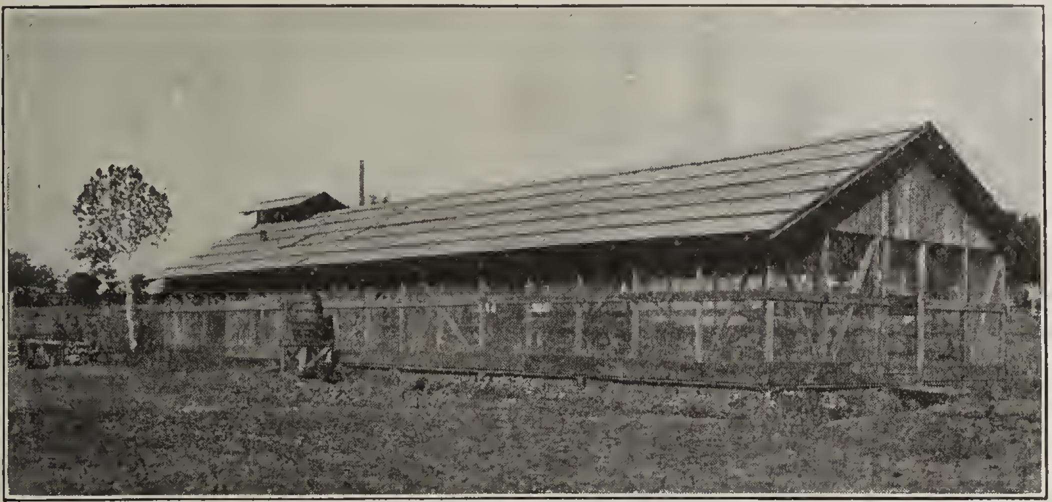
Fig. 8.—Type of screened kitchen and mess-shack for one company; kitchen in far end and dining room in near end. Note garbage incinerator at extreme left.

EXCELLENT HEALTH CONDITIONS ON THE BORDER

The remarkable absence of infectious diseases and of deaths from disease among the troops on the border is a striking demonstration of the progress in military sanitation which has been made since 1898. This is particularly true in regard to typhoid fever, which will be given separate consideration further on. Among the volunteer troops serving within the continental limits of the United States in 1898, malarial fevers and diarrheal diseases caused a little over one half of the total admissions to sick report. A study of Table 3 will show that in 1916 this group of diseases has been a small factor in the morbidity lists. In 1898 among 85,000 volunteer troops serving in the United States there were 1,986 deaths from disease in the eight months from April 22 to December 31. In 1916, among 105,000 state troops on the border, there have been thirty-eight deaths from disease for the three months from July 1 to September 30. Among 43,000 regulars during the same period, there have been nineteen deaths from disease. Of these deaths, only twelve among the militia and five among the regulars were due to acute infectious diseases.

The rates per thousand on sick report in the different districts of the Southern Department are shown in Table 4 for regulars and militia separately. It will be noted that in most instances the sick rate is lower for the militia. This should not be taken to mean that the health of the state troops is really better than that of the regular army. The true explanation is as follows: In the regular service a soldier who cannot do his full duty because of a minor disability is placed on sick report, and consequently his illness becomes a matter of official record. This rule is strictly enforced. As a result of the more lax discipline in the state troops, soldiers are frequently excused from duty

TABLE 4.—REPORTS OF RATES PER THOUSAND ON SICK REPORT IN SOUTHERN DEPARTMENT; STRENGTH OF REGULARS APPROXIMATELY 43,000 AND OF MILITIA APPROXIMATELY 105,000*

		Brownsville District†	New York Division†	Laredo District	Eagle Pass District	Del Rio District	Big Bend District	El Paso District	New Mexico District	Punitive Expedition in Mexico	Arizona District	Nogales District	Camp Wilson, San Antonio, Texas
Approximate strength*	Regulars..........	4,790	None	2,055	3,364	1,980	1,096	5,298	744	12,837	5,370	1,205	2,843
	Militia............	23,960	17,000	6,627	6,203	None	2,190	20,974	2,370	None	6,408	8,522	10,650
August 19...........	Regulars..........	29	..	11	26	25	13	27	36	21	18	14	..
	Militia............	32	17	17	27	..	22	15	35	..	15	26	..
August 26...........	Regulars..........	17	..	12	25	25	37	26	34	20	19	22	..
	Militia............	18	15	17	24	..	43	16	37	..	21	16	..
September 2.........	Regulars..........	28	..	14	23	12	31	27	27	21	21	21	31
	Militia............	28	..	17	32	..	44	17	18	..	20	17	15
September 9.........	Regulars..........	28	..	13	24	29	34	33	36	17	23	22	32
	Militia............	20	..	14	18	..	41	18	21	..	26	22	16
September 16........	Regulars..........	28	..	25	30	34	40	30	30	15	23	23	38
	Militia............	21	..	15	23	..	30	17	25	..	38	7	23
September 23........	Regulars..........	26	..	37	32	28	32	29	23	20	22	29	32
	Militia............	20	26	10	20	..	38	15	25	..	35	16	32‡
September 30........	Regulars..........	26	..	21	39	34	37	28	26	18	23	35	33
	Militia............	25	28	12	23	..	43	16	23	..	28	29	33‡
October 7...........	Regulars..........	20	..	17	..	27	36	29	22	19	18	25	36
	Militia............	25	26	13	..	..	41	23	30	..	25	14	26
October 14..........	Regulars..........	18	..	14	29	30	34	28	19	20	17	17	32
	Militia............	22	25	14	19	..	39	19	34	..	14	14	21
October 21..........	Regulars..........	20	..	16	29	29	36	25	24	19	23	23	31
	Militia............	26	26	14	17	..	48	19	11	..	18	18	20

* These figures for strength are only approximate, as they varied materially from week to week. The rates per thousand are based on the actual strength reports for each week, as determined locally by the surgeons rendering the reports.

† The New York Division, though located geographically within the Brownsville District, was not included as a part of that district.

‡ During this period these troops were on a strenuous division march.

to a varying degree without appearing on sick report. This is especially likely to occur in the case of the more common injuries. The tendency to excuse men from duty without putting them on sick report is often favored by the militia surgeons, in the first place, to escape what is considered unnecessary paper work, and in the second place, in many instances, to avoid entering an undesirable "not-in-line-of-duty" record against men who have venereal disease. Since the sick record is the basis for the adjudication of future pension claims, it can readily be seen that failure to record disabilities which interfere with performance of duty is an injustice either to the soldier or to the government, depending on whether the disability is or is not incident to the service.

NUMBERS SICK IN CAMP AND BASE HOSPITALS

In Mexico serious cases have had to be treated for a time, at least, in field hospitals. In other sections of the Southern Department all save the most trivial and ephemeral cases of injury and disease were placed in the base and camp hospitals. The numbers of sick in these hospitals at ten day intervals is shown in Table 2 for regulars and militia separately. The percentage of the total command in these hospitals is given, and indicates what an inconsiderable amount of morbidity has existed — always well below 2 per cent. It will be noted that approximately 16 per cent. of the illness has been due to venereal disease. The figures given here by no means represent the entire number of venereal cases, because many with this class of diseases are treated in quarters, or, in the case of the militia, are not put on sick report at all.

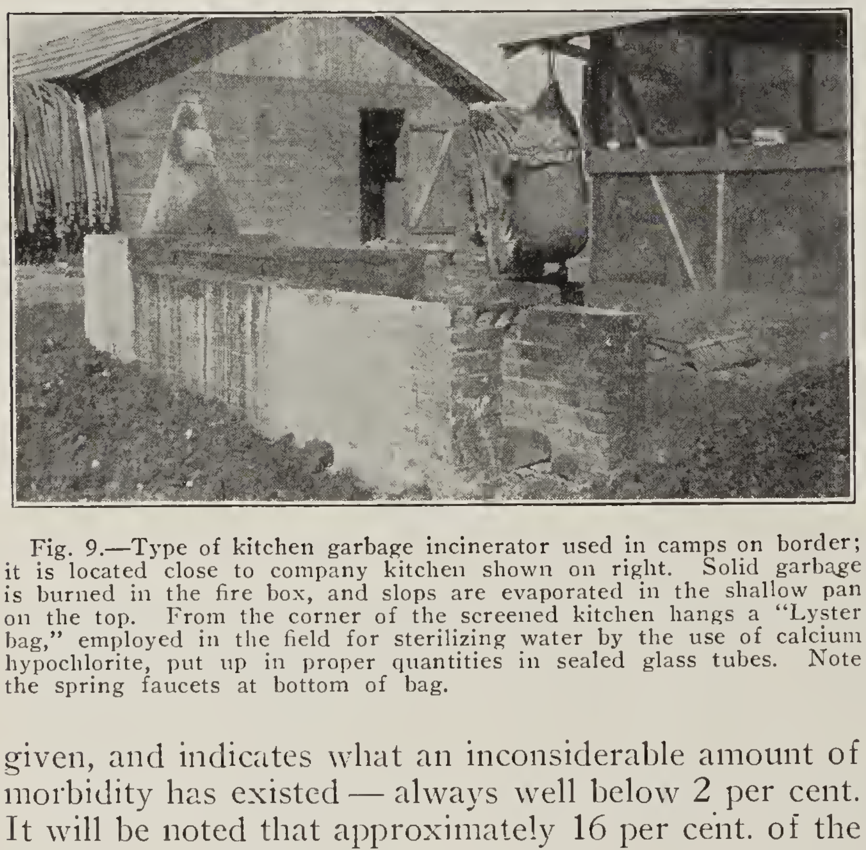

Fig. 9.—Type of kitchen garbage incinerator used in camps on border; it is located close to company kitchen shown on right. Solid garbage is burned in the fire box, and slops are evaporated in the shallow pan on the top. From the corner of the screened kitchen hangs a "Lyster bag," employed in the field for sterilizing water by the use of calcium hypochlorite, put up in proper quantities in sealed glass tubes. Note the spring faucets at bottom of bag.

EXTREMELY LOW DEATH RATE

Table 5 shows the number of deaths, with causes, for regulars and militia separately during the four month period June to September, inclusive. During this time there were 121 deaths in a command averaging nearly 150,000 men during the latter three months. Of these 121 fatalities, 61 were due to disease, 8 were due to unknown causes, and 52 to external causes such as gun-shot wounds, ordinary injuries, drowning, lightning stroke, etc. Only 17 of these deaths were caused by acute infectious diseases, viz.: 3 from pneumonia, 2 from meningitis, 9 from dysentery, 1 from paratyphoid fever, 1 from scarlet fever, and 1 from enterocolitis.

RARE CASES OF TYPHOID FEVER; NO DEATHS FROM TYPHOID

From May 1, 1916, to Oct. 18, 1916, there have been twenty-four cases of typhoid fever, with no mortality, among the 170,000 troops which have served in the border camps throughout the Southern Department and in Mexico. In 1898 among 147,795 regular and volunteer troops there were 20,926 cases of typhoid, with 2,192 deaths, in about eight months. Most of the cases were contracted within the United States. In 1899, among 105,260 regular and volunteer troops there were 2,184 cases of typhoid with 258 deaths. During the year 1900, among 100,389 regulars and volunteers there were 978 cases of typhoid fever and 164 deaths. The phenomenal improvement which has characterized the present mobilization, as compared with the mobilizations of 1898, 1899 and 1900, may be attributed in part to betterment of general sanitary conditions, but much more largely to a specific measure, namely, the compulsory administration of antityphoid vaccine. This is evidenced by the fact that, although typhoid is endemic in this section, there have been but twenty-four cases of this disease among the troops, while there have been very much greater numbers of paratyphoid and dysentery infections, both of which are preventable by the same general sanitary precautions which are efficacious in limiting the spread of typhoid. It is the specific sanitary procedure, antityphoid inoculation, which has safeguarded the troops from the ravages of typhoid fever.

TABLE 5.—NUMBER AND CAUSES OF DEATHS IN SOUTHERN DEPARTMENT AMONG APPROXIMATELY 43,000 REGULAR TROOPS AND 105,000 MILITIA; FEW OF THE MILITIA WERE PRESENT IN JUNE *

Causes of Death	Number of Deaths								Total
	June		July		August		September		
	Regulars	Militia	Regulars	Militia	Regulars	Militia	Regulars	Militia	
Gunshot wounds...	11	1	3	..	..	..	4	2	21
Injury............	3	..	1	1	3	..	2	3	13
Suicide...........	1	..	3	..	1	1	2	2	10
Drowning..........	..	..	..	2	2	..	..	3	7
Diseases of the heart............	..	..	..	..	..	1	4	1	6
Pneumonia.........	..	..	..	1	1	..	..	1	3
Appendicitis and peritonitis........	..	..	1	1	2	5	..	6	15
Meningitis, tuberculous...........	..	..	..	1	..	..	1	..	2
Meningitis, acute...	..	..	1	..	1	..	..	..	2
Diabetes..........	..	..	..	..	..	..	..	1	1
Gonorrheal septicemia..............	..	..	..	1	..	..	..	..	1
Perforating gastric ulcer.........	..	..	..	..	..	..	1	1	2
Dysentery.........	..	..	..	..	..	4	1	4	9
Cerebral tumor.....	..	..	..	..	..	..	..	1	1
Abscess of liver.....	..	..	..	..	..	..	1	..	1
Intestinal obstruction...............	..	..	..	..	..	..	..	1	1
Enterocolitis.......	..	..	..	..	..	..	1	..	1
Diseases of kidney..	2	..	1	1	..	..	1	..	5
Pemphigus contagiosus..........	..	..	..	..	..	1	..	..	1
Paratyphoid fever.	..	..	..	..	..	..	..	1	1
Scarlet fever........	..	..	..	..	..	..	..	1	1
Tuberculosis, type unknown.........	..	..	..	..	..	2	..	..	2
Septicemia..........	..	..	1	..	..	1	..	..	2
Cerebral hemorrhage............	..	..	..	..	1	..	..	..	1
Sunstroke..........	..	..	1	..	..	..	..	..	1
Tertiary syphilis...	2	..	..	..	..	..	..	..	2
Toxemia, cause not stated........	..	..	..	..	..	1	..	..	1
Undetermined......	..	..	2	..	3	3	..	..	8
Total...........	19	1	14	8	14	19	18	28	121

* For mortality in October, see Our Troops on the Border, News Department, this issue.

Table 6 shows the status and date of the typhoid vaccination in the case of those soldiers who developed the disease. It will be noted that no regular soldier has contracted typhoid fever who had been vaccinated within a period of three years. Among the 130,000 militia, fourteen cases have occurred in men presumably vaccinated within three years. Nine of them, according to the records, were vaccinated during the mobilization. The exact facts in regard to these cases will, perhaps, never be ascertained. It is known that in some instances vaccination of militia was performed with vaccine other than the standard army preparation, which has given such remarkable results in the regular army. It is also possible, as a result of haste, lax methods and faulty records, that some of these fourteen men referred to above may have failed to receive the inoculation or may not have received the full course of three doses which is required. All that can be said at present is that the records indicate that they had been vaccinated within three years.

TABLE 6.—ANTITYPHOID VACCINATION STATUS OF PERSONS WHO DEVELOPED TYPHOID FEVER IN THE SOUTHERN DEPARTMENT, MAY 1 TO OCT. 18, 1916

Date of Typhoid Vaccination	Number of Cases of Typhoid Developing in		
	Regular Army	Militia Troops	Civilians Connected with Army*
Vaccinated in 1916	...	9†	
Vaccinated in 1915	...	3‡	
Vaccinated in 1914	...	2‡	
Vaccinated in 1913	1	1	
Vaccinated in 1912	2		
Vaccinated in 1911	1		
Vaccination incomplete at onset of disease	...	2§	
Never vaccinated	2	...	5*
Unknown; probably not vaccinated	...	1	3*
Total	6	18	8*

* Civilians employed by the army are supposed to be vaccinated in the same manner as soldiers, but many escape vaccination as a result of various causes. Two of these cases of typhoid were in children of soldiers.

† Three of these are known to have received vaccine other than the army product. Others may have.

‡ One of these is known to have received vaccine other than the army product.

§ Only one dose had been given when these two men developed typhoid.

TABLE 7.—SOURCES OF INFECTION

	No. of Cases		No. of Cases
Fort McIntosh, Texas	1	Brownsville, Texas	3
San Antonio, Texas	4	Pharr, Texas	2
McAllen, Texas	3	Mission, Texas	1
El Paso, Texas	4	Mexico	4
Marfa, Texas	1	Kentucky	1

How scattered among the soldiers these twenty-four cases of typhoid were is shown in Table 7.

CASES OF PARATYPHOID FEVER

This disease, which has been found to be a factor of importance among the European armies, has also occurred in a considerable number of instances on the Mexican border. From May 1 to October 7 there have been 250 cases diagnosed by blood culture, and undoubtedly there were other cases which remained incorrectly diagnosed as a result of not submitting specimens for laboratory examination. About 600 negative blood cultures have been made in cases of indefinite fevers. In general, the cases of paratyphoid have been very mild and often of brief duration. A few patients have been extremely ill and have shown hemorrhages and a typhoid condition. Rose spots have been plentiful. There has been one death attributed to paratyphoid, but the diagnosis is not certain, as the blood specimen, through error in labeling, was not submitted to cultural test. All but five of the paratyphoid infections have been caused by *Bacillus paratyphosus A*. There was a sharp epidemic of paratyphoid among the New York troops at Mission, Texas. This was combated by stringent sanitary precautions, and has been suppressed. In the week ending October 7 there were but seven new cases of paratyphoid in the entire department. Antiparatyphoid inoculation with a mixed A and B vaccine has been begun among the New York troops and in some other portions of the department, but it is too early to report on the extent and results of this prophylactic measure.

TABLE 8.—DISTRIBUTION OF PARATYPHOID A

	No. of Cases		No. of Cases
Fort Ringgold, Texas	1	San Benito, Texas	1
McAllen, Texas	41	Marfa, Texas	1
Mission, Texas	109	El Paso, Texas	4
Donna, Texas	4	Fort Huachuca, Ariz.	2
Pharr, Texas	4	Douglas, Ariz.	11
Llano Grande, Texas	6	Columbus, N. M.	2
Brownsville, Texas	7	San Antonio, Texas	1
Laredo, Texas	4	Mexico	46

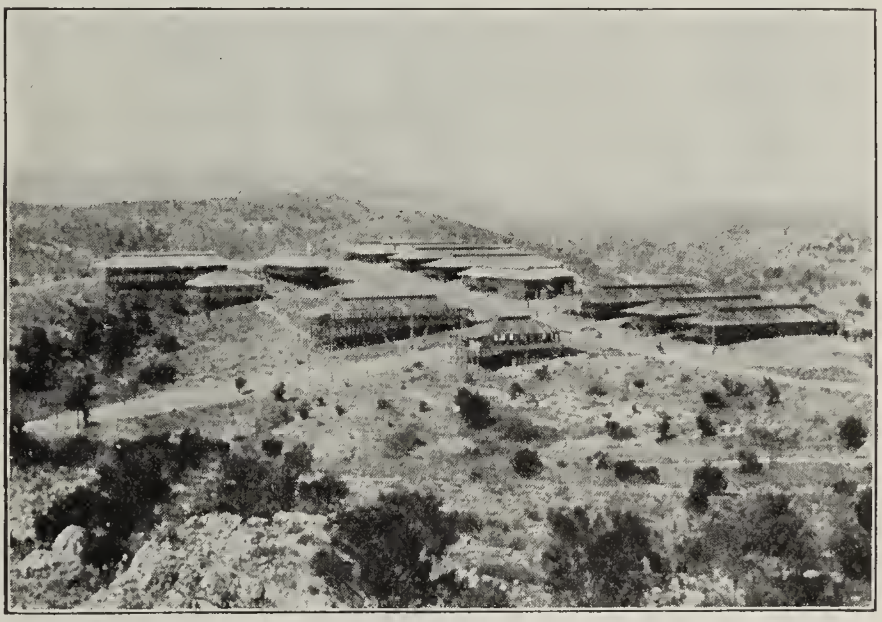

Fig. 10.—Base Hospital No. 5, Nogales, Ariz. Construction typical of other camp and base hospitals along the border. Picture taken Aug. 27, 1916. When all construction is completed, capacity will be 500 beds.

The distribution of the diagnosed cases of paratyphoid A is shown in Table 8. By far the larger number of cases originated in Mexico and in the lower Rio Grande valley. McAllen, Mission, Donna, Pharr and Llano Grande are all close together, and located between 25 and 50 miles west of Brownsville, Texas.

Three of the paratyphoid B infections occurred at San Antonio, one at El Paso and one in Mexico.

DYSENTERY

Sporadic cases of dysentery have appeared in various regions in the Southern Department, and there have been eight deaths among the militia from this disease. A small epidemic of dysentery occurred during the summer in the expeditionary force in Mexico, both the bacillary and the amebic varieties being encountered. The disease appears to be of a milder type than that found in the Philippines. There has been but one death from this cause in Mexico. In the Mexican expedition, owing to the strenuous service, the poor roads and the absence of rail communication, the dietary conditions have at times been unsatisfactory, and the appliances for the more complicated sanitary procedures have not been at hand. Dysentery has now been almost entirely eliminated from the expedition. That the health conditions among the forces in Mexico are satisfactory is shown by the report from the chief surgeon of the expedition for the month of September (Table 9).

TABLE 9.—AVERAGE SICK RATES PER THOUSAND AMONG TROOPS IN MEXICO DURING SEPTEMBER, 1916

Absent sick		13.8
Present sick:		
Venereal diseases	2.2	
Intestinal diseases	2.7	
Fevers	3.1	
All other diseases	10.6	
		18.6
Total sick per thousand		32.4

SOME OF THE LESSONS LEARNED FROM THE MOBILIZATION

1. The physical standards of the regular army should be strictly applied to the members of the national guard.

2. All members of the national guard should be immunized against smallpox, typhoid and perhaps the two paratyphoids, at time of enlistment. The former two procedures should be repeated in three or four years. The length of time the paratyphoid vaccination will protect remains to be worked out.

3. The states should organize sufficient ambulance companies and field hospitals to bring the allowance of each unit up to at least four for every authorized division of state troops. All sanitary equipment should be kept complete, serviceable and up to date.

4. The medical corps of the regular army (even when it reaches after four years the recently authorized allowance of seven per thousand of strength in the army) will be insufficient to provide adequately for the needs of any such force as would be required in a war of the first magnitude.

5. Consequently, adequate medicomilitary training should be given to the militia sanitary organizations and to the Medical Reserve Corps.

6. The Medical Reserve Corps should be greatly increased in size — to 10,000, or perhaps 20,000. There were approximately 1,600 men in the corps last summer, and from these it has been difficult to get 350 for active service. Few wish to remain long on active duty.

7. Typhoid fever need no longer be dreaded as a scourge to armies.

8. State troops can be maintained indefinitely in camps in the South, and at the same time remain in excellent health, provided certain simple sanitary precautions are continuously and rigidly enforced. These precautions will not be continuously and rigidly enforced unless alert and experienced sanitary inspectors are placed in charge and vested with sufficient powers to enable them to compel the prompt correction of sanitary defects.

Fort Sam Houston.

SHINGUARD TYPE OR LICHEN PLANUS OCREAFORMIS

A CONTRIBUTION TO THE RARER FORMS OF LICHEN PLANUS *

DAVID LIEBERTHAL, M.D.

CHICAGO

In the majority of cases of lichen planus the diagnosis offers no great difficulty, while there are aberrant types which require considerable skill in their interpretation. To these belongs the case here presented, which is of extreme rarity, no duplicate of it ever having been recorded. For this reason its demonstration before the Chicago Dermatological Society, and later at the clinical session of the American Dermatological Association in Chicago, 1914, elicited very interesting discussion.[1] And while some difference of opinion existed, yet the majority of the members accepted the diagnosis — lichen planus.

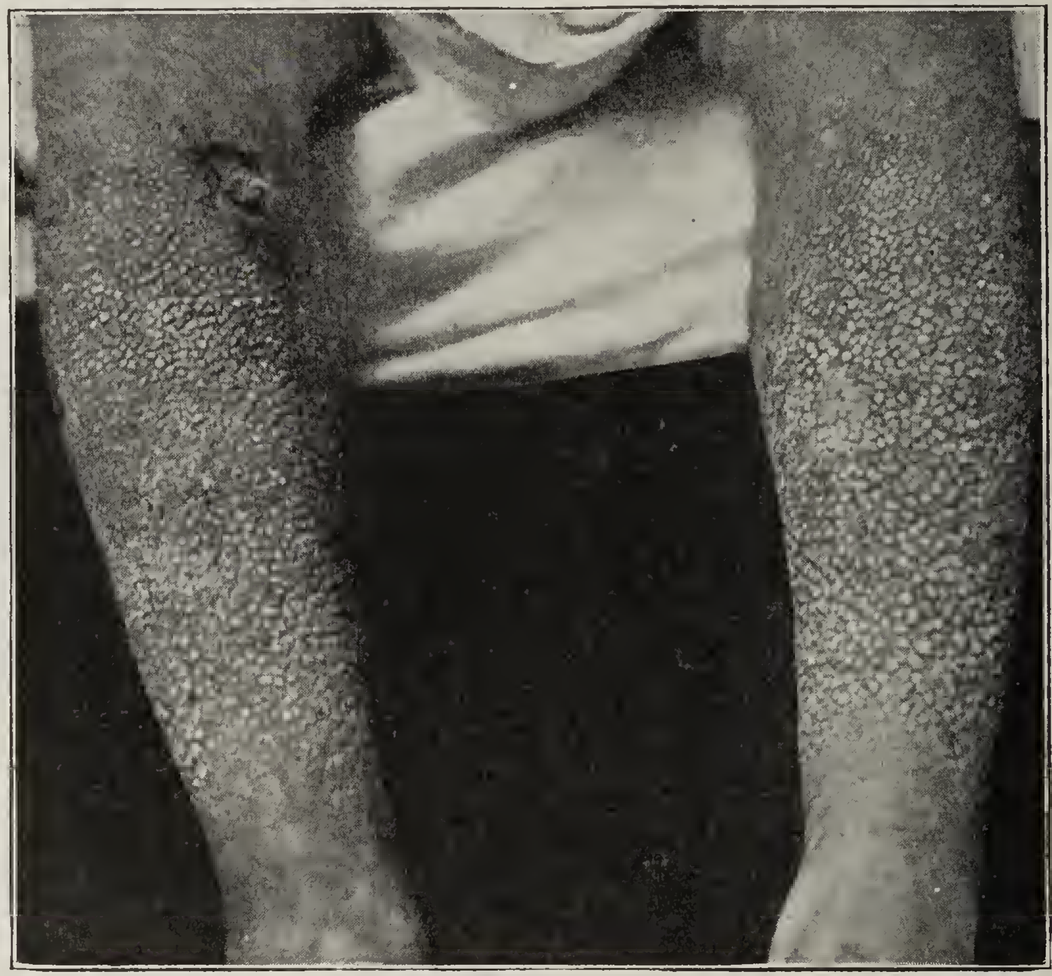

Fig. 1.—Anterior view of legs.

History.—The patient was admitted to the hospital, Jan. 12, 1913, and the following account of his illness was secured: He was a Russian, aged 63, glazier, married, and the father of two healthy children. He has always been of temperate habits, has had no venereal or skin disease, and knows of none of his relatives having been afflicted with such. He had no recollection of having passed through any serious illness otherwise. The present condition began about a year and a half before this examination, with intensive burning of both shins. It was completely relieved by treatment in a short time. Six months later the burning recurred, and with no apparent change of the skin, lasted for five months, when numerous small blisters appeared on the legs, causing severe itching. On scratching, the blisters were ruptured. Very soon thereafter pimples began to develop, and the itching and burning became gradually less severe. He was afflicted with habitual constipation.

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* From the Dermatological Department of the Michael Reese Hospital.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Lieberthal, David: Jour. Cutan. Dis., 1915, p. 395.

Examination.—He was of small stature and poorly nourished. The lungs were slightly emphysematous, and there was a bilateral inguinal hernia. The urine was alkaline, containing a few leukocytes and epithelia, but no casts. The blood showed no deviation from the normal, except a hemoglobin content of about 65 per cent. The Wassermann reaction was negative. The lymphatic glands in the groins were slightly enlarged. Otherwise no pathologic conditions were found except those of the skin and of the buccal mucosa. The general appearance of the whole skin was thin and rather dark. Both tibial regions from slightly below the knees, and down to above the ankles were covered by an eruption of closely set lesions which was perfectly symmetrical. These plaques were enveloping the legs nearly completely. They were gradually becoming narrower, as they approached the posterior aspects, where only a small streak of normal skin interrupted the complete envelope. The lesions consisted of pinhead to bean-sized, angular, flat and convex firm papules, of a dull yellowish to dark brown. They were partly smooth, partly showing slight scaling. The peripheral lesions were mostly flat and of small size, only few showing an indication of a central depression. All lesions throughout the affected parts were apparently solitary, that is, separated from each other by normal skin. They were very densely arranged and resembled on each leg, as a whole, *quasi* a patch paved with "cobblestones." In their aggregate, as they surrounded the legs, they reminded vividly of "shinguards." Within and between the papules on the anterior aspects (of the legs) were a number of pustules. The parts affected were more pigmented than the rest of the integument. On the mucous membrane of the right cheek, opposite the molars, there was a group of dull white flat and angular papules.

Histology.—A piece of skin was excised from the upper margin of the plaque on the right leg for microscopic examination at the time when photographs were taken. (The wound thus made is visible in Figure 1.) The findings were the following: The stratum corneum was considerably hypertrophied; no nuclei were here encountered. It was dipping downward in the form of plugs into follicles and ducts of sudoriparous glands and independently of either. The stratum granulosum was thickened. The stratum spinosum, as a whole, was reduced in thickness. The intercellular spaces were narrow, the cells normal, except a vacuole here and there in cells of the basal layer. Numerous clusters of yellow brown pigment were scattered throughout the spinous layer. The interpapillary processes were variously shaped, here broadened, there elongated. The papillae showed corresponding formation. The collagenous tissue of the corium was sclerosed throughout. The elastic tissue was normal. There was a small round cell infiltration, which was pretty nearly limited to the papillary and subpapillary layers. The cellular elements were closely arranged, either in the form of irregular patches, or as streaks. The infiltration ceased at and below the subpapillary layer, except here and there a streak of cells was accompanying a sweat gland or a blood vessel. No plasma nor mast cells were found. The blood vessels and lymphatic spaces were contracted. Hair follicles were scanty, sudoriparous glands numerous and normal.

Course and Treatment.—Proper hygienic and dietetic measures were instituted. The pustules were opened and wet dressings of aluminum acetate applied. Within ten days these had healed. Thereupon a 2 per cent. salicylic paste locally and Fowler's solution internally were administered. The former was soon replaced by one of 2 per cent. chrysarobin, which was gradually increased to one of 4 per cent. Within four weeks the patient's condition had improved very much and the patient left the hospital, but remained under observation another month. He was demonstrated before the Chicago Dermatological Society before treatment was begun, and again two months later, when his legs were greatly improved. The patient then absented himself and was not seen again for about fourteen months, during which time he had received no treatment. His condition had remained the same as it was at the second demonstration. On further treatment on the same line as before, his skin was healed completely within about a couple of months, leaving intensive pigmentation.

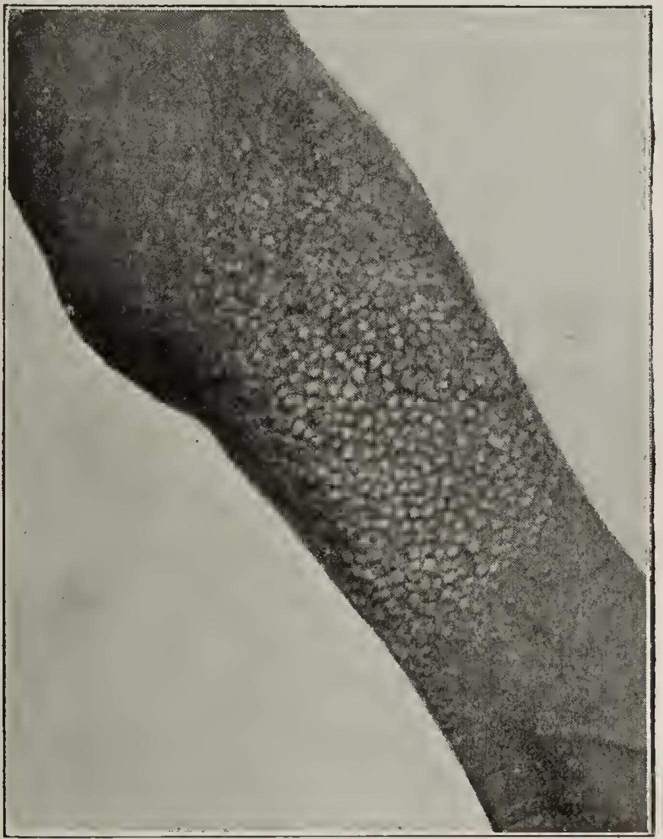
Fig. 2.—Lateral view of right leg, showing narrowing of patch.

CONSIDERATION OF THE IDENTITY OF THIS CASE WITH LICHEN PLANUS

Inasmuch as this case seems to deviate in clinical and anatomic respects from the typical form of lichen planus, the question of their identity may be discussed. In the commonly occurring type the following symptoms are noted: The eruption is generalized and consists of mostly solitary lesions which later may increase in size or coalesce. They are pinhead-sized, and larger, flat, angular papules of pale, dark yellow, pink or livid color. They are smooth, dull or shining and may show central pitting. After some time they gradually become brown and squamous, the central depression is no more visible, and they heal, leaving dark brown pigmentation. There may be more or less intensive itching in the beginning of the disease. The histologic features of a recent papule are:[2] The epidermis in all its layers is thickened. The prickle cell layer shows intracellular and intercellular edema, especially in its lower portion, where some of the cells contain vacuoles. Here are also noticed round cells and lymphocytes penetrating from the papillary layer. The pigment is not increased. The epithelial projections are broadened and elongated. There is a dense infiltration in the form of irregular groups or rows of cells in the papillae and in the subpapillary layer. At the latter it ceases quite abruptly, except that from here may descend rows of cells sheathing blood vessels and ducts of sweat glands. The collagenous tissue of the corium is partly hypertrophied, the elastic tissue normal. The blood vessels and lymphatics are dilated.

All these details, I wish to repeat, are symptoms, as found at a stage when the disease has reached its height of development. With the decline of this inflammatory process, however, the picture changes. There is an increase of pigment in the epidermis. The edema within the prickle cell layer subsides. The blood vessels and lymph spaces are contracted. The infiltration gradually diminishes, although it remains to its last traces limited mostly to the papillary and subpapillary layers. In other words, we find in a later stage of typical lichen planus conditions which were also to a great extent encountered in our case, which likewise represents in respect to findings and history, a later, that is, a retrogressive stage. The lesions in the mouth of our patient were typical of lichen planus, and the treatment perfected a cure within a reasonably short time.

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[2] For illustration and description see Lieberthal, David: Lichen Planus of the Oral Mucosa, The Journal A. M. A., Feb. 16, 1907, p. 559.

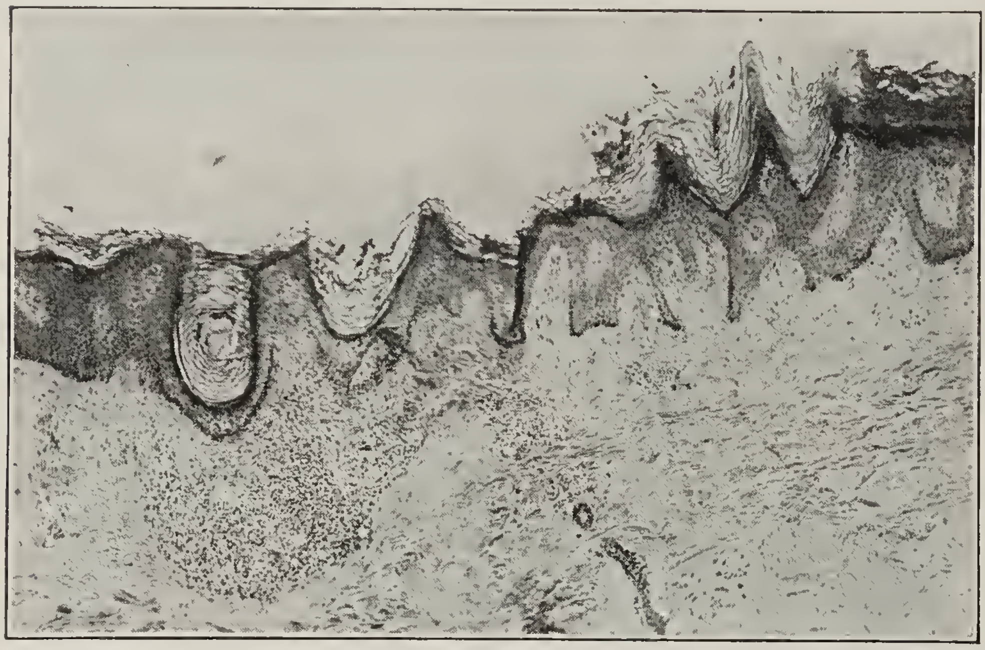

Fig. 3.—Microscopic section of atypical lichen planus; low power.

The really unique features of our case were, first, the close arrangement of the very copious lesions to each other without any apparent coalescence, although microscopically there were all indications of such, and secondly, the limitation of the affection to the tibial regions and the mouth. The same limited situation is recorded in a number of cases of another aberrant type, namely, lichen planus hypertrophicus.[3]

How much the localization might have had to do with the retarded circulation in the lower extremities of the old man, it is difficult to say. It may be possible that the lichen was latent in the patient and was incited by the severe itching and scratching, and thus developed in places of minor resistance. The question, if the vesicles and pustules which were observed before and at the examination had anything to do with the main process of lichen planus, must also be left open. In conclusion I wish to submit for my case, as announced in the title, the designation "shinguard" type of lichen planus or "lichen planus ocreaformis."

31 North State Street.

ABSTRACT OF DISCUSSION

Dr. A. Ravogli, Cincinnati: We should not lose sight of the fact that the eruption does not always come in the form of papules the size of a small pin head or split pea, with the peculiar conformation given in the text books, but sometimes as an erythematous condition covered with little scales, which we call lichen planus miliariformis. We also have a type known as lichen planus atrophicus. The histologic report of Dr. Lieberthal is very important. There are, of course, in this disease various stages of progress: the lesions may or may not improve for a time. The inflammation and hyperemia in some cases reach such a point with exudation that vesicles are formed. I had a case referred to me by Dr. Ravitch in which the bullae were so large that the condition was easily confused with dermatitis herpetiformis or pemphigus, but it proved to be a simple case of lichen planus bullosus. The presence of bacteria and staphylococci may produce pustules. The patient, to relieve his itching, naturally scratches, and this exposes the mucous layer of the epidermis, giving the staphylococci, which are ubiquitous, an opportunity to find a lodgment and produce pustules. Sometimes lichen planus is associated with eczema, and the latter may prove very stubborn on account of the condition of the skin produced by the lichen planus.

As to the treatment of lichen planus, I usually give calomel in small doses until free catharsis is produced. Arsenic gives excellent results in some cases and when the itching is severe it can usually be relieved by a single injection of cacodylic acid. After the involution of the lichen planus lesions, stains of pigment are left by the effused blood that often occurs in the papules, and in some instances the skin remains atrophic. This is actually a scar condition which in some instances remains stained by the coloring matter of the effused blood.

Dr. Fred Wise, New York: I have never seen a case resembling this one. The eruption on the lower limbs was probably altered by the presence of varicose veins, which may have produced this unusual verrucous appearance. The histopathologic picture is almost pathognomonic. At the Vanderbilt Clinic recently we have taken cases of dermatoses of unusual character and examined numerous slides, and from the histopathology alone we should have made a diagnosis of lichen planus, but the cases showed no clinical or etiologic relationship to that disease. We cannot, therefore, rely entirely on the histopathology in making the diagnosis. Of the etiology of lichen planus we know even less than we do of that of eczema. The idea held by French dermatologists that it is due to a neurosis is absurd. We may see it in a dock laborer or in a man who shows absolutely no neurotic taint, as often as in neurotic, city bred women. Lichen planus of the lower extremities, especially, has probably no connection with a neurosis. It is much more likely

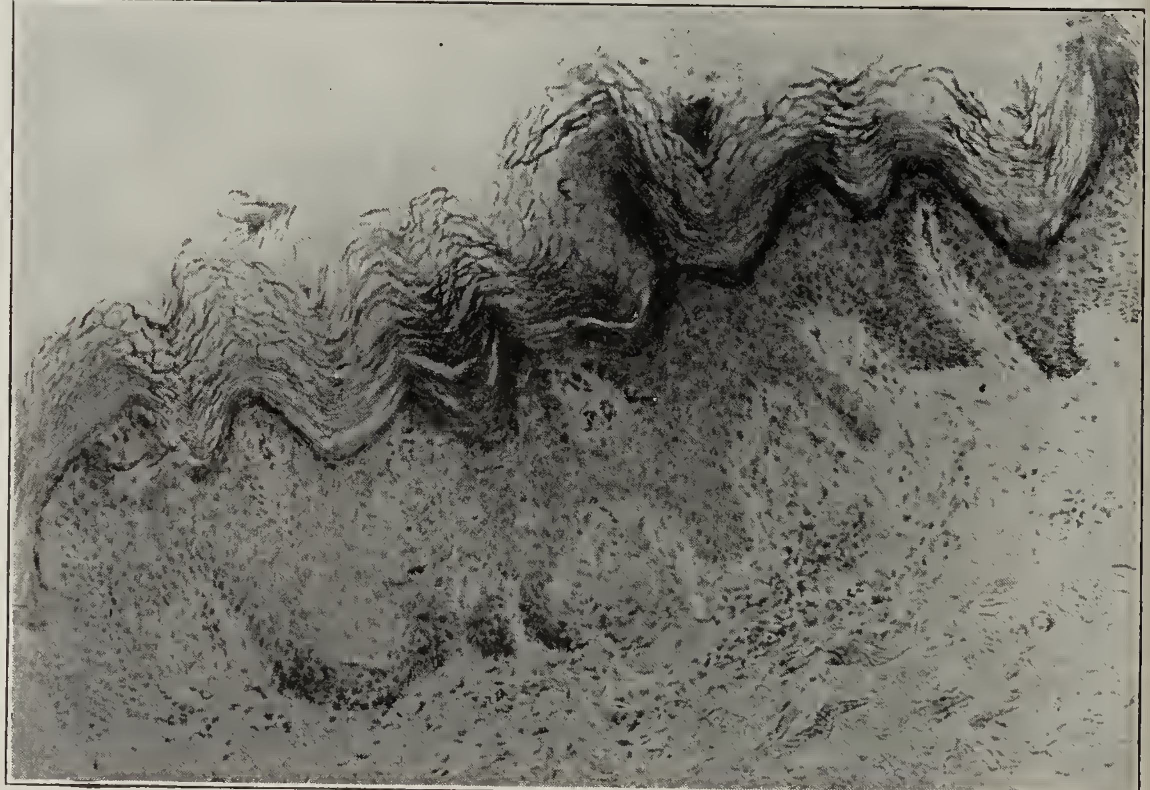

Fig. 4.—Microscopic section of atypical lichen planus; higher power.

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[3] Lieberthal, David: Lichen Planus Hypertrophicus, The Journal A. M. A., Jan. 11, 1902, p. 93. Sutton, R. L.: The Symptomatology and Treatment of Some Variant Forms of Lichen Planus, The Journal A. M. A., Jan. 17, 1914, p. 175.

due to some bacterial infection, but that theory has not been proved.

Dr. Richard L. Sutton, Kansas City, Mo.: So far as I know, the diagnosis in this case lies between some form of lichen planus hypertrophicus and lichen chronicus simplex. Clinically, the latter condition can be ruled out, and by exclusion we have only hypertrophic lichen remaining. The symmetric distribution of the lesions and the histopathology are against the diagnosis, but, as previously stated, the case more nearly resembles this affection than any other hitherto described. With respect to the etiology of lichen planus, I would like to call attention to Hazen's discovery of a spirochete in a typical case of the disorder two years ago. The results of the work of Fordyce, Engman and Mook ind others would indicate that we are dealing with a sysemic infectious disease, and the results of my own obserations go far toward convincing me hat the disease is spirochetal in origin. The organism may be fast to ome forms of arsenic (as salvaran), but it is not fast to others, uch as liquor potassii arsenitis; onsequently this property would not reclude its belonging to the spirohetes. Dr. Lieberthal's appellation or the condition as exemplified by he case in question is both euphonius and appropriate.

Dr. H. H. Hazen, Washington,). C.: As to the presence of the pirochete in lichen planus, I had a econd case this winter in which I ound very short spirochetes in the erum expressed from the lesions of chen planus. This was a case in hich there were small vesicles surounting the papule, from which the erum was expressed. We are not a position to say that we have emonstrated the fact that the spiroete is the cause of lichen planus, ut our observations may induce her men to try to confirm them.

Dr. Walter J. Heimann, New ork: I agree with the statements ade by Dr. Sutton. I have the imession that lichen planus is due to e spirochete in spite of the fact at many cases of lichen planus ve been treated with salvarsan ithout effect.

Dr. Lloyd W. Ketron, Baltimore: regard to the etiology of lichen anus, I had a case in which the ndition showed a linear arrangeent on the forearm following the urse of one of the cutaneous rves; as a therapeutic measure I t the nerve, producing a narrow ea of anesthesia on both sides of lesions. This did not cause any improvement of the disse, which is suggestive that the condition was not associated ologically with the nerve.

Plaster of Paris.—According to the *Jour. Pharm. Chem.*, ich discusses the effect of various substances in the celerating of the hardening of plaster of Paris, the various ctronegative elements have not an identical action. For same base, the salts of the strongest acid have the greatest ivity. Electropositive elements behave in a similar nner; the strongest base most energetically accelerates time of setting. The substances which modify the ubility of the plaster also modify its time of setting. lts which increase the solubility accelerate the hardening; stances which decrease the solubility retard the setting.

CARCINOMA OF ESOPHAGUS WITH PERFORATION OF AORTA *

MOSES BARRON, B.S., M.D.
ST. PAUL

While carcinoma of the esophagus is by no means of infrequent occurrence, the case here described presents a particularly interesting complication. Although statistics vary, it is estimated that from about 5 (von Häcker) to 9 per cent. (McRae) of all cancers are esophageal. Cancer is by far the most important tumor of the esophagus.

REPORT OF CASE

P. V. H., man, aged 58, admitted to the City and County Hospital, St. Paul, June 13, 1915, complaining of inability to swallow any solid food, stated that about two months before his admission a portion of meat which he had attempted to swallow seemed to lodge in his gullet and would not pass down into the stomach. He attempted to wash it down with a glass of water, but this resulted in both water and meat regurgitating through the nose and mouth. There was no pain present at this time. After this incident he was unable to swallow solid foods of any kind. The ingestion of acids, alkalies or other corrosive poisons was denied. Approximately eight months before this incident a fish bone had stuck in his throat, but after its dislodgment he had experienced no further trouble.

Shortly before his admission, a slight, dull pain appeared under the lower portion of the sternum; this would come on shortly after rising in the morning and disappear during the day. Although his appetite had continued good, his weight had steadily decreased from its normal level of 230 pounds to 190 pounds at the time of admission to the hospital. There was no history of tuberculosis or cancer in the family.

During his stay in the hospital, several attempts to introduce the stomach tube failed completely. Examination of the urine presented no abnormal features. The Wassermann reaction was negative. Stools, July 31, gave a strong reaction for occult blood. Report on fluoroscopic examination of the stomach on June 18 reads as follows:

> The bismuth meets an obstruction at the lower part of the esophagus which bulges out the esophageal wall into a pouch from which bismuth can be seen flowing into the stomach like the sand in an hourglass.

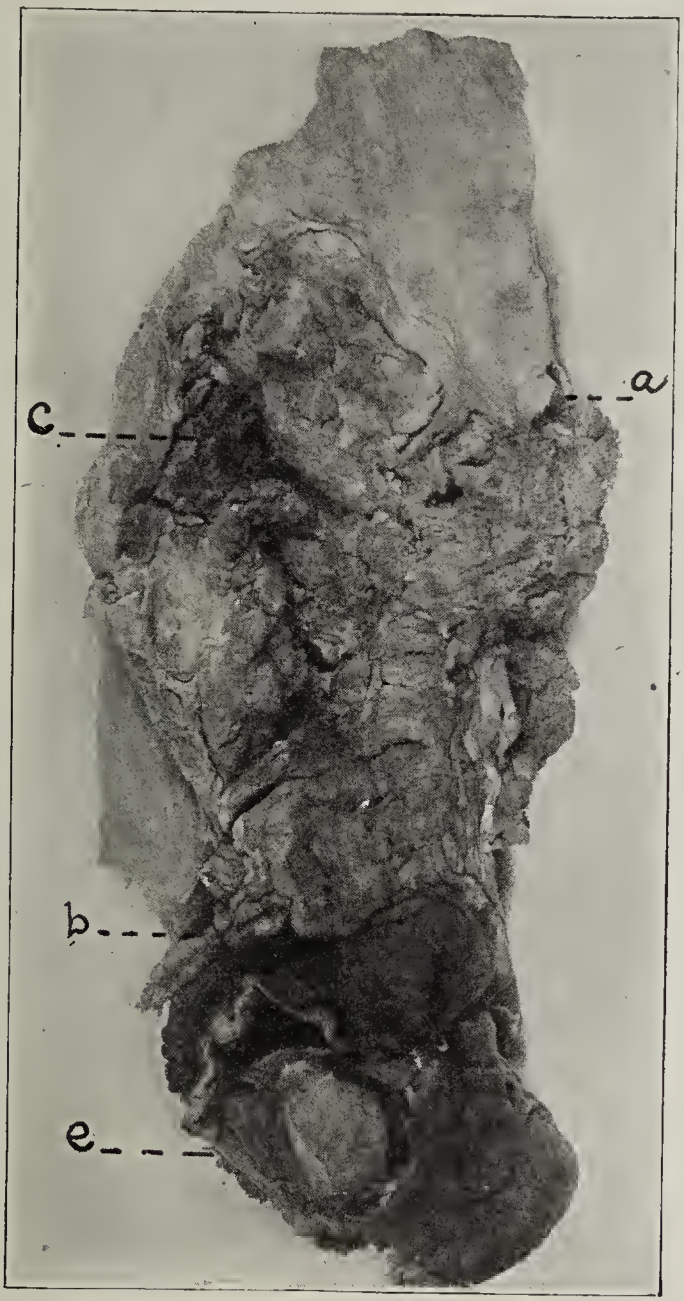

Fig. 1.—Lower half of esophagus opened, showing the ulcerated tumor mass. The perforation is at the mass of blood clot (*c*). The darker portion at the bottom is the cardia of the stomach.

A second fluoroscopic examination, July 22, gave a similar result. In order to eliminate the possibility of functional spasm, which had been suggested as an explanation of his symptoms, a hypodermic injection of 1/100 grain of atropin was given during the fluoroscopic examination without in any degree changing the result.

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* Read before the Minnesota Pathological Society, Oct. 19, 1915.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the reprints, a copy of which will be sent by the author on request.

* From the Department of Pathology, Bacteriology and Public Health, University of Minnesota Medical School, Minneapolis, and Pathological Laboratory, City and County Hospital, St. Paul.

Temperature and pulse remained about normal. A few days before death the patient complained of pain in the abdomen. Seven hours before his demise he had a slight hemorrhage from his mouth. He became cyanosed, and his pulse perceptibly weakened. Three hours later there occurred a second hemorrhage with marked diminution of the patient's strength. The patient died fifteen minutes after a third hemorrhage.

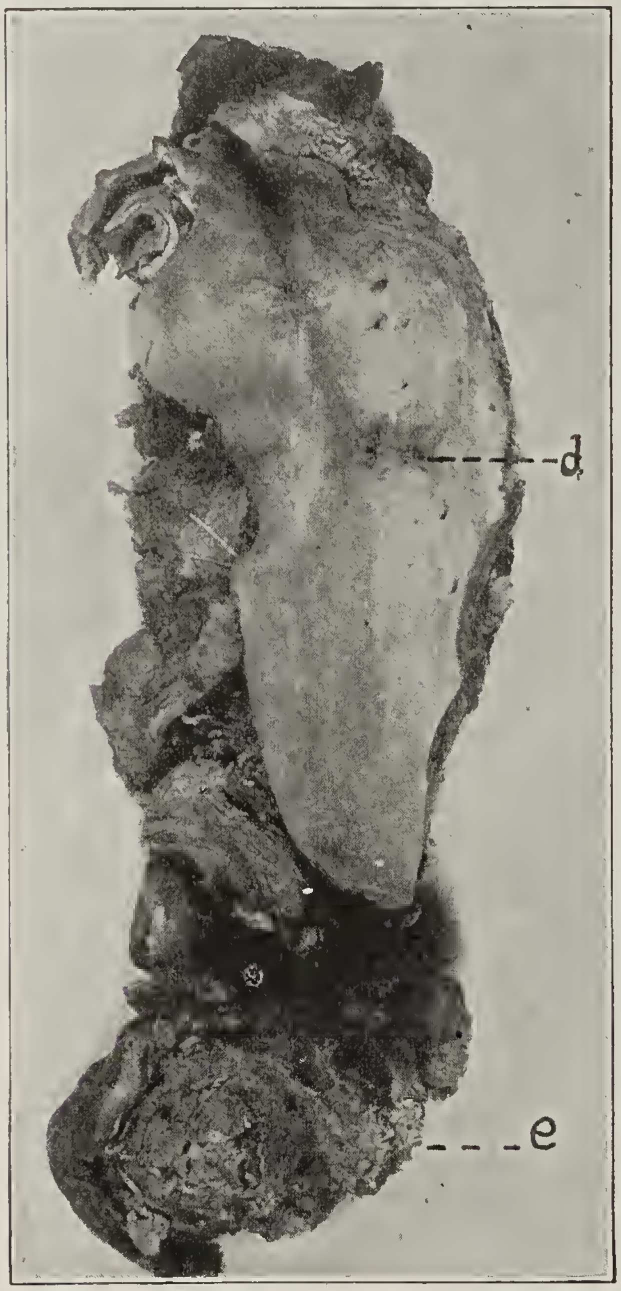

Fig. 2.—Same mass as in Figure 1, but seen from behind, showing the aorta. At *d* are the two perforations of the aorta. At *e* is a mass of enlarged infiltrated lymph nodes, seen also in Figure 1 *e*.

I performed the necropsy fifteen hours after death. The essential features of the postmortem findings are as follows:

The body is very well developed and fairly well nourished. Opening the peritoneal cavity revealed the stomach and duodenum enormously distended, and discolored by their contents a dark purplish hue. The stomach, on being opened, is found to contain about 4 liters of fluid and clotted blood. The duodenum and intestinal tract also contain large quantities of fluid and clotted blood which, in the lower portion of the bowel, are tarry in color and consistence. The lower half of the esophagus presents a tumor mass which on its posterior surface infiltrates the aorta, near the junction of the transverse and descending portions of the arch. Several lymph nodes at the bifurcation of the trachea are enlarged to about the size of hazelnuts, firm in consistence, and of grayish color on cross section. A large nodular tumorous mass (Fig. 1, *e*), about 5 cm. in diameter, lies in the region of the lesser curvature of the stomach. On cross section this mass has a softened necrotic center, semifluid in consistence and yellowish in color. The posterior surface of the left lobe of the liver lies in contact with this mass, and is adherent to it in two places. Over these areas the capsule of the liver is apparently infiltrated, and on section this line of infiltration averages about 2 mm. in thickness.

The esophagus, trachea and aorta are removed *en masse*.

When the esophagus is opened, the lumen of the lower half (Fig. 1) is found irregular, nodular, ulcerated, very ragged and necrotic, and reddish-brown. There is apparently no stenosis present. The involvement is annular, beginning just at the level of the bifurcation of the trachea and extending downward for a distance of 13 cm. The upper margin (*a*) is indurated, raised, and somewhat undermined. The lower margin (*b*) is irregular, and has a thickened overhanging edge, which on the average is about 1 cm. above the cardiac orifice, excepting posteriorly, where the uninvolved area tapers to a point about 5 cm. above the orifice. At the upper end of the tumor posteriorly, a small ragged mass of blood clot (*c*) infiltrates the necrotic wall. Opening of the aorta (Fig. 2) reveals two small necrotic areas (*d*), each about 5 mm. in diameter and about 1 cm. apart, situated 3 cm. distal to the scarring of the obliterated ductus arteriosus. These necrotic areas, on being carefully probed, are found to be perforations communicating with the posterior wall of the esophagus in the region of the aforementioned adherent blood clot.

Microscopically, the tumor is composed of a very loose connective tissue stroma through which are scattered epithelial cells arranged in small groups, cords, and interlacing bundles, showing extensive cornification. These collections of cornified epithelial cells, though very numerous, are individually very small, and the "epithelial pearls" thus produced differ from the "pearls" in skin cancer not only in their smaller size but also in the less complete cornification of the centers. There is almost complete destruction of the muscular layers of the esophagus throughout the entire extent of the tumor. Areas of necrosis are numerous, and around these there is an extensive infiltration of both polymorphonuclear leukocytes and lymphocytes. Section of the aorta at one of the points of perforation (Fig. 3) shows marked necrosis accompanied by leukocytic infiltration of all three coats. An extensive exudate of fibrin, leukocytes and bacteria is present on the adventitia (*f*). The intima shows various stages of degeneration and necrosis, accompanied by infiltration of numerous leukocytes (*g*). In these necrotic areas there are present an exceedingly large number of bacilli, which resemble morphologically the Oppler-Boas type.

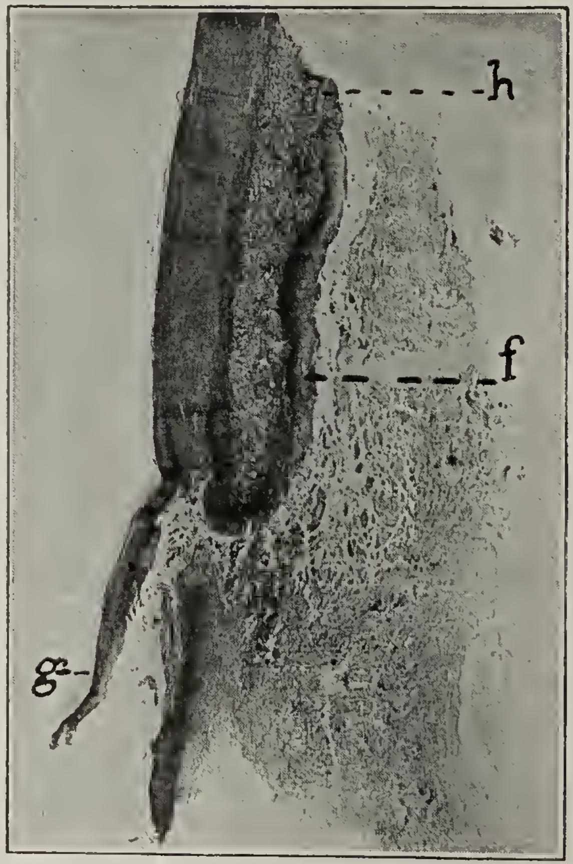

Fig. 3.—Low power photomicrograph of section taken at point *d*, Figure 2. The perforation is at the lower edge. At *g* only the intima is present. It is necrotic and infiltrated with large numbers of bacilli. The media and adventitia are entirely destroyed. At *f* is a layer of exudate on the adventitia composed of fibrin, cellular débris, leukocytes and bacteria.

COMMENT

Just as in all cancers which are exposed to infection, the presence of secondary processes in this case seems to have contributed largely toward bringing about the final fatal outcome. It is rather noteworthy that in the microscopic sections relatively few tumor cells can be found invading the adventitia of the aorta (*h*), while the media and intima are apparently entirely free from invasion. Since the amount of infection is relatively great, and the amount of cancerous infiltration small, it is logical to conclude that the destructive inflammatory processes which accompanied the ulcerating tumor greatly contributed in bringing about the final perforation of the aorta. To these factors, of course, must also be added the results of the blood pressure within the aorta and the destructive effects of the boluses of food passing down the gullet.

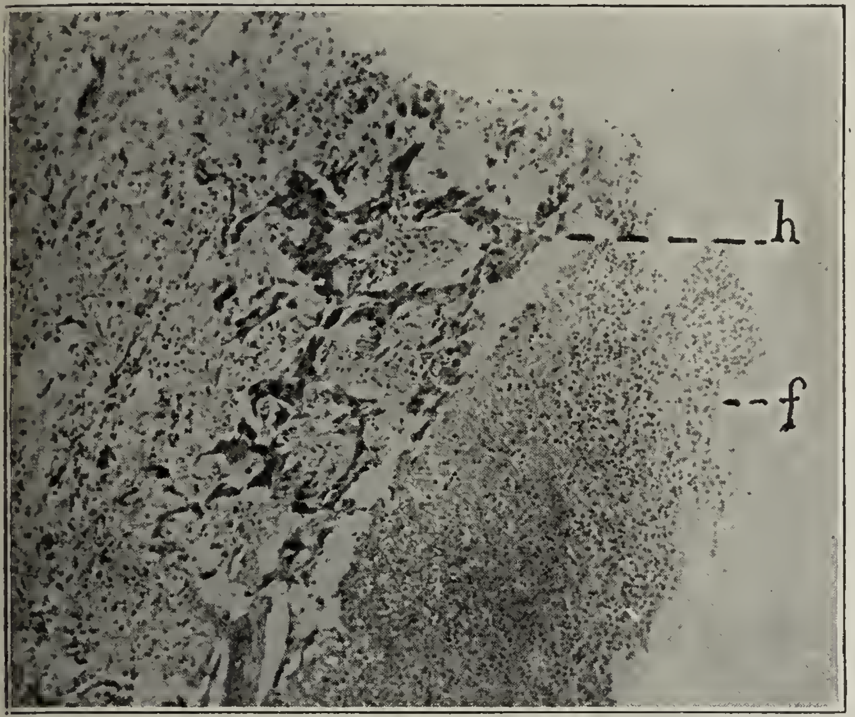

Fig. 4.—High power photomicrograph of section shown in Figure 3, showing the slight carcinomatous infiltration of adventitia at *h*. The inflammatory exudate is seen at *f*.

It certainly appears true, however, that, in this location, serious sequelae may result from cancerous infiltration, which is relatively much less extensive than that necessary to bring about equally grave results, for example, in the stomach or intestines. This may be explained by the fact that, in the latter organs, the infective processes are accompanied by a greater protective reaction on the part of the connective tissues.

A View of Christian Science.—Christian Science was the offshoot of an abnormal mind which grasped a few of the basic facts of the good influence of hope and faith, seized on these well-recognized cardinal principles of psychotherapy and, by a species of logic of the most illogical kind, erected thereon a superstructure which violated all the tenets of sound reason. It must never be forgotten that this superstructure was built of materials, the chief of which were faith and hope. Everything else was discarded. Whatever was pleasant was given space; whatever was unpleasant was denied space. Unrealities, if pleasant, were eagerly sought; realities, if unpleasant, were cast away. The result was a marvelous structure, a psychologic palace of straw. The wondrous thing is, not that the founder of Christian Science could conceive and erect such a structure, but that she could get such vast numbers of followers to subscribe to her labors, to accept the structure, to surround and house themselves with similar mental architecture.—*Northwest Medicine.*

NEW METHOD OF INJECTING FACIAL NERVE FOR RELIEF OF FACIAL SPASM *

GEORGE M. DORRANCE, M.D.
PHILADELPHIA

Because of the rather confusing definitions found in text-books, particularly those of a few years ago, I shall give a brief differential diagnosis between facial spasm and tic or so-called habit spasm before describing the treatment. A second purpose in doing this is that the treatment of the two affections is entirely different, and while alcoholic injections are ideal in cases of facial spasm, they are contraindicated in tics.

True facial spasm is a reflex act occurring in a single muscle or a group of muscles, and is thought to be due to some form of irritation in the muscles or the nerves of the spinal or bulbar arc. Tics, on the other hand, are voluntary contractions which have become a habit. It is a psychoneurosis and it is not a spasm at all. Braissard believes that the synergic and coordinated muscular contractions of tic imply a cortical origin.

In facial spasm, the spasm is confined to the mechanism of the motor innervation of the face, and is devoid of voluntary or involuntary control; whereas in tics, the movements are always more or less under the control of the will, and subject to involuntary control under violent excitement or emotion.

The spasm of the true facial type is never a natural movement, and cannot be imitated either by the patient or by a second person. In tics, the movement, however exaggerated, is a natural one and can be imitated. As Patrick once said, "In spasm the movement is an anatomical disorder, in tics, a physiologic one."

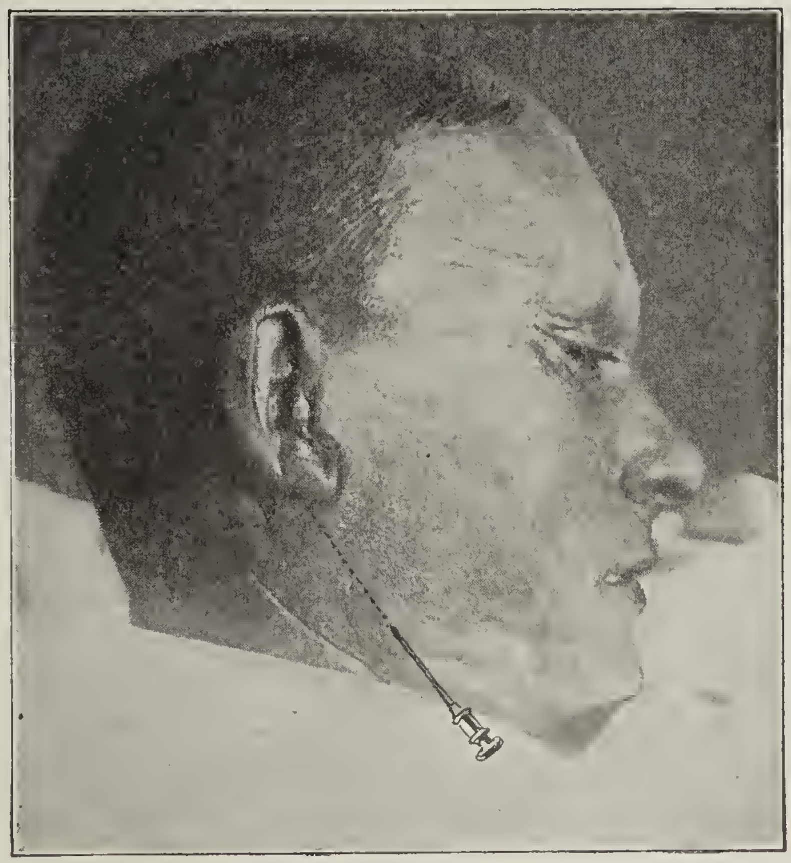

Fig. 1.—Showing needle in proper position.

At the onset of facial spasm, the spasm may be confined to only a part of a muscle. Later it takes the entire distribution of the facial nerve and no more, and is practically always unilateral.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Tics never involve only a part of a muscle, and rarely involve all the facial muscles at any given time, but take associated groups of muscles, varying these from time to time. It is often bilateral.

Facial spasms are painful, and incapacitate their victims, whereas tics give a certain pleasure or sense of relief, and never interfere with any of the bodily functions, as talking.

Spasms are found in the mentally strong, tics in the neuropathic type of persons in whom other mental stigmata exist.

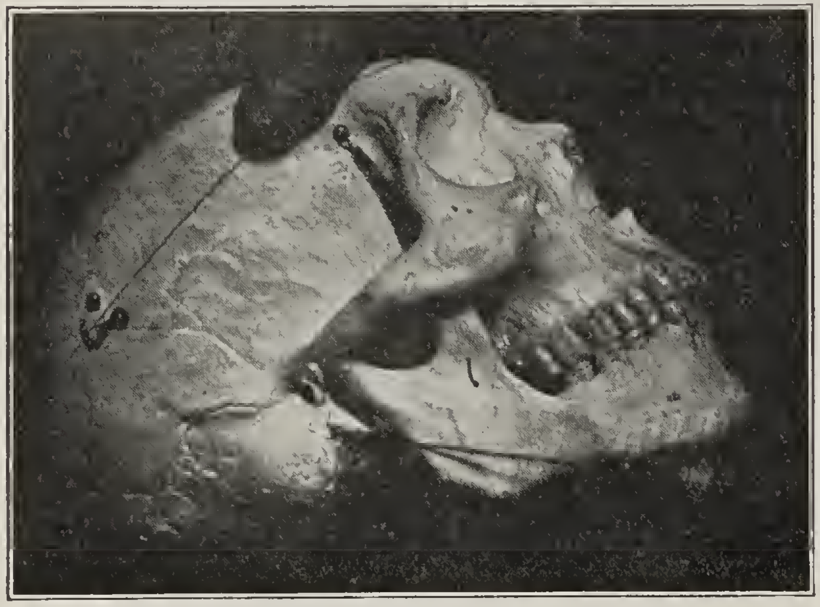

Fig. 2.—Showing needle in position on skull.

There is another form of tic occurring after facial palsy in which the tic is synchronous with the winking. In this form, likewise, injections should never be made.

ALCOHOL INJECTION

My reasons for devising a new method for injecting the facial nerve are two:

1. The older methods are inaccurate (often requiring as many as ten punctures to hit the nerve).
2. The methods are dangerous, that is, the jugular vein is very apt to be hit.

I formed these conclusions after careful clinical observations and performing 300 injections of the facial nerve at the stylomastoid foramen on cadavers.

Through the courtesy of Dr. Greeman, I made a series of measurements at the Wister Institute. On fifty skulls, the distance between the stylomastoid foramen and that of the jugular varied from 0.2 to 1.2 cm., the average distance being 0.6 cm.

One can readily see how in the older method of simply holding the needle in a horizontal position and inserting the point into the stylomastoid foramen, that less than 0.5 cm. separates the point of the needle from the jugular vein.

Because of these difficulties and dangers, I devised a method whereby it would be impossible to hit the jugular vein, and yet permit one accurately to inject the nerve at its foramen of exit from the skull.

THE METHOD

The needle (trochar and stylet style) is 10 cm. long and 0.4 cm. thick, graded in centimeters. It is inserted at the angle of the jaw (the skin having previously been painted with 5 per cent. tincture of iodin and anesthetized with 0.5 per cent. novocain), and directed backward and upward until the point impinges on the base of the mastoid. The operator can make certain of this by feeling the point under the skin by the index finger, which is held over the mastoid.

The handle of the needle is elevated, and the point is depressed, the operator feeling carefully the way down, at the same time pushing the point backward and inward until the needle feels its way into the stylomastoid foramen.

The stylet is now removed. If any bloods flows out, no injection should be made, as the point may have pierced a small vein. The needle is withdrawn, cleaned, and another puncture made. If no bleeding occurs a few drops of alcohol are injected. If the nerve is hit succesfully, immediate facial paralysis occurs. About 2 c.c. more of alcohol are now injected.

The needle is removed. No dressing is needed.

As a rule, the patient complains of some pain, which is relieved by hot compresses.

The eye should be protected by goggles and washed out with boric acid solution at least twice a day.

For some little time after the injection, goggles should be worn when the patient is outside the house.

This differs from the fifth nerve injection in that we have no trophic changes or corneal ulcers. We must, however, remember that because of the paralysis, winking does not occur; hence the cornea is apt to become dry, owing to lack of proper irrigation from tears.

Moving the eye from the side and gentle massage will help to prevent any deleterious results. The face should be massaged daily to prevent atrophy of the muscles.

The method of injection appears to me to be extremely simple, and one or two hours' practice in the dissecting room to train the fingers in the sense of touch, a feature so essential in all injection methods, will render any physician proficient.

I have found from my records that the average depth of the needle was 5 cm.; but the distance varies according to the point of insertion and the amount of adipose tissue present on the face of the person injected.

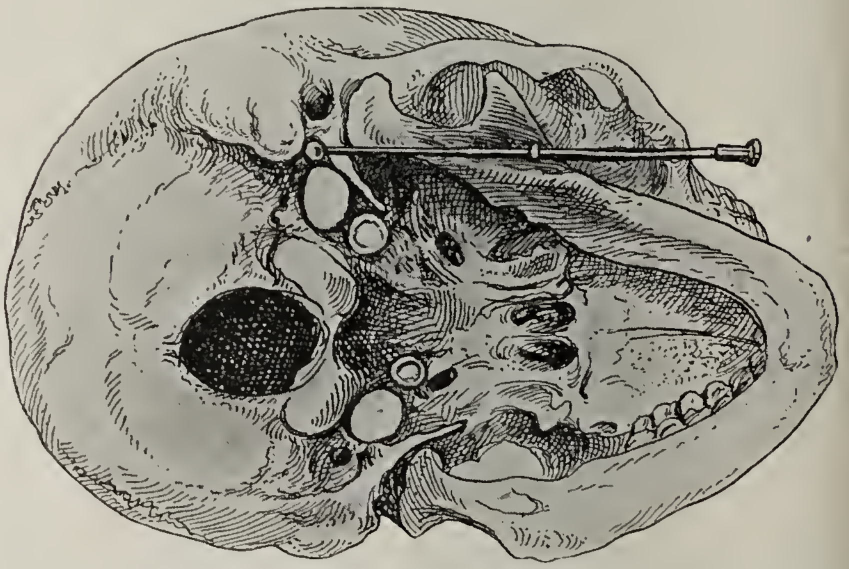

Fig. 3.—Note how the styloid process prevents the needle from going too far inward, thus preventing any possibility of hitting the jugular vein.

By this technic, the entire distribution of the seventh nerve is paralyzed.

I have on several occasions injected one of the branches of the seventh nerve going to one or more muscles by injecting the branches anterior to the parotid gland.

It is much more difficult to inject the branches as the plane of the nerve must be hit, as alcohol does not diffuse through facial planes.

The results from the injection of the branches do not compare as favorably as those obtained by injection at the stylomastoid foramen. It appears as if it were necessary to rest the entire distribution of the seventh nerve to effect a perfect result.

RESULTS AND CONCLUSIONS

1. Most patients will willingly exchange a spasm for a paralysis.
2. The paralysis is only temporary. Voluntary motion slowly returns until complete function is restored.
3. The spasm never recurs at the time of the return of voluntary power, but varies from a month to several years. In some cases, it never recurs.
4. In the event of spasm recurring, patients are willing to have the injection repeated. (Return of power is slower with each subsequent injection.)
5. For injection at the stylomastoid foramen I use 2 c.c. of 70 per cent. alcohol; for injection of the branches, not over 50 per cent. alcohol, because of the danger of sloughing, which is prone to occur from the superficial injections in the loose fatty areolar tissue.

2025 Walnut Street.

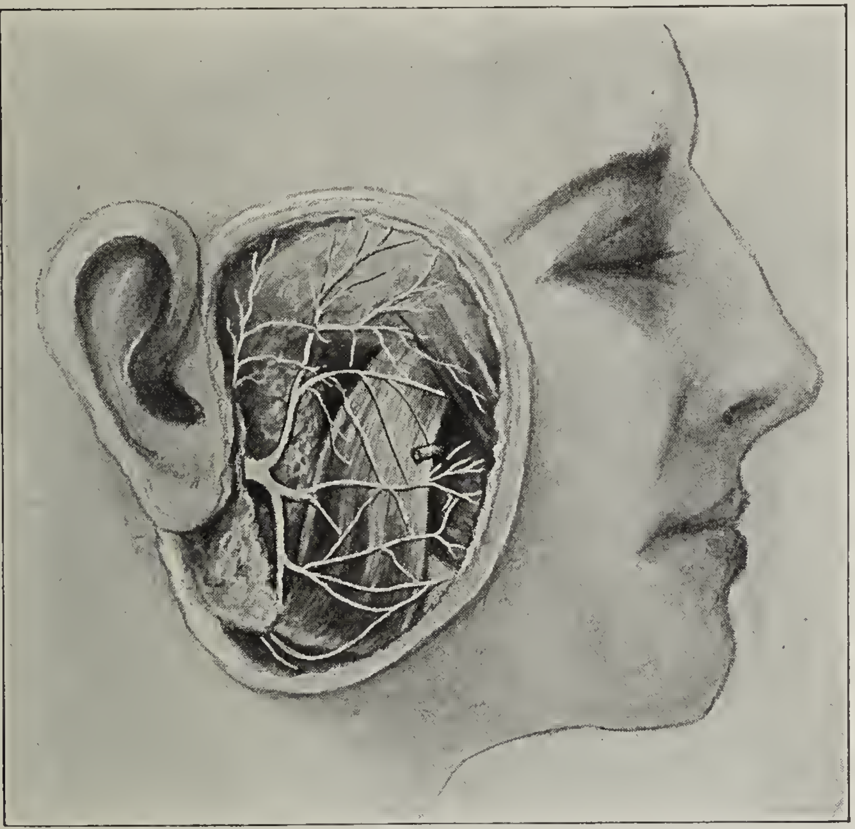

Fig. 4.—Distribution of facial nerve. Note the difficulties offered to the injection of the branches.

ABSTRACT OF DISCUSSION

Dr. Hugh T. Patrick, Chicago: I am not in absolute accord with Dr. Dorrance's statement that tic never should be injected, although I have expressed the same opinion. But in saying this I do not mean at all that the differential diagnosis between tic and spasm is not perfectly distinct. They are not related affections at all except geographically. But I have been guilty of injecting one case of bilateral tic which was not in any sense a spasm. The patient was a commercial traveler, and he said this tic was ruining his business. He had an unusual, almost constant bilateral grimace which affected his eyes and the lower part of his face as well. I explained to him what this injection would do—that it would paralyze both sides of his face, and added: "There is absolutely no use injecting one side because then you would have paralysis of one side of the face and tic on the other side, when you would be more of a spectacle than ever." And he said, "For heaven's sake, do it!" I injected both sides, and, peculiarly enough, I struck both nerves on the first attempt. The result was startling. His face was absolutely devoid of expression, he could only partially close the eyes and he could not articulate any of the labials well. But strange though it may seem, the man preferred that condition to his tic. Fortunately the one injection was not very successful and he began to have some movement on one side in a day or two. Dr. Dorrance made one careless statement—that facial spasm is painful. It is not; it is tiresome, it is wearing, it is distressing, but not painful. I have often failed to reach the facial nerve, although I have in a measure approximated Dr. Dorrance's method by not any more going in at right angles to the face, but upward and backward. Even then I frequently have missed it. I entirely agree that the patients always prefer the paralysis to the spasm.

Dr. A. L. Skoog, Kansas City: I agree with Dr. Patrick that these facial spasms are not painful, but they are disagreeable to the patient. I wish to ask Dr. Dorrance if he has had any bilateral cases which he has injected by his method. I have under observation now one case of bilateral spasm which I injected the first time about a year ago, not the facial nerve, but the peripheral branches. The method I employed was to inject a number of times until I had secured what I thought was sufficient paralysis. On the first injection I obtained paralysis of one of the superior branches of the facial nerve, a complete paralysis which endured for a long time. The second series of injections was given about two or three months ago and again I obtained paralysis of the same branch. The result of the peripheral injections in this case has been quite satisfactory, except that it had to be repeated in about eight or nine months.

Dr. Julius Grinker, Chicago: I should like to ask Dr. Dorrance to what depth he inserts his needle.

Dr. George M. Dorrance, Philadelphia: I insert the needle about 5 cm., the exact distance depending somewhat on whether people are thin or fat. Some of my patients complained of this condition being painful, but perhaps they did not know how to explain it. The condition kept them awake, and they described the sensation as one of pain. Perhaps it was merely their way of describing the condition. According to the literature bilateral facial spasm is very rare. I have never seen a case. The results of this treatment have been very satisfactory, for by this means we give the whole nerve rest. I would warn against the injection of too strong a solution of alcohol under the skin. In experimental work we have had a lot of sloughing of superficial fat and skin from using 90 per cent. alcohol and some dogs have died. If you inject a solution of about 50 per cent. strength you will not get sloughing of the superficial fat and skin.

Combating Insects Which Affect Health of Man.—The Bureau of Entomology of the U. S. Department of Agriculture reports that in mosquito investigations in Louisiana a species of mosquito hitherto considered a noncarrier of malarial infection was proved to be a carrier. Studies have been made of malaria and measures are being evolved to meet plantation conditions.——The "starvation" plan, aimed to exterminate the spotted fever tick of the Bitter Root Valley, Mont., was followed during the year with encouraging success. The plan consists of the removal of the domestic hosts of the adult tick from the infested areas. The bureau also conducted a campaign of extermination against ground squirrels and other rodent hosts of the immature ticks. Examination of the rodents killed showed 40 per cent. lower infestation by the tick than during the preceding year.——The report directs attention to the demonstrations of the bureau specialists that the breeding of flies in manure can be prevented by treating the substance with calcium cyanamid and acid phosphate, which at the same time increase the fertilizing value of the manure.——The bureau also conducted investigations into methods of lessening fly infestation in packing establishments operated under the meat inspection service of the department.

BILATERAL CHARCOT HIPS, OCCURRING SIMULTANEOUSLY

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This case is reported because Charcot's disease in both hips simultaneously is unusual, and to emphasize further the long period of latency of some syphilitic infections.

P. A. K., white man, aged 42, married, mechanic, examined, Nov. 3, 1915, gave negative family history. It is interesting to note that his wife had borne two children, now 12 and 13 years old, both in excellent health and showing no signs of hereditary syphilis. Also she had had one tubal pregnancy, which ruptured, and she was operated on with complete recovery. She continued in excellent health.

The patient had the usual infectious diseases of childhood, orchitis complicating a case of mumps, and hemorrhoids. He had gonorrhea twenty-five years ago with a nonsuppurative bubo. There was a single, "hard" chancre in 1891; no secondaries were noticed. He was treated with "baths" and several months of a proprietary blood tonic, but no other medicine. He had always been in excellent health, served in the U. S. cavalry in the Philippines, and since being discharged worked as an automobile mechanic. He used a great amount of tobacco and previously drank to excess. He had never had a skin lesion or an ulcer.

During the fall of 1912, he began to have "rheumatic pains," limited to the areas below the knees, these pains occurring only at night and usually along the inner side of the tibia. They occurred intermittently for about one year, and without any treatment other than the "baths," he became apparently well.

During the winter of 1914, after being exposed to a great deal of damp weather, these pains returned, always confined below the knees, and of a numb, dragging character. This attack lasted about one month with apparent complete recovery without medication or attention by a physician.

In June, 1915, the pains began again, confined to the same area, with the addition that the muscles now felt as if they were drawing. In August the pains became jumping, shooting and dartlike, extended up into the thighs for the first time. The pains were almost unbearable. Now also for the first time he noticed a slight grating noise in the left hip, though he never had any pain there. Until now the patient was in no way markedly disabled, as he worked at his trade from fourteen to twenty-two hours a day. Coincident with the grating in his hip was a weakness which forced him to use a cane but did not keep him from work.

One night late in August, while making an overland trip, he went to sleep in his car, and slept there all night. When he awoke his left leg felt "asleep," and he never since had had use of that leg.

In September, 1915, shooting pains started in the right thigh, which swelled to twice its normal size, but at no time did he have any fever, chill, or any pain or soreness about the hip. Since that time (one month after the left thigh became useless), he had had no use of the right leg.

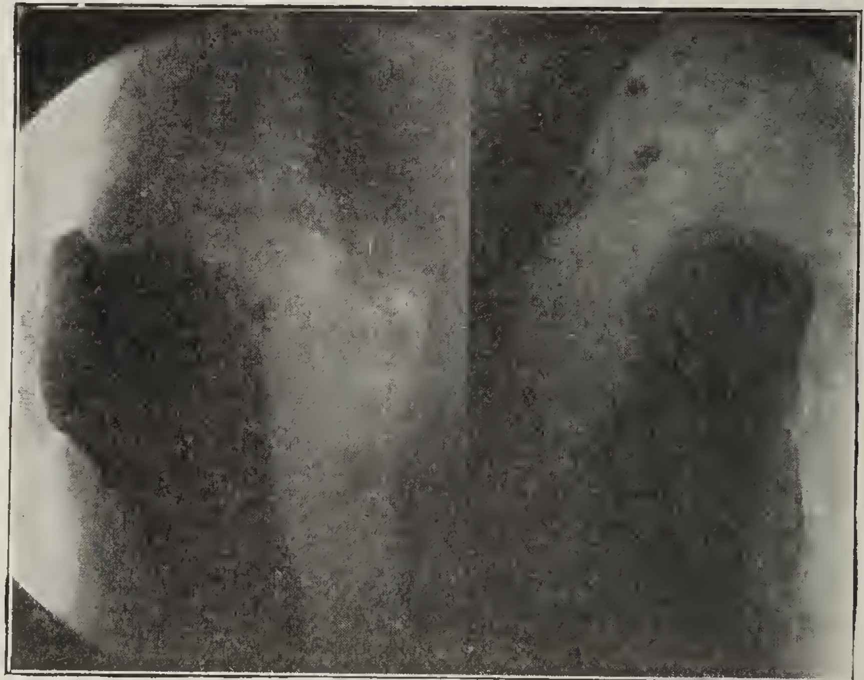
During October he had had what he described as "a feeling of pressure toward the center at the waist." Lately he had had trouble in starting and controlling the flow of urine. The bowels were normal, he ate and slept well, and sexual findings were normal. At no time had he had any treatment except what he himself had taken for his so-called "rheumatism."

I was called to examine the patient, Nov. 3, 1915, at which time the patient, 5 feet 9 inches in height, weighing about 175 pounds, was unable to walk or stand erect. The legs were unable to support the trunk. When attempting to walk with crutches, he supported the weight of the body on his arms. He swung the legs too far forward in a hemiplegic swing, but his toe struck the ground before the heel.

He was well oriented in space, and knew the whereabouts of his limbs and feet at all times, with normal coordination of his arms and hands. The right epitrochlear and inguinal glands on both sides were enlarged. He was extremely hypersensitive all over the body, but especially on the feet, legs and abdomen. The muscle sense of location and identification was normal. He could distinguish sharp from blunt objects, and heat from cold.

The abdominal and cremasteric reflexes were increased; the knee-jerks were lost, though an occasional suggestion was obtained on the right. The Achilles tendon jerks were lost. No Gordon or Oppenheim reflexes were obtained, and the feet were too sensitive to interpret either the Babinski or Chaddock signs. There was no ankle or patellar clonus. The pupils were irregular in outline and about equal in size; both reacted to accommodation with little or no reaction to light.

Ophthalmoscopic examination made by Dr. E. L. Lindsey revealed the tension normal; chamber normal; retinal illumination good; nerve head slightly diminished in size; edges well defined but choroidal ring not well marked; color white with slight bluish cast; minute blood vessels absent; a slight saucer-like excavation.



Left and right hips of patient.

The tongue, central, showed no tremor. The facial contraction was normal; there was no defect of speech or writing; the patient could flex the left leg and rotate it; he could not flex the right leg, nor could he accomplish internal rotation; the left trochanter could easily be pushed up under the skin with the feeling that the joint was completely luxated; to a less degree this could be done with the right hip; in doing this one obtained a pronounced grating in both hips.

The roentgenograms taken by Dr. C. Wood showed the true condition. The heads and necks of both femurs were gone. Let me mention again that all this destruction of bone had at no time caused any pain at the point of destruction, either with hip motion or with attempt to support the body.

The diagnosis formulated itself: "Lightning pains," suggestion of girdle pain, beginning sphincter weakness, hyperesthesia, loss of knee reflexes, Argyll Robertson pupil and bone destruction without pain or temperature was assuredly beginning tabes with two Charcot hips.

I might add that at this time after a considerable amount of treatment with mercury, iodid and arsenic, the grating is practically gone, hyperesthesia is diminished, and there are no bladder symptoms. We are treating him in view of later attempting to make new hip joints, if we can obtain a negative Wassermann reaction.

This man had a chancre in 1891. He noticed no secondaries, and his history showed no syphilitic manifestation from that time until 1912, a period of twenty-one years. During this time he had maintained an excellent musculature, had married, and had an apparently healthy family above the average intelligence, illustrating a true latency of twenty-one years.

Charcot joints are evidently not sufficiently common, as they are usually treated along with the beginning tabes as a rheumatism, as was this man's misfortune.

COAGULATION TIME IN LOBAR PNEUMONIA

WITH STATISTICS AND AN EXPERIMENTAL STUDY OF ITS CAUSES *

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The etiologic factors concerned in coagulation of the blood are still imperfectly understood.[1] It is common knowledge that the time necessary for coagulation to occur is variable and depends on many conditions. That bacteria and their toxins play a rôle in the coagulation process is undoubted, but their significance is not definitely known. Nevertheless, the subject of the relation of infection to coagulation has been discussed by not a few modern writers, and, on the whole, the weight of authority is in favor of the view that infectious diseases retard coagulation.

TABLE 1.—COAGULATION TIME IN LOBAR PNEUMONIA

Case Number	Age	Sex	Average Coagulation Time, Before Crisis		Average Coagulation Time, After Crisis		Average Leukocyte Count Before Crisis	Termination	Remarks
			Min.	Sec.	Min.	Sec.			
1. M. P.	19	Male	3	55	..	..	21,200	Death	Developed pneumothorax
2. F. T.	41	Male	6	25	5	50	17,100	Death	Crisis on ninth day; empyema on thirteenth; operation; pneumococcus and streptococcus infection of pleura
3. M. D.	53	Female	4	40	4	45	19,400	Recovery	
4. J. H.	47	Female	4	..	..	..	24,600	Death	
5. J. G.	32	Male	3	..	2	30	15,500	Recovery	Ether pneumonia following enucleation of eye
6. M. R.	14	Female	2	40	2	40	26,000	Recovery	
7. M. R.	32	Female	3	5	4	5	18,000	Recovery	Marked dry pleurisy; delirious for day or two after crisis
8. R. C.	23	Female	2	30	..	..	22,200	Death	Pneumonia beginning during labor; no crisis
9. W. P.	18	Male	3	..	3	20	16,000	Recovery	
10. S. P.	23	Female	3	35	4	50	20,800	Recovery	Pregnant about 7½ months
11. J. D.	55	Male	2	25	..	..	12,400	Death	Complicating delirium tremens; coagulation test on day of death
12. E. G.	21	Female	3	45	..	..	7,800	Recovery	Aortic regurgitation and serofibrinous pleurisy; no complications
13. H. D.	67	Male	3	45	3	30	18,000	Recovery	
14. G. B.	35	Female	1	..	3	05	15,400	Recovery	
15. T. H.	17	Male	1	40	4	20	18,900	Recovery	Healed tuberculous bone lesion
16. L. R.	19	Male	2	50	4	55	17,800	Recovery	Crisis delayed to eighteenth day by migration to opposite side
Averages	32	....	3	15	4	..	18,200		

The coagulative process is known to be a complex one involving in its first stage the action of thrombokinase on prothrombin in the presence of soluble calcium salts producing thrombin. The blood plasma also contains a protein, fibrinogen, which is acted on by the thrombin when blood is shed, forming fibrin. It has been definitely shown that the plasma within the blood vessels differs from the serum resulting from coagulation in that it contains fibrinogen, unlike the latter.

In pneumonia, it has long been currently stated, although denied by some recent writers, that the coagulative period is shortened, owing to the richness and density of the fibrin network. The fibrin factors of the blood are greatly increased in this disease, "the proportion rising from 4 to 10 parts per thousand."

When normal blood coagulates, "about 0.1 to 0.4 per cent. of its weight separates as fibrin" (Krehl[2]). In certain diseases, especially those accompanied by inflammatory exudates (as lobar pneumonia and pleurisy), a marked pathologic increase up to 1 per cent. or over may be found. In certain infections, notably typhoid fever, no increase is observed, although intravascular clotting is more common in this disease than in lobar pneumonia, if we except the large so-called marantic thrombi found in the great vessels after death.

That the quantity of the fibrin factors has nothing to do with either extravascular or intravascular clotting is further shown by the fact that they are present in normal amount in hemophilia (Litten, Sahli).

The coagulation time is found to be shortened after hemorrhage (severe pulmonary hemorrhage, hematuria), in carcinoma of the uterus, in abortion, after transfusion, in endocarditis, in dementia praecox and after the administration of gelatin.

A considerable number of tests to determine the coagulation period of the blood, most of them accurate enough for ordinary purposes, have been advanced. The method employed by us is known as Boggs' test. In taking specimens of blood from healthy persons and also from subjects ill of pneumonia, the finger tips and ear lobes, mainly the former, were used. The parts were thoroughly cleansed with water, followed by alcohol, and then allowed to dry and the puncture made deep enough to cause a free flow of blood.

Lee and White[3] have pursued the method of withdrawing 1 c.c. of blood from an arm vein, using a small all glass syringe (for example, Burroughs Wellcome & Co., 20 m.), preferably with a platinum needle, this syringe having first been sterilized and rinsed out with normal salt solution. This method "obviates the contact of blood with tissue juice," which contains thrombokinase. Our observations were made daily in order to obtain an accurate average coagulation time, and it was feared that an unwarranted degree of discomfort would be caused by venipuncture at intervals of twenty-four hours in patients suffering from lobar pneumonia.

We have endeavored to throw a side light on the question of the duration of the coagulation time in

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* Read before the Association of American Physicians at Washington, D. C., May 11, 1916.

[1] With thrombosis and agglutination — processes which are more or less closely allied to coagulation — the present discussion is not directly concerned. A comprehensive investigation of the subject of "Prothrombin and Antithrombin Factors in the Coagulation of Blood" has been made and reported on by Minot, Denny and Davis (Arch. Int. Med., January, 1916, p. 101).

[2] Krehl: Clinical Pathology, 1907, p. 169.

[3] Lee and White: Am. Jour. Med. Sc., April, 1913.

lobar pneumonia, and in order to accomplish this object, an examination of both pneumonic and normal bloods was made; the same method having been employed in both cases.

Table 1 sets forth the age, sex, average coagulation time before and after the crisis and average leukocyte count of sixteen cases of pneumonia treated during the past winter in the Medico-Chirurgical Hospital. The coagulation time was noted daily both before and after the crisis, and then the average duration carefully estimated.

The total number of observations was 138, and the coagulation time ranged from one minute to six minutes and twenty-five seconds. On the other hand, 100 tests on healthy individuals showed that the coagulation time is distinctly longer in them than in lobar pneumonia, the mean difference being one minute and fifty-five seconds.

Rudolph and Cole[4] made forty-seven observations in seventeen cases of lobar pneumonia and found the average clotting time to be 8.1 minutes, but it ranged from 5.5 to 12.75 minutes.

The effect of mealtime was also noted in two series of 100 healthy subjects each, and it was found that the coagulation time was only twelve seconds longer in the series of 100 cases tested two or more hours after food, thus showing that this period is only slightly influenced by the ingestion of a meal.

TABLE 2.—CALCIUM, MAGNESIUM AND IRON IN HUMAN BLOOD* CALCULATED AS CaO, MgO AND Fe

Mark	Age	Diagnosis	Blood, *Gm.	CaO, per Cent.	MgO, per Cent.	Fe, per Cent.
Dr. B.	24	Well	19.9202	0.0084	......	......
Dr. T.	27	Well	10.2904	0.0077	......	......
Um. 2	25	Primary	35.4651	0.0072	0.0045	0.0345
Um. 3	32	Latent	36.2199	0.0062	0.0063	0.0518
Um. 4	21	Tertiary	29.9138	0.0077	0.0065	0.0459
Um. 5	24	Secondary	32.5327	0.0065	0.0071	0.0508
Um. 6	24	Herpes	36.6707	0.0073	0.0065	0.0489
Average.......................................				0.0073	0.0062	0.0564

* From well persons and syphilitics (all men) in good general health; right median venipuncture.

To account for the abbreviated coagulation time in pneumonia, as shown by these statistical results, the question naturally arises, Does the action of the pneumotoxins circulating in the blood transform prothrombogen (normally found in the walls of the blood vessels and in the lymph nodes) into thrombin, or, in some manner other than this, modify the factors which govern coagulation? So far as concerns the laboratory evidence, however, this query can be answered in the negative.

It has been suggested that the thrombokinase which is present in the walls of the blood vessels may gain access to the circulating blood, owing to an injury of either bacterial or toxic nature of the arterial walls, and thus become a factor favoring the process of coagulation. This assumption, however, is not supported by known facts.

Langstern and Mayer[5] contend that the leukocytosis of pneumococcus infections is often attended with a decided increase of fibrinogen held in solution by the plasma. According to Ott,[6] there is a direct relation between the number of leukocytes in the blood and the quantity of fibrinogen. Mott,[7] Krehl[2] and others hold that a certain parallelism (by no means strict, however) between the number of leukocytes and the amount of fibrin in the blood exists. Pfeiffer,[8] however, has pointed out that in leukemia the fibrin factors may not be increased at all.

It is to be recollected that fibrinogen is a protein of the globulin class, and when it comes into contact with fibrin ferment (resulting from the action of calcium salts on the thrombogen) either a molecular change takes place in the fibrinogen, or "it is broken up into an unimportant globulin and fibrin" (Hammersten[5]).

In suppurative processes, however, in which, as is well known, leukocytosis occurs, often to a marked degree, the coagulation time is not shortened; hence it may be safely inferred that an increased percentage of white cells contained in the blood alone is not the sole cause of the abbreviated coagulation time observed in pneumonia. Robertson, Duncan and Illman[9] were unable to show definite relationship between leukocytosis and the coagulation time.

The blood platelets very probably play an unimportant rôle in the formation of blood clot. On the other hand, Duke[10] has shown that they have more to do with the retraction of the clot than with its causation.

It is probable that to the disintegration of the white corpuscles in the drawn blood, fibrinogen (an end-product) owes its origin in a measure, at least. May not the extensive destruction of leukocytes in the exudate which occupies the lungs in pneumonia be a factor favoring the coagulative process in this disease? The white corpuscles contain a zymogen, known as prothrombin, which becomes thrombin through the action of calcium salts; hence it is conceivable that their widespread disintegration would liberate sufficient zymogen to hasten the coagulation time in this disease.

Here the question emerges, since the soluble calcium salts activate the prothrombin in the blood, Can the briefer coagulation time of the disease in question be justly attributed to an increased amount of these salts in the blood in pneumococcus infections? In the first place, it is to be noted that the soluble calcium salts are necessary only in the first stage of coagulation, that is, in the formation of the fibrin ferment.

It is also well known that a small quantity of the latter substance suffices to activate the fibrinogen, with the production of fibrin. If this is true, then it might be reasonably inferred that different degrees of coagulability of the blood are not dependent to any appreciable extent on the amount of fibrin ferment contained in this tissue.

On the other hand, in diseases in which the coagulation period of the blood is much prolonged, as in exophthalmic goiter, calcium salts are among the remedies employed with the object of shortening that period; but experimental investigations leave little doubt that in this manner not much available assistance can be given.

For example, while it has been asserted that the coagulation time has been shortened after the administration of calcium lactate, by certain observers, others, among them Myer Solis-Cohen,[11] contend that the effect of calcium salts in this respect is inconstant. Duncan administered calcium over long periods of time in a series of cases, and was not able to notice any decrease in coagulation time.

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[4] Rudolph and Cole: Am. Jour. Med. Sc., April, 1913, p. 481.

[5] Quoted by Ott (Footnote 6).

[6] Ott: Text-Book of Physiology, p. 205.

[7] Mott: Wien. klin. Wchnschr., 1903, No. 44.

[8] Pfeiffer: Zentralbl. f. inn. Med., 1904, No. 32.

[9] Robertson, W. E.; Illman, G. M., and Duncan, H. A.: Coagulation of the Blood, The Journal A. M. A., May 16, 1908, p. 1583.

[10] Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica, with Especial Reference to the Part Played by Blood Platelets, Arch. Int. Med., November, 1912, p. 445.

[11] Solis-Cohen, Myer: The Coagulation Time of the Blood as Affected by Various Conditions, Arch. Int. Med., December, 1911, p. 820.

Rudolph and Cole,[4] after a series of careful studies, came to the conclusion that the "free exhibition of calcium lactate by mouth has no appreciable effect on the coagulation of the blood." Again, Van Lier noted the coagulation time in forty persons before and after the administration of calcium lactate, and arrived at the same conclusion.

We tested the blood of ten healthy persons; the administration of calcium chlorid (10 grains, three times a day) for three days was followed by an average shortening of the coagulation time of only fifteen seconds. In not a single instance was there more than a feeble effect produced by this calcium salt.

One of us (Meeker) conducted personally a series of chemical investigations into the question of the amount of calcium in the blood during attacks of pneumonia and also in that of healthy individuals, as well as persons suffering from other complaints, for purposes of comparison. The results obtained are indicated clearly in Tables 2 and 3. They show a striking similarity to one another; hence, it may be claimed that the calcium content of the blood does not, according to these observations, at least, exceed the normal amount, in pneumonia. That the results of these experiments, however, need confirmation is freely admitted.

TABLE 3.—CALCIUM, MAGNESIUM AND IRON IN HUMAN BLOOD* CALCULATED AS CaO, MgO AND Fe

Mark	Sex	Age	Blood, Gm.	CaO, per Cent.	MgO, per Cent.	Fe, per Cent.	Date
H. D. 1	M	67	19.2070	0.0070	0.0069	0.0423	3/ 9/16
H. D. 2	M	67	45.4000	0.0074	0.0065	0.0428	3/18/16
G. B. 1	F	35	42.7685	0.0064	0.0070	0.0380	3/14/16
G. B. 2a	F	35	48.5300	0.0078	0.0074	0.0398	4/ 9/16
G. B. 2b	F	35	43.6430	0.0082	0.0078	0.0424	4/ 9/16
T. H. 1	M	17	13.8590	0.0087	0.0067	0.0222	3/15/16
T. H. 2	M	17	38.4619	0.0086	0.0061	0.0263	3/16/16
T. H. 3	M	17	39.7680	......	......	......	4/ 5/16
J. L.	M	20	29.2625	......	Combined		4/ 5/16
TH3 JL	M	..	....	0.0075	......	......	....
L. R.	M	19	51.5600	0.0082	......	0.0429	3/21/16
W. S. 1	M	20	20.8785	0.0074	0.0077	0.0510	4/ 2/16
W. S. 2	M	..	25.2500	0.0077	0.0079	0.0455	4/ 4/16
Average.....				0.0071	0.0071	0.0393	

* These were from patients with pneumonia in the Medico-Chirurgical Hospital; mainly median venesections.

CONCLUSIONS

From the foregoing studies, we may draw the following tentative inferences:

1. The coagulation time is somewhat shortened in lobar pneumonia.

2. The cause or causes of this abbreviation are not definitely known.

3. The influence of a meal on the coagulation time is trivial, but practically constant.

4. The effect of the administration of calcium salts on the coagulative process must be quite inconsiderable.

5. The calcium present in the blood in lobar pneumonia does not exceed the normal amount.

Personal Liberty.—The domain of community hygiene should not be summarily limited through any fear of the invasion of personal freedom. The community has so often and so successfully asserted its right to limit the actions of the few in order to promote the welfare of the majority that some restriction of personal liberty is universally regarded as a necessary consequence of group life.—E. O. Jordan.

THE WORK OF THE AMERICAN MEDICAL ASSOCIATION CHEMICAL LABORATORY *

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The American Medical Association Chemical Laboratory was established nearly ten years ago — in the fall of 1906. The reason for its existence was primarily the fact that the Council on Pharmacy and Chemistry found it difficult to secure from outside sources such help as it needed in checking up the composition and properties of proprietary medicines under investigation. Medical schools and similar institutions were found ready to lend their assistance in pharmacologic and medical investigations; but the chemical investigation required the establishment of a laboratory under the control of the American Medical Association.

As years have passed, the scope of the laboratory has been extended: Its services have been requisitioned by The Journal in various ways. Thus, when requested, the laboratory reviews and verifies the chemical data contained in editorials and original contributions. The laboratory is often called on for information as to the character and composition of quack treatments and so-called "patent medicines." Through the columns of The Journal and through direct correspondence, the laboratory responds to requests of physicians with information regarding the composition of medicines which they prescribe or in which they are interested. The laboratory attempts to be to the members of the American Medical Association what the prescription pharmacist is, or should be, to the prescribing physician — a storehouse of chemical and pharmaceutical information. In the belief that an insufficient familiarity with the chemistry and pharmacy of drugs constitutes the chief reason for the extensive use of unscientific, worthless or fraudulent proprietary remedies, this service is rendered by the laboratory as a contribution to the cause of rational therapy.

Since the efficiency of the American Medical Association Chemical Laboratory will increase as its activities are better known, the following more detailed statement of its work is offered:

THE LABORATORY AND THE COUNCIL

As stated in the rules of the Council on Pharmacy and Chemistry, it is "manifestly impossible for the Council to investigate the composition of every complex pharmaceutical mixture . . . "; "it can only give an unbiased judgment on the available evidence." In line with this, the laboratory does not undertake to prove the composition or constitution of all new synthetics, nor does it attempt to determine the individual composition of proprietary mixtures. It checks all claims that seem doubtful, however, and uses its best endeavors to secure correction of misstatements with regard to proprietary remedies and improvement in the quality of these products. Further, it reexamines, when this seems desirable, the products which have been admitted by the Council to New and Nonofficial Remedies, and thus determines, from time to time, their dependability. The fact that no product admitted to New and Nonofficial Remedies has later been shown to be untrue to its claimed composition is, it is believed, an indication that in this respect the laboratory has succeeded in performing the work for which it was primarily created.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

In this connection the question may be asked, Are many proprietary medicines exploited to the medical profession with false claims in regard to their composition? Also it may be asked, Has the number of proprietaries marketed with false statements of composition decreased since the Council and the laboratory began their work? Answering the latter question first: There is no doubt that today fewer proprietary medicines are being sold with false claims as to composition than there were ten years ago. When the Council began its work, medical journal advertising teemed with statements regarding the composition of medicines which any chemist familiar with medicines would not hesitate at sight to brand as untrue. Today such manifestly false claims are rare. Coming to the former question: Many false statements regarding the identity and composition of remedies have been made in ignorance. This is not surprising when it is remembered that the most ignorant may and do engage in the manufacture of medicines. Besides ignorance, however, an accommodating conscience on the part of the manufacturer and a failure on the part of the medical profession to appreciate the danger which lies in the use of medicines of unknown composition unquestionably have greatly encouraged the marketing of falsely declared medicines. A glaring illustration of the ignorance of manufacturers — for it is hard to believe that any business concern would deliberately court prosecution by the federal authorities through false statements on labels — is the fact that nearly thirty years ago A. B. Lyons published a report[1] pointing out that the proprietary Iodia was falsely declared as to composition and that in 1914 when the Council examined this preparation such incorrect declaration appeared on the label.[2] That many physicians do not recognize the danger to their patients and their reputation in the use of medicines, the composition of which they do not know, is illustrated by the fact, disclosed by inquiries sent to the laboratory, that physicians were found willing to employ an arsenical preparation (Venarsen), advertised for intravenous use, although its promoters vouchsafed no information in regard to the nature of the arsenic compound contained therein.

UNRELIABILITY OF LITTLE USED DRUGS

The purpose of the federal Food and Drugs Act is to secure the prosecution and punishment of all who sell medicines which are adulterated or misrepresented as to composition. As a matter of fact, the wording of the law relating to the adulteration and misbranding of drugs is such that the federal authorities have been able to do little more than to require that the drugs for which standards are provided in the Pharmacopeia shall when sold comply with those standards. Similarly, those states which attempt to improve the quality of drugs sold within their borders — few states do efficient work along these lines — limit their work to the enforcement of the Pharmacopeial standards. This leaves the vast number of unofficial drugs and medicaments beyond the control of federal or state authorities. While most of these drugs are relatively unimportant, and while the amounts of them which are used are not great individually, the total consumption of them is large. With a view of furnishing to physicians standards for drugs of this sort the Council has described in New and Nonofficial Remedies not only distinctly proprietary drugs, but also some of the unofficial drugs which are apparently of therapeutic value and used to a considerable extent. Aiding the Council in this line of endeavor, the laboratory has attempted to establish standards for these little used drugs, and New and Nonofficial Remedies, 1916, provides standards for such unofficial and nonproprietary drugs as quinin and urea hydrochlorid, quinin tannate, sodium acid phosphate, and sodium perborate. An example of work which furnished much needed standards for an unofficial article is the investigation of zinc permanganate by W. S. Hilpert.[3] Reference to the published reports of the laboratory will give an idea of the amount of work such standardization entails. A reference to the new U. S. Pharmacopeia, when this comes from the press, will show that a considerable number of unofficial articles described in New and Nonofficial Remedies have been admitted to the Pharmacopeia along with the standards worked out in this laboratory.

While in a way the work done in connection with these less important drugs has attracted little attention from the medical profession, it has had an effect on pharmaceutical manufacturers. In the past, pharmaceutical houses, ever anxious to market something new, on the slightest provocation have placed on the market, in the form of pills, powder, elixir, ampule, etc., every drug for which some sort of medical recommendation could be found. In marketing these dosage forms, the manufacturer has too often been little concerned about the quality of the drugs used.[4] Just at present, for instance, some interest is being shown in iron cacodylate; but while manufacturers appear to be most ready to take advantage of this interest by offering the drug in the form of ampules, etc., they have given little help toward the establishment of standards for this arsenic compound. Manufacturers are ever ready to sell drugs of all sorts, but in view of the small demand they cannot or will not safeguard the identity and purity of such drugs. A further illustration of the unreliability of unofficial drugs is the recent report by Levy and Rowntree[5] showing not only that the various dosage forms of emetin hydrochlorid obtained from different manufacturers varied from manufacturer to manufacturer, but also that the product of the same manufacturer was variable and that the supply furnished by one pharmaceutical firm was so toxic as to make its use dangerous.

THE ANALYSIS OF "PATENT MEDICINES"

In the preface to the first annual report of the chemical laboratory it was stated that the laboratory "occasionally takes up the examination of 'patent medicines' . . ." At that time it was felt that the widespread use by the medical profession of irrational and even secret medicines made it necessary to devote the laboratory's attention to the correction of this evil. As the years have passed on, these conditions have been remedied to some extent, at least so far as chemical analysis can correct them. On the other hand, public opinion has been aroused to the many evils connected with the exploitation of "patent medicines," and has more and more insistently demanded that the medical profession aid in the correction of this evil. Accordingly, the laboratory has paid much attention to the analysis of "patent medicines" during the last few years. As the chief asset of "patent medicines" is the element of secrecy which surrounds their composition, it is hoped that the laboratory's analysis of such widely used "patent medicines" as Nature's Creation,[7] Mayr's Wonderful Stomach Remedy,[8] Sanatogen,[9] Eckman's Alterative,[10] Tonsiline,[11] and Bromo-Quinine[12] has been worth the labor. In addition, the work of this laboratory has been published, including not only the results of its analyses, but also the methods which are used. In view of the dearth of published reports regarding the methods used in the analysis of "patent medicines," it is hoped that this feature of the laboratory's work has been of aid to chemists engaged in similar work.

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[1] Lyons, A. B.: Detroit Lancet, 1882, vi, 157.

[2] The Journal A. M. A., Nov. 21, 1914, p. 1871.

[3] Zinc Permanganate, The Journal A. M. A., Feb. 6, 1909, p. 486; Reports Chem. Lab., 1909, ii, 15.

[4] The Unreliability of Unimportant Medicaments, The Journal A. M. A., Sept. 28, 1912, p. 1156.

[5] Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420.

The laboratory's actitives along these lines have done much to discount the claim of proprietary manufacturers that chemical analysis is unable to determine the character of "patent medicines." The recent Wine of Cardui trial has brought it out prominently that chemical analysis can determine the presence of potent constituents, and that "patent medicines" which fail to reveal such potent ingredients to the analyst may safely be put down as worthless. The demonstration that the essential composition of medicinal preparations may be determined by chemical analysis should also prove an effective answer to the manufacturers in their protest against the requirement, now being urged for enactment into law in various states, that the medicinal ingredients of their wares must be declared on the label. Manufacturers have held that this would lay them open to competition with imitations and substitutions. The possibility of chemical identification proves, however, that secrecy of composition, though it prevents consumers from knowing the character of a "patent medicine," will not be a hindrance to the imitator and substitutor.

IDENTITY OF DRUGS USED IN INVESTIGATIONS

In the past, much of the experimental work in medicine has seriously suffered in that the identity of the material used in such investigations was not established. In view of this the laboratory has watched the contributions submitted to THE JOURNAL, and whenever necessary and feasible has urged the authors to identify their material before publication of the findings. For instance, a number of staining agents — so-called "anilin dyes" — have been found to possess therapeutic action. Since the identity of many of these staining agents is today essentially secret, the laboratory has urged through THE JOURNAL that those who experiment with these substances make an effort to determine their identity whenever possible and to give preference to those the chemical identity of which is known. The need for such identification has been discussed in the reports of the laboratory.[13] The amount of work involved in the chemical identification of drugs used for experimental work is illustrated in a contribution entitled "An Examination of Several Commercial Specimens of Opium Alkaloid or Their Salts,"[14] by L. E. Warren, in which was determined the identity of the various opium products used in an investigation by D. I. Macht, carried out under a grant of the Therapeutic Research Committee.

THE LABORATORY AND PHARMACEUTICAL LITERATURE

In the past much of the information in regard to the composition and properties of medicines which has appeared in pharmaceutical journals has not become available to medicine. In many cases medical journals could not afford to publish such data because this would have been contrary to the interest of their advertisers, and hence the publications regarding the irrational character of Lactopeptine, of Bromidia, etc., which appeared in the pharmaceutical journals did not become a matter of common medical knowledge. Through the laboratory an attempt has been made to keep the medical profession informed in regard to pharmaceutical literature. The laboratory has a good working pharmaceutical and chemical library, and subscribes to the important American and foreign pharmaceutical and chemical publications. The discussion of new remedies, such as medinal and sodium veronal,[15] salvarsan, atoxyl and arsacetin,[16] and neosalvarsan[17] soon after their introduction, illustrates the work of the laboratory along these lines.

THE LABORATORY'S EFFORTS TOWARD RATIONAL PRESCRIBING

The laboratory naturally is in thorough sympathy with the present day efforts toward a more rational use of drugs, as exemplified in the Council's publication "Useful Drugs." Two recent contributions of the laboratory may be cited as a further support of the movement for limiting prescribing to the more widely used drugs. In line with the general tendency of manufacturers to put out all sorts of modifications and asserted improvements over official substances, there have been placed on the market a number of preparations said to represent some improvement over the pharmacopeial Blaud pills. The report, "The Quality of Commercial Blaud's Pills,"[18] by L. E. Warren, shows that the ordinary pharmacopeial Blaud pill is in every way the equal of the semiproprietary preparations claimed to be improvements. Further, the examination of the various brands of sodium and theobromin salicylate as compared with the preparation diuretin by P. N. Leech[19] shows that the former preparations, sold at 35 cents per ounce at the time the examination was made, are fully the equal of the proprietary Diuretin, which then cost the druggist $1.75 per ounce.

THE LABORATORY AS AN INFORMATION BUREAU

It is generally admitted that the proprietary medicine business, particularly the exploitation of complex mixtures, attained the extensive vogue which it has or had because instruction in medical schools was deficient in materia medica, pharmacy and chemistry. As a result of lack of knowledge along these lines, the young graduate after some trial became fearful of formulating his own prescriptions, and in time became dependent on pharmaceutical firms which provided him with medicines ready to dispense. That physicians have been insufficiently trained in regard to the pharmacy and chemistry of drugs has often been emphasized in pharmaceutical journals where prescriptions containing incompatible drugs are reported and where even plans are brought forward whereby the pharmaceutical profession may aid in remedying this difficulty.

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[7] THE JOURNAL A. M. A., March 5, 1910, p. 806.
[8] THE JOURNAL A. M. A., Aug. 19, 1911, p. 671.
[9] THE JOURNAL A. M. A., April 20, 1912, p. 1216.
[10] THE JOURNAL A. M. A., April 27, 1912, p. 1298.
[11] THE JOURNAL A. M. A., April 4, 1914, p. 1109.
[12] THE JOURNAL A. M. A., Nov. 27, 1915, p. 1932.
[13] Reports A. M. A. Chemical Laboratory, 1912, v, 102.
[14] Am. Jour. Pharm., 1915, lxxxvii, 439.
[15] THE JOURNAL A. M. A., Jan. 23, 1909, p. 311.
[16] THE JOURNAL A. M. A., Dec. 31, 1910, pp. 2303 and 2314.
[17] THE JOURNAL A. M. A., Oct. 5, 1912, p. 1295.
[18] THE JOURNAL A. M. A., April 17, 1915, p. 1344.
[19] THE JOURNAL A. M. A., April 4, 1914, p. 1108.

During my pharmaceutical experience I was often sorely vexed as to what to do when prescriptions contained drugs which on mixing would undergo decomposition which the physician surely did not anticipate. I remember well a prescription directing that potassium permanganate be made into pills with extract of gentian and other things, and how, the physician having spurned the suggestion to modify the prescription so as to avoid decomposition of the permanganate, I was obliged to select a mortar, gently triturate the drugs until a conflagration was started, and to finish the prescription after the conbustion had subsided. However, in my pharmaceutical experience I generally found the physician most ready to receive suggestions from the pharmacist which would prevent incompatibilities, improve the palatability and appearance of his prescriptions, and protect the patient from unnecessary expense.

Similarly it has been my experience since the establishment of the Association's laboratory that physicians are anxious to receive information in regard to the materia medica, pharmacy and chemistry of drugs. As the druggist earns the respect and support of the physician when he makes available to him the pharmaceutical knowledge and experience which he has, so this laboratory has aimed to gain the endorsement of the American Medical Association membership by furnishing to physicians information in regard to the composition, chemistry and pharmacy of drugs through replies in the Query and Minor Notes Department of The Journal as well as through direct correspondence. It has been most gratifying to the laboratory that The Journal receives an increasing number of inquiries both as regards the chemical and pharmaceutical questions involved in the writing of prescriptions and as regards the composition of secret and semisecret proprietaries (often because they are prescribed by the inquirer's colleague) and "patent medicines" (which are taken by his patient). The laboratory has tried its best to answer the many inquiries received. Many of the questions which come in can be answered by a pharmacist or chemist without hesitation. Others, particularly as to the composition of medicines, the laboratory has been able to answer by reference to its library and its extensive card index. Still others have required experimentation and chemical analysis.

While, as stated a moment ago, the laboratory has encouraged the sending of inquiries and has earnestly striven to furnish the information asked for, it is obvious that the amount of chemical work which can be done is limited. The small size of the laboratory force, consisting of three chemists engaged in actual analytical work, makes it necessary to select for investigation those problems which shall be of general interest to the medical profession. As the American Medical Association is national in its scope, the laboratory has held that it can do analytical work only when such work will be of general interest to physicians and of value both to the medical profession and the public. In view of this it has refrained from undertaking analyses which would benefit only the physician making the inquiry and possibly his patient. The laboratory further has not felt justified in undertaking work of merely local interest; instead it has used its endeavors to secure the investigation of such local problems by municipal or state authorities.

ABSTRACT OF DISCUSSION

Dr. F. E. Stewart, Philadelphia: I do not think it necessary to say anything in praise of the work of the Council; the excellent work it is doing is well known to us all. However, words of appreciation are never out of place, and I want to add my testimony to what has been said concerning the splendid work the Council is doing.

Prof. Joseph P. Remington, Philadelphia: I have observed the operation of the work of the American Medical Association in this connection and I believe that many proprietary preparations are no longer sold. I was down at the Whitall Tatum Company Glass Works in New Jersey some time ago. They are probably the largest manufacturers of glass bottles for all purposes in the country, and the manager told me that their manufacture and sale of bottles for proprietary medicines had been diminished 50 per cent. I believe that to a large extent the introduction of new proprietaries has been discouraged and the use and sale of many old "patent medicines" has been curtailed and this has been largely due to the crusade of the American Medical Association.

Dr. O. T. Osborne, New Haven, Conn.: I should like to ask Professor Remington if he knows what becomes of the enormous amount of alcohol used in this country, if "patent medicines" are on the decrease?

Prof. Joseph P. Remington: Alcohol is used in medicines and is useful in many ways in pharmacy as a solvent. Regarding proprietary medicines, why—it is often the alcohol in them that the people want. I remember one celebrated druggist of Philadelphia who actually introduced an elixir of ammonium valerinate to the society ladies of Philadelphia and they consumed gallons of it, and yet another worse habit was started when these women swallowed some of this stuff, for morphin was added to it, and some of the finest women in Philadelphia acquired the morphin habit through the use of this elixir. If those people would only use the alcohol in such small amounts as in ordinary medical practice the evil would be abated. It is a terrible question but I believe the people are now using less alcohol than formerly and on account of the Harrison law, less of the opiates.

Mr. Fred. I. Lackenbach, San Francisco: It would seem that what the Council needs most is some means by which the interest in its work may be stimulated, first in the members of the American Medical Association who read The Journal, and second, in that large number of physicians *who do not* read The Journal. It is mainly the physicians who do not read The Journal and who do not know the work of the Council who support the "fly-by-night" proprietary medicine schemes. Many manufacturers of "cheap" pharmaceuticals cater to this latter class of physicians. Here you find the Council doing a lot of splendid work on preparations which rarely are sold to members of the American Medical Association, but which are sold to men who do not read the reports of the Council. Another point bears on the legitimate manufacture of pharmaceuticals. It would seem highly desirable if the manufacturer could have at least one member of its staff affiliated with the American Medical Association. Such an affiliation might tend toward a more harmonious relationship between his organization and the American Medical Association. This may seem difficult of accomplishment because of the antagonism toward the Association in certain quarters but there was accomplished yesterday along a little different line of activity something that shows that such a thing might be practical. At the meeting of the Clinical Laboratory Organization in the Hotel Addison, the matter of clinical laboratory directorship was very thoroughly threshed out. It was finally agreed that the responsibility and conduct of the clinical laboratory should be in the hands of a qualified physician, not because it was necessary for the technical work of the laboratory, but because one with a medical training could better get the relationship between the work of the laboratory and its significant bearing on the condition of the patient. It would seem that manufacturers who have at heart the best interests of their organizations might consider the feasibility of such a course. It would do away with a lot of unnecessary work now being done by the Council and by means of a better understanding much friction might be eliminated.

Prof. W. A. Puckner, Chicago: I do not believe anything has been said which bears on the work of the laboratory. Replying to Mr. Lackenbach: Naturally the medical profession is most hopeful that the manufacturers through their organization will "clean house." The "patent medicine" association—the Proprietary Association of America—has already begun. It has appointed a committee which is investigating the wares which are sold by its members. It has even gone to the extent of expelling one of its members. I trust that the drug manufacturers' association will soon become similarly active.

STUDIES IN PROPHYLACTIC IMMUNIZATION WITH BACILLUS TYPHI-EXANTHEMATICI *

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The studies in prophylactic immunization against typhus fever, which form the subject of this communication, represent part of the work of an expedition sent to Serbia in June, 1915, by the Mount Sinai Hospital, New York, under the auspices of the American Red Cross. After the occupation of the country by the Bulgarians, the work was continued at the request of the Bulgarian military authorities. In January, 1916, at the invitation of the Austrian government, this work was also begun in Volhynia, Russia, at that time the site of a rather widely spread epidemic.

Besides the vaccination work, bacteriologic, serologic and epidemiologic studies were also carried on which confirmed the observations made by us in 1915 as to the etiologic significance of *Bacillus typhi-exanthematici* in typhus fever.[1] In addition, other new observations were made which will soon be reported in a series of short papers in the *Journal of Infectious Diseases*.

As one of this series of papers, it is proposed to include a more extensive report dealing with the details of the vaccination studies. In view of the rather favorable outcome of the work, and more especially because of the possibility of an extension of typhus fever across the Mexican border during the coming winter, it has been deemed advisable to publish this general summary of the scope and outcome of the studies before the complete report appears.

The vaccine consisted of a suspension of fifteen strains of *B. typhi-exanthematici* in physiologic sodium chlorid solution which had been subjected to a temperature of from 58 C. to 60 C. (136.4 to 140 F.) for from half an hour to one hour. After being tested aerobically and anaerobically as to its sterility, the vaccine was then diluted so that each cubic centimeter contained about two billion bacteria, and 0.5 per cent. phenol (carbolic acid) or tricresol added. Three injections consisting of 0.5, 1, and 1 c.c., respectively, were given in five or six day intervals.

As the supply of vaccine was limited, it was considered advisable to restrict the vaccinations as far as possible to those persons who were most exposed to the danger of infection. The vaccine was therefore administered to the orderlies and members of the hospital staffs who came in contact with the patients on or before admission to the hospital when they were still infested with lice, and also to the men whose duty is was to remove the clothing and bathe and shave the patients on admission, or who were concerned in the sanitation of villages or towns in which typhus fever was epidemic. In addition, many entire hospital units were vaccinated, and in a few instances small military groups in which typhus fever had broken out and was in danger of spreading.

The vaccine was administered by ourselves or by army physicians under our direction. Accurate protocols of each person vaccinated were kept. The details of the follow-up work, in which we had the assistance of the Bulgarian and Austro-Hungarian military authorities, we must reserve for the complete report.

In Serbia, after the Bulgarian occupation, and in Bulgaria, the vaccine was used in sixty-three Bulgarian military hospitals and military sanitation units. In all, 5,251 men were vaccinated. Sixty per cent. of these were vaccinated in November and December, 1915, the rest during the first three months of 1916.

Cases of typhus fever first began to appear in large numbers in the Balkans toward the end of January, 1916, the maximum being reached by the end of February, though foci of the disease appeared in various parts of the country until the middle of May. According to our statistics, there were about 3,000 cases in the Bulgarian military hospitals. How many thousands occurred among the civilians in the villages throughout the country is unknown. Although the epidemic bore no comparison either in numbers or in severity with that which occurred in Serbia during the winter and spring of 1914-1915, it was nevertheless of fair size. The mortality averaged 11 per cent.

Among the 5,251 vaccinated men in the Bulgarian military hospitals and sanitation units, many of whom were frequently exposed to the danger of infection, there occured three cases of typhus fever. The clinical course run by these cases will be described in the complete paper.

According to the statistics of the chief of the medical division of the Bulgarian army, the number of cases occurring among the nonvaccinated in these and other hospitals in Serbia and Bulgaria was many times greater, though the figures are not available for publication. For example, in the town of Uskub, in which there were five military hospitals, complete vaccination was carried out in four. In these four hospitals not one house infection occurred during the course of the epidemic. In the hospital in which vaccination was not carried out, thirty-four house infections occurred during the same period of time.

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* From the Pathological Laboratory of the Mount Sinai Hospital.

* This work was carried out during the tenure of the Theodore Escherich, George Blumenthal, Jr., and Eugene Meyer, Jr., fellowships in pathology and under the auspices of the American Red Cross. The expenses of the expedition were defrayed by directors of the Mount Sinai Hospital. Two of the authors (Plotz and Baehr) took part in the European expedition, both at first working together in the Balkans, but later independently, one in Serbia and Bulgaria, the other in Volhynia and Galicia. Drs. Olitsky, Denzer and Poll were responsible for the preparation of much of the vaccine, the former two subsequently taking part in a second expedition to Mexico.

[1] Plotz, Olitsky and Baehr: Jour. Infect. Dis., 1915, xvii, 1.

In the town of Gornijumier in Bulgaria, many cases occurred among the personnel of the hospitals before the vaccinations were instituted. During the course of the vaccinations (ten days) four more cases developed among them. After completion of the vaccinations, no further house infections occurred, though the hospitals had over 300 admissions in the subsequent three weeks.

In the town of Radomir in Bulgaria, twenty of the personnel in the hospitals developed the disease before the institution of the vaccinations. After that time, although the number of hospital admissions increased, no further cases occurred.

In Russia, the observations were chiefly carried out in the portion of Volhynia occupied at that time by the Austro-Hungarian forces, in the territory south of the towns of Dubno and Lutzk to the Galician frontier. This region was studded with Austro-Hungarian field and epidemic hospitals and quarantine stations for the isolations of typhus suspects. The epidemic lasted from December, 1915, to May, 1916, and chiefly affected the civilian population, though the army did not escape. Although the work was done by request of the Austrian war office, for military reasons the statistics as to the extent of the epidemic were not available. Owing to the principle advocated by the general in command of the army group which occupied this territory, no figures as to the number of typhus cases which occurred during the winter and spring of 1915-1916 or as to the extent of the cholera epidemic which occurred in this region during the summer of 1915 have ever appeared in any public reports.

The typhus epidemic in Volhynia was, however, widely spread, and according to our observations the number of cases mounted into the tens of thousands. Owing chiefly to the constant shifting of troops and the movements of supply columns, practically no villages in this entire section remained free of the disease. Because of the absence of any railways throughout the entire territory and the almost impassable condition of the roads, the transportation of the typhus patients from the widely scattered villages to the hospitals was possible only by means of ox-carts drawn by one or more teams of horses. The small typhus hospital at which one of us lived for three months while carrying on bacteriologic and epidemiologic studies admitted over 200 patients with the disease during that time, although, because of the difficulties in the transportation of the sick, it was able to drain only a few villages in its immediate neighborhood.

As in the Balkans, an effort was made to limit the vaccinations to those persons who were most exposed to infections, chiefly members of hospital staffs and sanitation units. The vaccine was used on 3,169 persons in forty-six institutions.

Up to the end of May, 1916, there occurred three cases of typhus fever among the vaccinated. Among the nonvaccinated during the epidemic there were many times that number, though for reasons previously stated no statistics are available.

In an adjacent army group the exposed members of the staffs of four epidemic hospitals were vaccinated, in all fifty persons. Previous to the introduction of the vaccinations, five physicians had died of typhus fever in the territory of this army group alone. Figures as to the number of infections occurring among the physicians, nurses and orderlies were otherwise not obtainable. The vaccinations were carried out in January, 1916. During the period of vaccination (ten days) five cases developed among the staff of the four hospitals in which vaccination was carried out. During the following four months of the epidemic no further cases developed, although, according to the chief of the commission for the control of epidemic diseases in this army group, no changes were made in the routine of handling the admissions to the hospitals, and the number of typhus patients admitted continued as large after the date of vaccinations as previously.

In all, 8,420 persons, members of 109 hospital, sanitation and other units in Serbia, Bulgaria and Volhynia, were vaccinated against typhus fever during the epidemic of 1915-1916, an attempt being made to include in this number only the persons who were most exposed to the danger of infection. Of this number, six developed the disease during the four months of the epidemic. Our experiences in the Balkans and Volhynia during the winter and spring of 1915-1916 with the vaccine made of *B. typhi-exanthematici* would seem, therefore, to indicate that it is capable of reducing the incidence of the disease, although it does not produce an absolute immunity to typhus fever.

TREATMENT OF BACILLUS PYOCYANEUS INFECTION

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In the course of a critical study of wound infections conducted in this laboratory during the past two years, the *Bacillus pyocyaneous* has often been found a troublesome cause of delay in the repair of wounds. While this organism has never been the source of acute danger to the patient, its presence has seemed to retard the production of healthy granulations and impede the growth of new epithelium. It has been an organism difficult to eradicate by the use of most antiseptics. It was rarely an inhabitant of fresh wounds, but its incidence has increased after the first week following injury, and it has often remained the predominating infection.

Examination of the discharges of a large number of wounds has shown that when the reaction of the purulent discharge was strongly acid, the *B. pyocyaneus* was rarely present. It was much more common in wounds showing secretions of low acidity, and especially in those showing a neutral or faintly alkaline reaction. Chemical examination of broth filtrate from actively growing cultures in the laboratory has also shown an increase in alkalinity.

In the search for a specific dressing solution for the treatment of wounds infected by the organism, attention was therefore directed toward the acid antiseptics. A group of organic and inorganic acids was first tested.[1] Nitric acid and hydrochloric acid in dilute solutions were found to have little inhibitory effect on the growth of the organism in broth. Butyric, propionic, mallic, tartaric and acetic acids were then tested, and were found to be much more effective. Therefore the inhibition did not appear to be simply a question of the acidity of the reaction of the culture medium, but to be a *specific* property of some of these organic acids. Since acetic acid was slightly more effective than the others and, furthermore, always available, it was chosen as one for further investigation.

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[1] Since the pigment pyocyanin is decolorized by most acids, the absence of the green color cannot be taken to indicate the absence of the B. pyocyaneus. Cultural tests must be used to determine the presence and vitality of the organism.

Experiments were then conducted in the laboratory to compare the activity of acetic acid against the *B. pyocyaneus* with that of a number of other antiseptic dressings in use in the wards of the hospital. The results in vitro showed a great variation in the concentration of the different antiseptics required to inhibit the growth of the organism. Table 1 shows the results obtained.

CLINICAL EXPERIMENTS

Following the indications of the experiments in vitro 1 per cent. acetic acid in physiologic sodium chlorid solution was instituted in the wards of the hospital as a dressing for infected wounds. A series of 111 patients were taken on entry and (without choice, unless the use of some special antiseptic was clearly indicated) dressed continuously by one of the solutions shown in Table 2. All these dressings, with the exception of the salines and of Dakin's solution, were made up with the addition of 0.8 per cent. of sodium chlorid.

The 111 patients were studied as long as they remained in the hospital, and the wound flora of each examined once a week aerobically and anaerobically. Table 2 shows the percentage incidence of the *B. pyocyaneus* for each week for the cases treated by the various dressings.

TABLE 1.—ACTIVITY OF VARIOUS SUBSTANCES ON THE GROWTH OF B. PYOCYANEUS IN VITRO

Solution	Concentration Required to Inhibit Growth in Vitro
Acetic acid	0.090 per cent.
Sodium bicarbonate	Stimulates growth
Dakin's solution*	36.420 per cent.
Quinin hydrochlorid	0.943 per cent.
Sodium chlorid	8.000 per cent.
Benzoic acid	Saturated solution insufficient
Cresol	0.080 per cent.

* This lack of bactericidal power is also shown against some other organisms, notably the B. aerogenes-capsulatus and Staphylococcus aureus, both in cultures in broth and in mediums containing albumin.

TABLE 2.—INCIDENCE OF B. PYOCYANEUS IN WOUNDS DRESSED BY THE SAME SUBSTANCES

Solution	On Entry	After 1 Week	After 2 Weeks	After 3 Weeks
	%	%	%	%
Acetic acid	40	20	0	0
Sodium bicarbonate	20	25	83	66
Dakin's solution	36	43	14	67
Quinin hydrochlorid	23	62	37	14
Sodium chlorid, 0.8%	16	..	60	50
Sodium chlorid, 5%	50	67	Dressing suspended	
Benzoic acid	60	66	..	50
Cresol	67	80	50	67
Average all dressings except acetic	44	46	60	37

It may be observed that (1) among all the dressing solutions tested in the series, acetic acid and cresol were the most active agents in inhibiting the growth of the *B. pyocyaneus* in vitro, and (2) in the series of clinical observations acetic acid was consistently active in ridding infected wounds of this organism.

From Table 2 it may be noted that the *B. pyocyaneus* occurred more and more frequently in the total number of cases up to the third week, and then decreased considerably. Among the cases treated with acetic acid, however, the organism was reported in no case after one week's dressing with this solution. No other dressing solution showed this sharp effect. The incidence among the cases treated with bicarbonate solution increased progressively from the beginning of the treatment. Cresol, while active in vitro, proved ineffective clinically, the cases on that dressing always showing a high incidence of the *B. pyocyaneus*.

Since the completion of the foregoing series of examinations, a 1 per cent. solution of acetic acid has been used as a routine procedure in this hospital for the purpose in question. The clinical results have coincided with the earlier experience.

CHENOPODIUM POISONING

REPORT OF CASE

A. F. COUTANT, B.S., M.A.
NEW YORK

While carrying on the hookworm eradication work in Texas,[1] I observed about 300 cases of hookworm disease treated with oil of chenopodium. Among these one case of poisoning occurred.

Oil of chenopodium, a volatile oil distilled from the Jerusalem oak or American wormseed, which is a common weed in many parts of the South, is being used with increasing frequency in the treatment of uncinariasis. It has been found preferable to thymol because it usually does not make the patients so sick and does not require that they fast for twenty-four hours or more; hence they are more willing to take treatments. It has been found very difficult to persuade patients to take a second or third course of treatment with thymol after they have been through the ordeal once, but the chenopodium ordinarily causes no discomfort whatever. Far fewer cases of toxic effects are on record from chenopodium than from thymol.

The dose of oil of chenopodium given for hookworm is 10 minims on each of three consecutive days. The capsules are taken one-half hour before a light breakfast, and the other meals are taken as usual. The last dose, on the third day, is followed in two hours by a dose of salts or castor oil to induce catharsis. With this dosage the percentage of complete cures, that is, cases showing negative stools on examination for ova, is from 40 to 45 in one course of treatment, 70 to 75 in two, 85 to 90 in three, etc.

REPORT OF CASE

The patient was a young man who gave the history and symptoms of severe uncinariasis, and showed the ova in the feces. Though 21 years of age, he weighed only 95 pounds, was very anemic, and was so weak that he had not been able to work for several months. He was extremely nervous, and was subject to nervous "spells," accompanied by intense headache. He had also had several attacks of recurring malaria during the few months just preceding.

The patient had taken two doses of chenopodium twenty-four hours apart, or 20 minims in all. On the afternoon of the second day of treatment, ten hours after taking the second dose, he was suddenly seized with severe, griping, cramplike pains in the abdomen, vomiting, intense headache, and nervous twitchings and tremors of the extremities. The temperature rose to 102 degrees, with sweating. The nervous condition progressed in a short time to a state of nervous prostration, and the patient became hysterical and was irrational for several hours. A local physician who was called in by the family found the patient on the verge of collapse—

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[1] The observations on which this note is based were conducted under the auspices of the International Health Board of the Rockefeller Foundation.

extremities cold and clammy, pulse shallow and rapid, heart weak. He administered strychnin, digitalis and nitroglycerin with the object of improving the circulation, applied warmth to the extremities, etc., and the patient rallied. Five grains of calomel were also administered. The stool resulting from this purgation was blood-tinged and contained much mucus and many hookworms.

The next morning the patient had another attack, not quite so severe, with intense abdominal cramps, vomiting, nervous symptoms, and temperature of 100.6 F. The patient again became very weak, the heart rapid and feeble, and more stimulants were given. The patient improved slowly, and was so exhausted that he did not get out of bed for two weeks.

COMMENT

This was evidently a severe case of poisoning with oil of chenopodium, and the symptoms, which coincide, in general, with those of other observers, indicate that the drug affects the central nervous system. It appears in this case also to have caused a local disturbance of the intestinal tract, which is indicated by the abdominal cramps, the bloody and mucous stool, etc. Whether the general condition of the patient, including his chronic malaria, or some undiscovered lesions of the intestines which allowed of unusual absorption of the drug are responsible for these extraordinary toxic manifestations, or whether this is a case of constitutional drug idiosyncrasy, it is impossible to say.

Schüffner and Vervoort[2] report treating 1,400 individuals without a single case of untoward results.

From the literature, Levy[3] has collected reports of twelve cases of poisoning in this country. Nine of the patients died in from two to five days. Eight of the cases were in children under 13 years of age. The smallest dose given in these cases was 30 minims at one time to a patient of 10 years, who recovered, and 4 drops three times a day for two and one-third days (28 drops in all) to an infant of 1 year, which was fatal. These doses, it will be seen, are much greater than was given in the present case. Three of the fatal cases in Levy's collection were in members of the same family.

CONCLUSION

Greater caution should be used in giving this drug to some patients who are chronically ill with uncinariasis or other disease.

477 First Avenue.

Perforating Wound of Globe, with Prolapse of Iris: Report of Case.—E. W. H., man, aged 23, was injured by a piece of flying glass in an explosion on a ship. When the accident first occurred the vision was unaffected, but in a few hours the patient was unable to see out of his left eye, and immediately became alarmed. An attempt was made to remove what was supposed to be a foreign body, with a pair of forceps, and this pull on the iris gave him excruciating pain. On examination, I found considerable hyphemia, prolapse of iris, and a T shaped wound, a horizontal cut through the limbus, and a vertical cut through the sclera. An iridectomy was done and the pillars freed. Then a conjunctival flap was made by making a circumcorneal incision and dissecting the conjunctiva well back. A purse string suture was introduced, and when this was tied, the entire cornea was covered. Six weeks after the accident, the reaction has entirely subsided, and vision in each eye is $^{20}/_{30}$. The Roentgen examination was negative.—J. Warren White, A.B., M.D., Ophthalmologist and Otologist, St. Vincent's Hospital, Norfolk, Va.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1525)

GLAND ACTION

The flattened epithelial cells lining the capsules of the glomeruli take water and salts out of the blood and then excrete them, and their activity is largely dependent on the activity of the circulation in the malpighian tufts of capillaries, though, as just suggested, they may be stimulated to greater activity by certain substances. This excretion, therefore, is both active and passive. By passive excretion is understood the filtration due to circulatory pressure. This excreted water is then passed into the urinary tubules.

The rodded cells of the convoluted tubules and ascending loop of Henle excrete urea and uric acid and some abnormal constituents of the blood, with a certain amount of water, their activity perhaps being determined by the amount of uric acid and urea in the blood. Also the tubules and especially the convoluted tubules excrete the sulphates and phosphates. The kidney epithelial cells in activity and at rest show different microscopic appearances, namely, in the granules.

Water exists in the protoplasm in from 70 to 75 per cent., and is continuously being absorbed and continuously excreted to keep the amount at normal. Atwater, who did so much careful experimentation on the excretion of water, considered that in twenty-four hours, with a normal subject at rest, about 1,000 c.c. of water were excreted in the urine, 1,000 c.c. by the lungs, 500 c.c. by the skin, and 250 c.c. by the bowels, making a total daily excretion of about 2,750 c.c. Abstinence from water tends to cause an increase in the specific gravity of the blood plasma in spite of the blood taking water from the tissues. The ability of the blood plasma to dissolve, transport and excrete salts also becomes diminished. Owing to this privation of water, the oxidation of foods, general metabolism and the absorption of muscle waste products soon become progressively imperfect. In other words, a certain amount of water is absolutely necessary for proper metabolism and excretion.

On the other hand, if an excess of water is retained in the blood and tissues, the specific gravity of the former may be lowered and a condition of hydremia occur. The first effect of this overfilling of the blood vessels is that more labor is thrown on the heart. If the heart is sufficient and the kidneys are perfect, unless there is exertion and profuse sweating, the extra water will be excreted by the kidneys. If the heart is insufficient or the kidneys are insufficient, edema and dropsy will generally occur. It should also be noted that water can be retained in the body without evident edema, an internal edema, so to speak, but frequent weighing of the patient will determine this fact.

In this hydremic tendency of the blood, nutrition of the cells is interfered with, water is not properly absorbed from the intestine, and nutriment is not well digested or absorbed and utilized.

Bogert, Underhill and Mendel[7] have shown that, in nephritis, water may be retained in the circulation in an abnormal amount. Hence the circulation is overtaxed until the extra water is gradually pushed through the impaired kidneys. They think that in nephritis there is an arterial and capillary wall disturbance which prevents normal osmosis.

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[2] Schüffner and Vervoort: Das Oleum chenopodii gegen Ankylostomiasis und eine neue Methode der Wertbestimmung von Wurmmitteln, München. med. Wchnschr., 1913, lx, 129.

[3] Levy, R. L.: Oil of Chenopodium in the Treatment of Hookworm Infections, The Journal A. M. A., Nov. 28, 1914, p. 1946.

[7] Bogert, Underhill and Mendel: Am. Jour. Physiol., 1916, xli, 189, 219, 229.

This consideration of water metabolism is therapeutically interesting. When the urine is diminished in amount, of high specific gravity, the circulation perfect, the kidneys not badly defective and there is no edema, more water should be ingested. In weakened conditions of the circulation with edema, and in serious kidney defects, the amount of water ingested should generally be diminished. When the skin is dry and there is almost shriveling of the tissues on account of a large excretion of water, with the circulation good, and without edema, water should be given in large amounts. In other words, it is wrong to give large amounts of water in cardiac weakness; it is wrong to give large amounts of water in serious kidney defect; it is generally wrong to withhold water in diabetes, and the amount of water prescribed in gouty or other chronic disturbances depends on the condition of the heart and kidneys. Water should generally be given freely in acute feverish processes, unless there are edemas—especially of the lungs—as it helps to relieve kidney congestion, and also helps to eliminate the toxin. After chloroform and ether narcosis, colon injections of physiologic sodium chlorid solution may be given to aid the function of the kidneys, and many albuminurias and renal congestions will be avoided.

If the urine is acid, it may be inferred that the blood is normal or subalkaline. If the urine is alkaline, it may be inferred that the blood is strongly alkaline.

The odor of urine has been supposed to be due to a combination of volatile substances. Dehn and Hartman[8] have found a substance which they call "urinod" which they assert gives to urine its characteristic odor. It occurs in all urine in the minute amount of 1 to 2 parts in 100,000 parts. When the urine is fresh, the odor is blended with other compounds. The odor varies in intensity, depending on whether the urine is acid, neutral or alkaline. The odor of pure urinod is offensive, and is brought out by alkaline evaporation and by fermenting the urine.

The urine contains the starch-digesting amylase. If amylase is decreased in amount, either the kidney function or the ability to excrete amylase is impaired, or amylase may not be produced in normal amounts from the salivary and pancreatic glands, and hence less reaches the blood. Feeding amylase or glands does not ordinarily increase the amylase of the urine.

Normally the skin may excrete a bare trace of urea. If the kidneys are normal, the intestine seems to excrete but little urea.[9] This does not prove that, when the kidneys are diseased, the intestines could not help in the excretion of urea.

The kidneys normally eliminate iodin rapidly, nearly 80 per cent. in the first twenty-four hours after a single test dose, and most of the remainder in the next twenty-four hours. Even in an acute or chronic diffuse nephritis, iodin may be eliminated in nearly normal amount and speed, the amount eliminated in the urine bearing no relation to the amount of urine passed; but in interstitial nephritis the amount of iodin eliminated in twenty-four hours is greatly decreased, and it may take five or six days before it is all eliminated. A test dose is 1 gram of potassium iodid.[10]

While the vegetable acids, such as citrates, burn to alkali in the body, the tartrates are not so converted, and leave the body nearly in their original form. Underhill[11] and others have shown that tartrates in large doses can cause tubular nephritis in animals. While human beings tolerate without apparent kidney disturbance small doses of tartrates, either given medicinally or as occur in baking powders and in certain foods, and while it would probably require very large doses to cause kidney inflammation, it would seem inadvisable to give food rich in tartrates or to give medicinally large doses of tartrates in nephritis.

The amount of sugar in the blood varies from 0.04 to 0.12 per cent. with an average of 0.084 per cent., and with carbohydrate in the food the amount of sugar will be increased one hour after such a meal.[12] This emphasizes the advisability of seeking for a dietetic glycosuria in from two to three hours after a carbohydrate meal.

(To be continued)

New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

SWAN'S BACILLUS BULGARICUS.—A pure culture in tubes of the *Bacillus bulgaricus,* each tube containing about 4 Cc.

Actions and Uses.—Swan's *Bacillus bulgaricus* is designed for internal administration and for direct application to body cavities, abscesses and wounds. See general article "Lactic Acid-Producing Organisms and Preparations," New and Nonofficial Remedies, 1916, p. 170.

Dosage.—Internally, the contents of one tube three or four times a day. The culture is supplied in boxes of twelve tubes. The tubes must be kept in a cool place and are not guaranteed beyond the date stamped on the package.

Manufactured by Swan-Myers Company, Indianapolis, Ind. No U. S. patent or trademark.

A vigorous strain of the type A bacillus bulgaricus is grown on a medium representing a clear neutral whey with the addition of 2 per cent. Merck's glucose and 1 per cent. peptone.

Our Progress.—We boast of a great civilization, but this is justified only within limits. Science more nearly dominates the world than at any time in the past. Learning permeates the masses more deeply, but credulity and ignorance are widely prevalent. In this country of nearly 100 millions, there are thousands whose greed impedes the progress of the whole, tens of thousands whose ignorance retards their own growth, and other thousands who live by crime and procreate their kind to feed on generations to come. We have our schools, colleges, and universities, while our almshouses, insane asylums, and penal institutions are full. In our cities we see the palatial homes of the very rich, the splendid temples of trade and commerce, the slums of want and poverty, and the homes, both rich and squalid, of vice and crime. No nation in this condition can be given a clean bill of health. Our hilltops are illuminated by the light of knowledge, but our valleys are covered by the clouds of ignorance. We have not emerged from the shadows of the dark ages.—Victor C. Vaughan, Infection and Immunity.

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[8] Dehn and Hartman: Jour. Am. Chem. Soc., 1914, xxxvi, 2136.

[9] Van Slyke, D. D.; Courtney, A. M., and Fales, H. L.: Forms of Nitrogen in the Stools of Infants, Am. Jour. Dis. Child., June, 1915, p. 533.

[10] Sivert and Kaminsky: Russk. Vrach, 1914, xiii, No. 20.

[11] Underhill: Jour. Exper. Med., 1913, xviii, 317, 322, 347; Jour. Biol. Chem., 1912, xii, 115.

[12] Strouse, Stein and Wiseley: Bull. Johns Hopkins Hosp., June, 1915, p. 211.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 25, 1916

BLOOD LIPOIDS AND DIABETES

That diabetes may represent something more far-reaching than a failure to utilize carbohydrates alone in the organism has long been indicated by the evidences of disordered fat metabolism in this disease. Among these is lipemia, manifested as a cloudy or milky appearance of the serum of the blood due to the presence of fatty substances. Patients have been reported in whom the blood from the veins looked like chocolate and cream[1] and in whom the vessels at necropsy appeared as whitish cords. Sometimes the fat has been reported as normal in quantity while the lipoids, cholesterol or lecithin, were much increased. It has been impossible to give any trustworthy conclusion as to what the lipemia essentially depends on, because there were too few actual analytic facts on which to base an accurate inference. The nutritive condition of the patients was rarely taken into account in formulating hypotheses as to the significance of the diabetic lipemia; and in any event the methods of blood analysis were far from satisfactory.

It may be instructive, nevertheless, to consider some of the explanations advanced for what seemed to be a characteristic alteration in the make-up of the blood in diabetes. At one time a reduction of the lipolytic power of the blood was supposed to be an important factor; but the possibility of lipolysis in the circulating fluid is no longer treated with serious consideration. Destruction or metabolism of fats is presumably a function of cells rather than tissue fluids. There was a greater semblance of probability in the assumption of a connection between diabetes and tissue disintegration whereby some destructive process sets fats free in undue amounts. Again, as partial inanition often attends the diabetic state, and fats are known to travel in the circulation in starvation from the depots to the places of need, an increased "mobilization" of fats was claimed to account for the lipemia comparable with that sometimes seen in complete starvation. Finally, the increase of fat in the blood of diabetics has been associated with an accumulation of food fat which the diabetic with a presumably deranged fat burning mechanism can no longer burn up.

Bloor of the Harvard Medical School has latel applied his improved methods for the analysis o blood fats and lipoids to the study of a large number of diabetics, representing all stages of severity o the disease, under scientifically controlled condition of study. His report[2] offers a background of dependable analytic facts on which to project the explanations or tentative interpretations of phenomena whic have so long been a puzzle to the students of diabetes The blood lipoids—if this term is employed to includ all substances, such as true fats or glycerids of th fatty acids, phosphatids, and cholesterol with its ester connected with fat metabolism—are all found to b markedly increased, up to 100 per cent. or more o the normal values, in severe diabetes. In mild diabetes the lipoids may be normal. In general, th more severe or long standing the diabetic conditio the more marked was the abnormality in the bloo lipoids. In spite of the high values, the relation between the lipoids were practically those of norma individuals, indicating that the fat metabolism wa essentially normal. There was a tendency, howeve for the fat to accumulate in excess of the other constituents, and this fact and possibly also the hig lipoid values foreshadow the lipemia. The high lipoi values noted occurred entirely in the plasma, th composition of the corpuscles remaining practicall normal.

THE JOURNAL[3] has already called attention t Bloor's contention that both lecithin and cholester play an important rôle in fat metabolism. The lecithin is believed to be active in the first stage throug which the fats pass in their utilization by the organism. The use of cholesterol is doubtless equall important if still obscure. The ratio of lecithin t cholesterol in normal blood is almost always a constant one. In diabetes the relations between the lipoid are practically the same as in normal individual despite the increase in their absolute amount. Speaking of the fact that cholesterol increases parallel wit the fat in diabetic blood even in severe lipemia, Bloo says that this gives further support to the earlie assumption that cholesterol has a part and probabl an important part in fat metabolism. For the sam reason the determination of cholesterol in the plasm (a relatively simple process) should give valuabl information regarding the lipoid content of the bloo in diabetes.

No definite relation could be found between hig blood lipoids and the occurrence of acetone bodies i the urine. It is unexpected to learn that no lipemia i the sense of a milky or cloudy plasma was observe n the thirty-six patients under treatment, although nany of the cases were clinically severe. Lipemia was bserved, however, in patients not under dietary conrol. In these cases the milkiness of the plasma romptly disappeared when the persons were put on fat-free diet. Bloor remarks that since the treatnent of the nonlipemic patients included partial or omplete fasting, the theory that the excessive blood ipoids in lipemia originate from the mobilization of tored fat as the result of the stimulus of inanition, or hat they come from the breakdown of tissue cells, ppears quite improbable since, under the foregoing onditions of treatment, fat mobilization or tissue reakdown would be most marked. The origin of he lipemia, when it occurs in Bloor's patients at least, hus appears to reside in the fat of the diet. This vill probably suffice to account for many of the nstances of lipemia reported in the past. The probble reason for the appearance of fat in the blood, ccording to Bloor, is a partial failure of the mechaism for dealing with fat. Cholesterol increases parllel with the fat up to eight times its normal value, vhile lecithin is relatively little increased. Since lecihin formation has been found to be an early stage in he metabolism of fat, it is possible that the inability o form lecithin may be a factor in the production of he lipemia.

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[1] Neisser, E., and Derlin, E.: Ztschr. f. klin. Med., 1904, li, 428.

[2] Bloor, W. R.: The Lipoids ("Fat") of the Blood in Diabete Jour. Biol. Chem., 1916, xxvi, 417.

[3] The Lipoids ("Fats") of Human Blood, editorial, THE JOURN A. M. A., Sept. 23, 1916, p. 956.

"PATENT MEDICINE" ADVERTISING IN NEWSPAPERS AND ON THE TRADE PACKAGE

"If a newspaper does not approve of the business nethods of an advertiser, or has a suspicion as to the ntegrity or quality of the product, it should not accept ts advertising." This is not the dictum of an editor f a medical journal engaged in a campaign against ake medicines, but a rule laid down by Truman A. De Weese, an expert in the advertising field, in an ddress before the Advertising Association of Chiago.[1] A necessary corollary is that the appearance f an advertisement in a newspaper implies that the nanagement of that paper not only approves the methds of the advertiser but does not even suspect the ntegrity or quality of the product advertised. Yet ow many proprietors and managers of our newsapers would be willing to admit that they did approve he methods of the quack doctors and dentists whose dvertisements they carry, and that they did not even uspect the integrity or quality of the fake medicines hey advertise?

Probably the excuse most frequently given for the ublication of such advertisements is that the managenent of the paper has no practical way of drawing a ine between the good and the bad, and that if a given ractice or article is even tolerated by the law, it is ot for the management of the paper to condemn it. Vithout discussing the merits of such a defense, it may be pointed out that at least with respect to the advertisements of such medicines as enter interstate commerce, an easy method is available for the detection of presumptive fraud. For if the claims set forth in the copy of the proposed advertisement submitted for newspaper publication are stronger than are the claims made in the package or on the label of the medicine to be advertised, as that medicine is bought in the open market, then the advertisement submitted for newspaper publication is prima facie fraudulent.

This rule for the detection of presumptive fraud in newspaper advertisements of medicines arises out of the operation of the so-called Sherley amendment to the federal Food and Drugs Act of June 30, 1906, which provides that a drug shall be deemed to be misbranded if its package or label bears or contains any false and fraudulent statement, design or device regarding the curative or therapeutic effect of such drug or any of the ingredients or substances contained therein. As the result of this enactment, the labels on such proprietary medicines as are now on the market, and the printed matter in the packages in which such medicines are sold, are generally free from statements, designs or devices that can be proved in court, according to the strict rules of evidence, to be false and fraudulent. In that group of proprietary medicines, however, commonly recognized as "patent medicines" or "quack medicines," such statements, designs and devices may be relied on to reach the very limit of legal tolerance, and any further representation or claim may be fairly regarded as fraudulent; for otherwise, if it is worth advertising, why was it not used on the label or package?

Unfortunately, however, the Sherley amendment does not prohibit the making of false and fraudulent representations and claims elsewhere than on the trade package. Advertisement by means of handbills, posters, bill boards, car cards, newspapers and magazines is still available to the quack medicine man, and he has not been slow to avail himself of the license which the law allows in this respect. Statements, designs and devices are, therefore, used with impunity in newspaper advertising which could not be safely used on the label or package, and it is to the management of the newspaper that the public must look for protection from fraud through such channels.

Remembering, then, that there is no honest and true statement regarding the curative or therapeutic effect of a drug that the manufacturer of a medicine may not lawfully place on the label and package, and that it is to the interest of the manufacturer to place there the strongest claims that he can lawfully make, the newspaper management has only to ask why any stronger claim offered for publication in its columns was not printed on the label placed in the package, if that claim is not false and fraudulent. Until some logical and sufficient answer is forthcoming, no honest newspaper management can accept the proffered advertisement

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1. De Weese, T. A.: Am. Food Jour., November, 1916, p. 551.

without stultifying itself, according to the rule laid down by Mr. De Weese, for its acceptance signifies that the newspaper approves the business methods of the advertiser, and is without suspicion as to the integrity or quality of the product advertised.

FOOD IN PENAL INSTITUTIONS

So long as it was held that a prison is merely an institution for the safe detention of criminals, it was not to be expected that the hygienic conditions prevailing in such a place would be in harmony with the best experience or the newest schemes of sanitary science. Food in such an institution was intended solely to keep the prisoner alive and enable him to perform his allotted daily tasks. Penal institutions are beginning, however, to be the seats of active reform. With the acceptance of such a program as part of the function of our prisons, the problem of nutrition can no longer be neglected entirely. It may reasonably be contended that good housing conditions and suitable diet do not of themselves secure reformation of the misguided or the habitual criminal; but without some consideration of the necessity of proper food, the best ends of the imprisonment for crime cannot be attained. Malnutrition may or may not contribute to the production of criminals; in any event, the physiologic and psychic conditions attending the lack of palatable food and a well balanced ration are not such as are conducive to those mental attitudes that lead to improved conduct and more wholesome life. It has been remarked that while a prisoner is not incarcerated for the purpose of being fed an ideal diet, nevertheless he should be fed so as to insure good health and a stable nervous system.

Complaints are so widespread in certain classes of society that they demand investigation before being accepted as valid. Are the current complaints in regard to prison fare in the penal institutions in this country well founded? According to Mrs. Melvil Dewey,[1] the indictment against the four large state prisons of New York State in respect to the meals, the manner of service, the lack of suitable equipment, the monotony and the poor quality of the cooking deserves to stand.

Enough statistics of the cost of adequate nutrition in the United States are now available to make it clear that the sums expended in feeding men prisoners in New York State cannot be expected to yield suitable dietaries unless exceptional skill is applied to the problems involved. Mrs. Dewey reports that the daily per capita in New York State ranges from 11.29 cents at Auburn to 12.58 at Sing Sing. The average expense per prisoner per day for three meals in all the prisons is about 11.5 cents. Occasionally it drops away below this sum. Three meals at Sing Sing, June 5, 1914, cost 7⅓ cents per capita; four other days, 6.95. Th menu on the lowest day was: breakfast: corn meal milk, bread, coffee; dinner: macaroni, bean soup coffee, bread; supper: tea, bread.

A few details may serve to awaken our conscienc in this matter. Mrs. Dewey writes:

> In this dietary the milk is adulterated to three or fou times its bulk with water, the coffee is nothing but a slop, n taste of coffee being discernible, and the general statemen is that to drink it brings on indigestion. The tea is a stron preparation of tannin, strong enough to tan leather. Th macaroni is steamed, not baked. There was nothing appe tizing for the prisoners to eat at breakfast except bread; a dinner, bean soup and bread; at supper, only bread. Th coffee is made as follows: 3½ pounds of coffee to 1½ pound chicory to 200 gallons of water; price 14 cents a pound. Th mixture is sufficient to serve 1,400 men at a total cost o 56.7 cents a day. To make a good drink, the keeper a Auburn figured it would require 30 pounds of coffee mixe in the proportion as now used with chicory, would cost th state $3.40 instead of 56.7 cents as at present, and woul increase the expense in all four prisons about $5,000 a yea At Clinton prison three days in June averaged 6.9 to 9.0 cents per capita. Breakfast: oatmeal, with milk, bread, coffee dinner: pork and beans, bread, coffee; supper: bread, coffe Meals at Auburn are said to be the best served in the prison and there the milk was skimmed, not diluted three to fou times. It seems extraordinary that so little judgment is show by prison officials in varying and improving the dietary. Th same unappetizing stuff is served day after day and year aft year, with no variety in food or manner of preparation. large number of the prisoners have stomach troubles fro this cause alone. Canned food is served when fresh veg tables would be just as cheap. The meat is cooked to dea and is covered by a so-called sauce. The kitchen keepe are not to blame; it is the fault of the system.

The remedy for this fault is to be found in th appointment of trained dietitians. So long as hospita and other establishments which incidentally cater mankind have been slow to appreciate the need expert services in the planning and preparation meals as well as in the purchasing of rations, we ca understand the inertia of the prison management this respect. But the time has apparently come f the introduction of such efficiency and supervision will lead not only to economy of service but also physiologic well-being. If the dietary is as importa as the coal supply or the construction accounts, deserves a dietitian rather than a stoker or a skill mechanic to be placed in charge of the food problen.

EXCRETION OF WATER BY THE KIDNEYS

To the English physiologists Haldane and Priestl is due the significant demonstration that the regu- tion of respiration, meaning by that the amount of ve tilation per unit of time, or the total volume of sent in and out of the lungs, is affected by the carb dioxid tension of the arterial blood, which is the sa as that of the alveolar air of the lungs. Subsequent in 1905, it was shown that the hydrogen ion concent- tion, due under normal circumstances to the dissolv carbon dioxid, is the actual exciting agent. Eviden the structures of the respiratory center are sensitive changes in the concentration of hydrogen ions of lood. In view of the profound need of active tissues or oxygen, it was formerly expected that a fall in e tension of this gas would promptly induce a corective respiratory response; this is not the case, howver, until the oxygen tension falls very low. There s no increase of ventilation so long as an increase of arbon dioxid tension is prevented. Furthermore, the lveolar oxygen pressure can be varied within wide mits without affecting the excitability of the respiraory center to carbon dioxid.

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[1] Dewey, Mrs. Melvil: Cost of Foods from Prison to Palace Hotel, Jour. Home Economics, 1916, viii, 527.

This interesting information regarding the regulaion of breathing by very small changes in the carbon ioxid content of the blood has provoked speculation s to how the excretion of waste products by the kideys is so delicately regulated. It is well known that he organism tends to maintain the composition of lood plasma fairly constant; and the compensatory rocesses tend to progress with considerable rapidity. lterations in reaction, sugar content, volume, etc., are romptly adjusted to secure the return to an approxinately constant normal composition. It seems likely hat the stimulus to the excretion or retention of this r that substance by the kidneys is presumably a slight ncrease or diminution in its concentration in the lood plasma. Bearing in mind their success in the tudy of respiration, Haldane and Priestley[1] have ately attempted an interpretation of the factors reguating the excretion of water by the kidneys. Their mmediate object was to ascertain what dilution of he blood with water corresponds to a given rate of xcretion of water by the kidneys. As a measure of ilution of the blood they at first took the hemoglobin ercentage, since, if the blood is diluted with an excess f water during diuresis, there will presumably be a all in the hemoglobin percentage. For obvious reaons the experiments were made on man. As a means f increasing the excretion of water they adopted the nethod of simply drinking large quantities of water. o diminish the excretion they employed prolonged weating in a respiration chamber kept at such a wetulb temperature as to produce a maximum amount of weating without any considerable rise of body temerature. Despite enormous intakes of water, amountng at times to 2 liters at a single dose, followed by ronounced elimination of water by the kidneys to the xtent of reducing the specific gravity of the urine to bnormally low figures, there was little attendant hange in the blood concentration. In none of the xperiments of the English investigators was there a iminution of the hemoglobin percentage parallel with he diuresis; and it seems clear that a diminished hemolobin percentage, or increased volume of the blood, as nothing to do with the diuresis produced by drinkng water. It was clearly necessary to seek elsewhere or the change in the blood which excites the excretion.

Haldane and Priestley remark that the fact that the hemoglobin percentage remains constant during even extreme water diuresis is nevertheless of great significance in enabling us to exclude certain mechanical factors to which the diuresis might be attributed. The urine secreted during water diuresis is of course no mere filtrate, and whatever changes in the composition of the blood lead to the enormous increase in the excretion of water, these changes are evidently very slight, and are comparable to the very minute changes in hydrogen ion concentration which cause enormous changes in breathing. Sweating experiments resulting in considerable loss of weight further showed that just as no fall in hemoglobin percentage need accompany a great rise, due to ingestion of water, in excretion of water by the kidneys, so no rise in the hemoglobin need accompany a fall, due to withdrawal of water from the body, in the excretion of water. The enormous diuresis caused by ingestion of water is not dependent on general dilution of the blood with liquid.

In seeking elsewhere than in mere alterations of the volume of the blood for the causes of increased or diminished excretion of water by the kidneys, attention was turned to changes in the electrical conductivity of the serum. This is, of course, an index to the concentration of salts in the blood. It was found[1] that accompanying the very great diuresis — up to a rate of 1,200 c.c. per hour — following regularly on drinking large quantities of water or dilute salt solution, there are changes in the electrical conductivity of the blood serum: when water is drunk the conductivity is diminished; when salt solution is drunk the conductivity is increased. The following sequence is believed to occur: *Pari passu* with absorption of water from the intestine, salts at first pass out of the blood into the water in the intestine. As a consequence of this loss of salts the conductivity of the blood plasma is diminished, and its proportion of salts to water is similarly diminished. This slight diminution excites a copious diuresis of water sufficient to prevent any increase in the blood volume, so that there is no diminution in the hemoglobin percentage, except, possibly, about the end of the diuresis, when salt is being reabsorbed from the intestine.

The drinking of salt solution instead of water does cause lowering of the hemoglobin percentage. In the diuresis from this procedure, it is postulated that the salt solution, since it has about the same salt concentration as the blood plasma, is absorbed as a whole, without passage of salt outward into the intestine. The diuresis occurs only when both water and salts are in excess relatively to the other constituents of the blood plasma. This is shown by the fact that the hemoglobin percentage is diminished and the conductivity increased during the diuresis. As this passes off, the conductivity of the serum returns to its original value and the hemoglobin percentage rises again.

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[1] Haldane, J. S., and Priestley, J. G.: The Regulation of Excretion f Water by the Kidneys, Jour. Physiol., 1916, L, 296; Priestley, J. G.: he Regulation of Excretion of Water by the Kidneys, II, ibid., p. 304.

In commenting on these relations between the condition of the blood and the activity of the kidneys, Haldane and Priestley emphasize the smallness of the blood changes as contrasted with the enormous increases observed in the amounts of urine excreted. This recalls the very small changes in carbon dioxid tension in the alveolar air which produce very great changes in the ventilation of the lungs. In the case of the kidney adjustments we are not dealing here with mere filtration in the production of the urine. Active processes incited by seemingly small yet physiologically potent chemical stimuli are at work. The further study of such regulatory responses in the organism promises to be of decided significance.

THE SIGNIFICANCE OF URINARY PHENOLS

Not long after the discovery of the "conjugated" or "ethereal" sulphates in the urine, the conclusion was reached that they represent not primarily a product of metabolism but rather the result of a highly important and efficient protective reaction in the organism. Intestinal putrefaction gives rise to unusual substances not produced as the result of nutritive exchanges per se. Indol is formed from the tryptophan group of the protein molecule through the action of putrefactive bacteria; similarly phenols arise from the tyrosin portion of the protein. Owing to the fact that the bacterial derivatives were discovered as conjugated products in the urine, attention was quite naturally and logically centered on the urinary representatives as indicators of antecedent putrefactive reactions. The formation of phenolsulphuric acid became an illustration of the ability of the body to convert a confessedly poisonous substance, phenol, into a comparatively harmless product prior to its excretion. Following the lead of Baumann, who believed that phenols were almost quantitatively converted into harmless phenol esters, phenols, like other putrefactive products, were estimated on the basis of conjugated sulphates.

Last year we called attention to the unexpected announcement by Folin and Denis[1] that the excretion of total phenol products in the urine appears to be much greater than is indicated by the phenol figures previously published in the literature of this subject. It was further indicated that the phenols are by no means quantitatively converted into conjugated phenols in the body, so that the detoxication process involved in such conjugation appears to furnish only a partial protection against the toxic effect of the phenol products formed by putrefaction in the intestinal tract. These assertions have now been verified at the University of Pennsylvania by Dubin[2] in an elaborate experimental reinvestigation of the phys ology of the phenols. He establishes likewise that th phenols can be taken as an index of intestinal putr faction. Since, even under ordinary conditions health, at least in experimental animals, the absolu amount of free, that is, unconjugated, phenols repr sents from 75 to 85 per cent. of the total excreted, ar since even under pathologic conditions the free pheno may still represent from 30 to 70 per cent. of the ou put of "total" phenols, it is highly questionab whether the so-called detoxifying power of the body sufficient to convert the phenols into conjugated con pounds in the way traditionally taught. The absolu amount of free phenols must now be taken into consi eration along with their relative proportion in est mating their possible deleterious influence.

Dubin found that under ordinary conditions th elimination of phenols from day to day is quite co stant. As a rule, an increase in the formation phenols, whether normal or clearly pathologic, result in an increased conjugation, though the reverse mig have been expected. Thus, as he remarks, it wou appear that the protective mechanism of the bo responded to the greater stimulus. After intestin obstruction there is an increase in both free and co bined phenols; a somewhat similar result atten pancreatic insufficiency with its detrimental effect gastro-intestinal conditions. An exception was note however, in the cases in which bile was excluded fro the intestinal tract. Here there was an increased fo mation of phenol accompanied by a decreased conj gation. It would almost seem as if the bile plays so part in assisting the liver in its conjugating or so-call detoxicating function.

The liver has long been regarded as the organ ha ing the greatest capacity for conjugating phenols, a this function appears to be little impaired by disea It is not surprising, therefore, to find that a high pe centage of free phenols appears in the urine when t liver is largely, if not entirely, excluded from activi by the surgical establishment of an Eck fistula; for this way the main seat of conjugation has been cut o of the circulation. In spite of this, Dubin has sho that on increased ingestion of phenol there is increased conjugation, demonstrating that other orga can, when necessary, take up the work of the liver this respect. Dubin believes, nevertheless, that gastr intestinal disturbances, in which it is reasonable assume that there is an increased formation of phen and also certain liver diseases in which it is suppos that the mechanism for the detoxication of phen has been impaired, offer a field for future investigati Suitable methods of study are now available.

The Family Doctor.—The family doctor has constant opp tunities special to his professional relations—by organi charity, by personal devotion, by advice, by warning, reproof, as the case may demand, to help the man to cho the better part.—J. Mitchell Bruce, *Lancet*, Oct. 21, 1916.

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[1] Folin, O. and Denis, W.: Jour. Biol. Chem., 1915, xxii, 309. Putrefaction, Phenols and Protective Mechanisms in the Body, editorial, The Journal A. M. A., Dec. 25, 1915, p. 2243.

[2] Dubin, H.: Physiology of the Phenols, Jour. Biol. Chem., 1916, xxvi, 69.

Current Comment

A "PATENT MEDICINE" WITNESS ON THE STAND AND OFF

Under the title "Functioning Without Discomfort" there was recently published in the "How to Keep Well" department of the Chicago *Tribune* a contribution by Dr. Effie Lobdell of Chicago. The "functioning" with which the article dealt was menstruation. Dr. Effie Lobdell's pronouncement — in the newspaper — regarding her drug treatment of the pains and discomforts that sometimes accompany menstruation was, in part, to this effect:

> "The drug which I use for a uterine tonic is quinin. It is far superior to gin or any other alcoholic beverage as a regulator of the pains and discomforts of menstruation. I use quinin as a part of the preparation for menstruation of all patients. . . . Quinin answers all the purposes of alcohol, with, perhaps, the exception of rapidity of action. It is much more constant in its effects, much more lasting, and gives a permanent tone. I regard it almost as a specific."

When Dr. Effie Lobdell went on the stand a little while ago to testify as an expert for the Wine of Cardui concern she discussed the cases of young girls who suffer pain and other distressing symptoms at the time of puberty. After declaring that 90 per cent. of all young girls suffer at this period, the following testimony was given:

> "*Q.*—Doctor, in that 90 per cent. where those symptoms are present, do they require or is it legitimate to give medicinal treatment? *A.*—It is.
>
> "*Q.*—Take instances of that kind, what do you give? *A.*— *My most common remedy is viburnum* [Italics ours.—Ed.] compound or combination, the viburnum—simply a combination in which viburnum is one of the principal ingredients.
>
> "*Q.*—Have you ever used Hayden's Viburnum Compound? *A.*—Yes, sir; before other ones were perfected.
>
> "*Q.*—What percentage of that was alcohol? *A.*—Hayden's is 50 per cent. alcohol.
>
> "*Q.*—You understand, doctor, do you, that I am speaking of the epoch of puberty? *A.*—Yes, sir.
>
> "*Q.*—Now, take those cases, what consideration, if any, do you give to the alcohol? *A.*—Nothing at all, only that *it is rather, I think, a good thing at that time.*" [Italics again ours.—Ed.]

Possibly some of our readers need to be reminded that Wine of Cardui contains a minute and utterly negligible amount of extractives from viburnum prunifolium and a large and effective amount (20 per cent.) of alcohol. The attorneys for the "patent medicine" concern used their medical "experts" to "play up" the alleged virtues of black haw and to "soft-pedal" the deleterious effects of the alcohol. It may also be remembered that it was Dr. Effie Lobdell who, on the stand, expressed the opinion, that ethyl alcohol varied in composition according to the source from which it was derived!

> "*Q.*—Well, is there any difference in ethyl alcohol— *A.*—Oh, yes.
>
> "*Q.*—Whether it is from fruit or corn? *A.*—Oh, yes; I think there is.
>
> "*Q.*—What is the difference? *A.*—Well, in the fruit alcohols, it would be by their own fermentation—
>
> "*Q.*—I am asking you about ethyl alcohol. *A.*—Well, the ethyl alcohol I am only familiar with has—I have used it in—I know it is a very high per cent. of alcohol; whereas, the fruit alcohols run about seven to ten or twelve per cent.; even less.
>
> "*Q.*—Now, don't you know, doctor, that all alcohol that you get from any wine or beer, or in any other sort of liquors, is ethyl alcohol? *A.*—Probably is essentially, synthetically, but—
>
> "*Q.*—What is it? *A.*—It probably is essentially and synthetically, but it makes a great deal of difference as to how it acts, what you use it for."

To those physicians who enjoy reading that which will appeal to their risibilities and at the same time foster a due sense of humility for the ignorance which still permeates our profession, we can do no better than refer them to the Effie Lobdell testimony that was published in The Journal for July 8 and 15 of this year.

THE OCCURRENCE OF PHENOLS IN THE FECES

The available evidence in regard to the probable fate of phenol (carbolic acid) and methylphenol (cresol), commonly referred to as the phenols, in the organism has already been reviewed in The Journal.[1] These substances are known to result from the putrefactive changes which may take place in the alimentary canal, and are believed to represent the toxic products which arise when the tyrosin groups of the proteins in particular fall prey to disintegrative bacteria which may inhabit the intestine. Formerly it was generally believed that the phenols are promptly conjugated in the body after their absorption so as to form glycuronates or ethereal sulphates, whereby they are rendered far less harmful than the original putrefactive derivatives. The newest investigations of the phenols of the urine, however, show that they by no means exist there solely as conjugated compounds. Free phenols may represent a large part of the total urinary phenol output, thus suggesting that the detoxication process offers only a partial protection, at best, against any toxic effect of these substances. Obviously, another path of elimination of phenols is offered through the bowel. There have been few reliable quantitative estimations of the output of phenols in the feces, but the deficiency in our knowledge has at length been supplied by investigations at the biochemical laboratories of the Harvard Medical School and of the Massachusetts General Hospital.[2] These show that only a small fraction (from 7 to 20 per cent.) of the phenols formed is eliminated by the intestine in man. For example, with an output of from 1 to 2 gm. in the urine, the corresponding content in the feces rarely exceeds 0.5 gm. under ordinary conditions. Laxatives or enemas, however, almost invariably bring about a large increase in the fecal output of products giving the phenol reactions. As might be anticipated, the phenols appear to exist in the feces in a free or unconjugated condition.

SPIROCHAETA PALLIDA OR TREPONEMA PALLIDUM?

A rose by any other name would smell as sweet; at the same time, it is just as well to call it a rose. Science, in its rapid progress, does not always stop to consider names; as a result, in medicine especially, there are likely to be a variety of appellations for the same object. As an illustration, we have at least two names for the causative organism of syphilis. Without being too insistent about the matter, The Journal has for some time been using the term *Spirochaeta pallida* or "spirochete." Every now and then, however, some author has objected to the changing of his preferred term *Treponema pallidum* in accord with this usage. Dr. Pusey,[1] at our request, presents in this issue a brief for *Spirochaeta pallida* or "spirochete." Sentiment would cling to the term *Treponema pallidum* because Schaudinn, the discoverer of the organism, so named it; but sentiment usually does not count in science.

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[1] Putrefaction, Phenols and Protective Mechanisms in the Body, editorial, The Journal A. M. A., Dec. 25, 1915, p. 2243; The Significance of Urinary Phenols, editorial, this issue, p. 1606.

[2] Folin, O., and Denis, W.: The Relative Excretion of Phenols by the Kidneys and by the Intestine, Jour. Biol. Chem., 1916, xxvi, 507.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Correction.—Dr. John C. Spencer, San Francisco, whose death was announced in The Journal, Nov. 11, 1916, p. 1462, writes that the John C. Spencer who died was a layman of exactly the same name, and that he, Dr. Spencer, is very much alive and hopes to enjoy the good things of life for many years to come.

Tuberculosis Ward to be Built.—The board of supervisors of Shasta County has awarded a contract for building a tuberculosis ward at the County Hospital, Redding. The ward will be of frame construction, 132 by 35 feet, will provide accommodation for twelve patients, will be a complete unit containing kitchen, dining room, laboratory, etc., and will cost $4,000.

Personal.—Dr. and Mrs. Walter Welcome Wood, San Francisco, have departed for their new post of duty in Brazil, South America.——Dr. Edwin E. Endicott, Plymouth, accidentally shot himself in the abdomen and hip, November 1, while cleaning his revolver.——Dr. Edward L. Parramore, Boyes Springs, is reported to be critically ill with heart disease.

State Medical Directory.—The California State Board of Medical Examiners has issued a medical directory of all physicians and drugless practitioners who have been duly licensed to practice in that state. The information is kept up to date by the issuing of supplements following each examination. The supplements give also a list of those whose licenses have been revoked.

The Fight Against Typhus.—At a conference between railway officials and the state board of health, held in Sacramento, October 20, a definite policy was outlined with reference to the campaign against typhus fever in the state. Railroad officials will be required to detain for fifteen days all Mexicans entering the United States for any class of railroad work. The Federal government is already examining all Mexicans and Yaqui Indians who seek to enter the United States. Railroad companies will be permitted to work Mexicans during the detention quarantine, but in this case their heads must be examined for lice, which transmit typhus fever, once every week, and weekly baths and clean clothing must be provided.

Plans Initiated for Psychopathic Hospital.—At a recent meeting of the heads of the State Hospital, state officials and physicians in San Francisco, October 20, plans were initiated for the establishment of a psychopathic hospital for the care and treatment of alcoholics and other drug addicts, defectives and insane persons. A committee was appointed to draft a bill, to be introduced in the next legislature, providing for the erection of a building in San Francisco at an initial cost of about half a million dollars. The plans also include an industrial farm for drug addicts and alcoholics, where occupations will be taught and employment will be found for paroled persons. The committee consists of Dr. George E. Bright, San Francisco; Dr. Fred W. Hatch, Sacramento, superintendent of the Napa State Hospital; Dr. Herbert C. Moffit, San Francisco, and Dr. Charles D. McGettigan, San Francisco.

DISTRICT OF COLUMBIA

National Department of Health Urged.—The Washington Chamber of Commerce adopted a resolution, November 13, calling for the establishment of a national department of health. An effort will be made to interest the president and members of Congress in the matter during the coming session of Congress.

Needless Maternal Mortality Following Childbirth.—Complications of childbirth, according to Dr. Grace L. Meigs of the children's bureau, caused in the United States, in 1913, more deaths among women from 15 to 44 years of age than any disease except tuberculosis. At least 15,000 women die each year from such complications, and during the last ten or fifteen years no substantial decrease can be found in the death rate from childbirth. According to Dr. Meigs, speaking before the Council of Jewish Women in Washington, D. C., the chief reason for such mortality is that women and their husbands do not yet realize that every woman needs, and has a right to, skilled care at the time of the birth of her children. A bulletin on this subject, to be issued by the children's bureau, is now in press.

ILLINOIS

Money Raised for Hospital.—Citizens of Pekin have raised $32,500 for a public hospital, and work on the buildings will start in the spring.

State Should Build Infirmary.—Superintendent O'Connor of the Illinois Charitable Eye and Ear Infirmary is leading in an appeal for a new building for the institute. An architect has prepared plans for a new building, to cost about $500,000.

Chicago

Dietary Economics.—It is reported in the daily press that the health commissioner has initiated a dietary test on twelve individuals, the object of which apparently is to ascertain the difference in weight after trial for two weeks of a dietary costing 40 cents per person a day.

Robert Koch Society.—The meeting of the Robert Koch Society, November 23, was held at the Cook County Institute, Oak Forest. Luncheon was served at the Tuberculosis Hospital and papers were read in the afternoon, after which the admission of a number of patients was witnessed. An inspection was then made of the hospital, including the kitchen and dining room.

First Aid Lecture Series.—The newly organized Women's Board of the Chicago Polyclinic and Henrotin Memorial Hospital intiated its first aid lecture series this year with a lecture by Dr. Edwin W. Ryerson on "Infantile Paralysis," November 14. November 21, Dr. Robert C. Hammill spoke on "Nervous and Mental Disorders." On November 28, Dr. Samuel G. Walker will deliver a lecture at the residence of Mrs. Robert H. McCormick, Jr., 25 East Erie Street, on "Medical Subjects of General Interest," and the final lecture of the series will be delivered at the residence of Mrs. Joseph M. Patterson, 3 Banks Street, December 5, by Dr. Malcolm L. Harris on "What Modern Surgery has Accomplished."

MARYLAND

Measles Close Schools.—The Rock Hill and Woodburn schools in Washington County were closed during the week ending November 18, on account of an epidemic of measles. Of the forty-five pupils of the Woodburn School, only three reported for attendance. Fifty-two new cases were reported to the county health officer on one day and twenty-four new cases the day previous. Two rooms in the Clearspring High School were closed also on account of the epidemic, no pupils being present. Of forty-six pupils in the Downsville School, only three attended. At Chewsville the school is closed on account of diphtheria, six new cases being reported, bringing the total to fourteen. Dr. C. Hampson Jones of the bureau of communicable diseases, state board of health, has advised the health officers not to close any schools on account of the measles epidemic, but to place physicians and nurses in attendance at the various schools where the epidemic is severe.

MASSACHUSETTS

Hospital Dedicated.—The Beth Israel Hospital, Roxbury, Boston, was formally dedicated, October 21, and the hospital will be ready for occupancy this month.

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[1] Pusey, W. A.: Spirochaeta Pallida or Treponema Pallidum? This issue, p. 1621.

Harvard Class Gives Ambulance.—At a meeting of the class of 1908, held at the Harvard Club, it was agreed to donate an ambulance to the American Ambulance Service in France, dedicated to the members of the class of 1908 who are serving in this work.

Contagious Disease Hospital for Brockton.—The board of health at Brockton, at a conference with the board of commissioners of Plymouth County, agreed to erect a hospital for contagious diseases at a cost of more than $50,000, providing the state board of health will endorse the plans.

Personal.—Dr. George M. Sheahan, Quincy, of the Harvard Medical Unit, has returned from abroad.——Dr. Walter H. Brown, Boston, state epidemiologist, has resigned to become executive officer of the board of health at Bridgeport, Conn.——Dr. Hugh Cabot, Boston, has returned after three months' service at the head of the Harvard Unit on the western front.——Dr. George C. Shattuck, Boston, chief medical officer of the Fourth Harvard Surgical Unit, has returned from abroad.

Examination for Epidemiologists.—A competitive examination for qualification for the position of epidemiologist in the state department of health will be held, December 4. Candidates for the position must apply to the commissioner of health for permission to appear before the board, furnishing the usual information as to age, residence, date of graduation, testimonials, etc.; must be between the ages of 23 and 35, graduates of an incorporated medical school, citizens of the United States, and must pass a satisfactory physical examination and oral, written and practical test. The compensation for the position is $2,000 a year.

NEBRASKA

Alumni Election.—At the annual meeting in Omaha of the University of Nebraska College of Medicine Alumni Association, November 3, the following officers were elected: Dr. William N. Anderson, Omaha, president; Drs. William J. Douglas, Atchison, and James C. Agee, Fremont, vice presidents, and Dr. Roy A. Dodge, Omaha, secretary-treasurer.

Personal.—Dr. Ward W. Hedlund, Lincoln, has been appointed third assistant physician at the Hastings State Hospital.——Dr. William A. Danielson, assistant physician at the Hastings State Hospital, has resigned and returned to Chicago.——Dr. Anders P. Overgaard has been elected president and Dr. Charles O. Rich, secretary-treasurer, of the Midwest Physicians' Golf Association, which was organized at Omaha.

College Appointments.—The following appointments have been made in the laboratory of the University of Nebraska College of Medicine, Omaha: Harold E. Eggers, B.Sc., M.A., M.D., professor of pathology and bacteriology; John T. Meyers, A.B., M.Sc., instructor in bacteriology, and Amos W. Peters, A.M., Ph.D., assistant professor of biochemistry.——Dr. James Ross Clemens, Omaha, the new dean; Dr. Sergius Morgulis, New York, professor of physiology; Dr. Francis W. Heagey, New York, assistant professor of anatomy, acting head of the departemnt, and Dr. Edward H. McLean, Portland, Ore., assistant professor of pathology and bacteriology, have entered on their duties at Creighton Medical College, Omaha.

NEW YORK

Personal.—Dr. Charles S. McLaughlin, Glens Falls, is reported to be seriously ill in the Samaritan Hospital, Troy.

New York City

Personal.—Dr. W. Gilman Thompson, professor of medicine since the foundation of the Cornell University Medical College in 1888, has resigned in order to devote his entire time to his professional work. He has been appointed professor emeritus of medicine.——Dr. Lewis Atterbury Conners has been appointed professor of medicine at Cornell University Medical College, succeeding Dr. Thompson, resigned.——Dr. and Mrs. Robert F. Weir have sailed for Havana.——Dr. Rosalie S. Morton recently returned from France.

Dinner to Health Board Secretary.—A testimonial dinner in honor of Eugene W. Scheffer, retiring secretary of the Department of Health of the City of New York, took place at the Yale Club, November 16, with more than 150 guests present. Addresses were made by Drs. Sigismund S. Goldwater and Thomas Darlington, former commissioners of health, and many other officials. Dr. William H. Guilfoy, registrar of records, acted as toastmaster. At the conclusion of the dinner, as a mark of affection from his many friends and colleagues, Mr. Scheffer was presented with a gold watch and chain. Mr. Scheffer retires at the close of the year after twenty-one years of service in the department.

Gifts to Columbia University.—The trustees of Columbia University announce that during the past month $41,018 has been received and that of this sum $34,000 was from anonymous donors. One gift of $25,000 is a contribution toward the proposed $1,000,000 dental school; another anonymous gift of $9,000 is to be applied toward the maintenance during the current year of the first surgical division of Bellevue Hospital, in accordance with an arrangement recently entered into between the university and the hospital; $1,000 is from Dr. N. S. Jenkins toward the equipment of the proposed dental school. A valuable collection of specimens and medical apparatus has been given to the university by Dr. Herbert N. Gorham, formerly professor of otology.

Examination for Clinic Physician.—The Civil Service Commissioner of New York City announces that applications will be received from November 16 to December 1 for the position of physician (clinics), grade one. Applicants must be citizens of the United States, residents of the state of New York; must present evidence of one year's service as an intern in a hospital or sanatorium, or at least two years' experience in outpatient work or its equivalent; must be licensed to practice medicine in the state of New York and must be at least 21 years of age. The duties of a clinic physician are to diagnose and treat patients at the tuberculosis clinic of the department of health, and to examine, at the occupational clinic of the department, applicants for licenses as food handlers. Eight hours a week are required and the compensation varies from $300 to $1,140 a year.

Prevention and Relief of Heart Disease.—The board of governors of the Committee for the Prevention and Relief of Heart Disease, consisting of Dr. Hubert V. Guile, Dr. Frederick L. Brush, White Plains, Mr. Morris Waldman and Mr. Charles Burlingham, has developed plans for an active campaign to arouse public interest in the important problems of heart disease. Their plan includes, first, proper occupation for cardiacs, which is to be obtained by giving schoolchildren vocational guidance and placing adults under the supervision of social service, teaching a new occupation, and establishing the patient in a small self-supporting business. For the handling of cardiac cases classes are to be established in connection with hospitals, when possible, with duties divided into medical and social work. The medical service is to cover constant supervision of the patients, diagnosis of heart disease, estimation of cardiac efficiency, examination of applicants for convalescent homes and assistance in the selection of a suitable occupation. The cardiac social service includes referring patients to the clinic, the follow-up of hospital, dispensary and convalescent patients, home convalescence and the betterment of home hygienic conditions, and temporary financial aid. Efforts will be made to secure more opportunities for cardiac patients in convalescent institutions and for those known as third stage cases, who possess little or no economic value for the community and who are not suitable for a convalescent home or permanent institutional care. In addition it is planned to keep all playgrounds open the year round and to give special attention to children having cardiac defects. It is estimated that there are about 20,000 such children in the city requiring special care.

Accuracy of Poliomyelitis Diagnoses.—During the course of the recent epidemic of poliomyelitis in this city it was repeatedly intimated that the epidemic was largely a creation of the department of health and that a large proportion of cases listed as poliomyelitis were not poliomyelitis at all. The large number of individuals unfortunately left with some degree of permanent paralysis is in itself sufficient to refute the absurd charge. Thus, of 2,715 patients followed up carefully in their homes, 1,885 were found to have a serious paralysis of one or both lower limbs and to be unable to walk; 530 more were partially paralyzed in the lower limbs although still able to walk, and 273 had one or both arms totally paralyzed. Inasmuch as practically half of the 9,418 cases occurring in the epidemic were treated in the health department's hospitals, it seemed of interest to compile the diagnoses finally arrived at in all the cases sent to the hospitals as probably poliomyelitis. Altogether this embraced a study of 4,474 cases. Of this number ninety-six patients, after being observed in the hospital for some time, were discharged as having "no illness." In forty-nine additional cases the patient's illness proved to be other than poliomyelitis. Disregarding the ninety-six patients sent in for observation as a matter of precaution, it is seen that actual mistakes in diagnosis occurred in only 1 per cent. of the cases. The symptoms of many of these patients resemble those of poliomyelitis and a prompt differentiation is often out of the question. The proportion of patients manifesting meningeal symptoms is striking; the same is true of acute infections with respiratory symptoms. Altogether the foregoing figures and the table here given testify to the high degree of diagnostic accuracy attained during the recent epidemic.

LIST OF CLINICAL DIAGNOSES MADE IN CASES WHICH WERE FOUND AFTER ADMISSION TO HOSPITALS NOT TO BE POLIOMYELITIS

No illness	96
Hysteria	2
Uremia and nephritis	1
Tuberculous meningitis	8
Rachitic pseudoparalysis	1
Pulmonary tuberculosis	1
Purulent pleurisy	1
Tetany	1
Gastro-enteritis and meningismus	1
Cerebral thrombosis	1
Epilepsy and arthritis	1
Mentally defective (idiocy)	1
Streptococcus meningitis	1
Purulent peritonitis	1
Intussusception (?); gastro-enteritis	1
Dentition	1
Congenital calcaneovalgus	1
Bronchopneumonia; pertussis	2
Cervical adenitis and cellulitis	1
Bronchopneumonia	2
Diphtheritic paralysis	2
Malnutrition and spasmophilia	1
Seven-year-old case of infantile paralysis	1
Pericarditis	1
Kyphosis (Pott's disease)	1
Cerebrospinal meningitis	3
Hemiplegia and syphilitic endarteritis	1
Transverse myelitis specific (?)	1
Influenza meningitis	1
Pneumococcus meningitis	1
Cerebral arteriosclerosis with traumatic neuritis of supra-orbital nerve.	1
Spastic paralysis (congenital tetanoid pseudoparaplegia)	1
Chorea	1
Bell's palsy	1
Septic arthritis	1
Hemiplegia, cerebral hemorrhage	1
Measles	1

PENNSYLVANIA

Trichinosis.—In the vicinity of Jenners and Sass, near Somerset, it was reported, November 2, that twenty cases of trichinosis had been diagnosed. There was one death from the disease. It was said to have originated from one focus, and examinations of the blood and muscles of some of the patients confirmed the diagnosis.

Vaccination Rule Upheld.—A decision which is interpreted as making vaccination compulsory in Pennsylvania was handed down, November 13, by President Judge Orlady of the superior court, in sustaining the decision of the quarter sessions court in the case of the Commonwealth against William Gillen who had refused to send his two children to school because he was opposed to vaccination.

Deny Compensation to Intoxicated Men.—In an opinion by Chairman Mackey, the state compensation board has ruled that when an employee who had been drinking appears at his place of employment but does not report for work and subsequently gets hurt, the employer is not liable for compensation. The case was that of Charles Washington, Pittsburgh, against J. A. Evers, Pittsburgh.

Personal.—Dr. Edward A. Krusen has purchased property on Sandy Street, Norristown, where he will establish a hospital.——Dr. Boyd W. Schaffner, Elwood City, who has been ill with typhoid fever in Johnstown, is reported to be convalescent.——Dr. Charles Campbell, Petersburg, has been appointed medical inspector and attending physician for the British Rubber Company in Borneo.——Dr. George A. Stock, Danville, has been appointed resident physician at the White Haven Sanatorium.——Dr. Edward S. Dickey, Pittsburgh, has returned after several months' service with the Russian Red Cross in Persia.——Dr. Charles D. Smedley, Wayne, has been reelected secretary of the Wayne Public Safety Association for the twenty-seventh term.——The governor, on October 20, reappointed Drs. Irvin D. Metzger, Pittsburgh, and Calvin L. Johnstonbaugh, Bethlehem, as members of the State Bureau of Medical Education and Licensure.——At the first meeting of the season of the Oil City Medical Club, Dr. Ford M. Summerville was elected secretary, to fill the vacancy caused by the death of Dr. W. S. Sellew.——Dr. Frank P. McCarthy has been appointed a local surgeon of the Pennsylvania System at Erie——Dr. Anthony F. Myers, Blooming Glen, has been elected secretary and treasurer of the Bucks County Medical Society for the twenty-fourth term, and at the annual meeting at Doylestown, November 11, was presented with a gold watch and chain, in appreciation of his services.

Philadelphia

Medical History Section Meets.—At the meeting of the Section of Medical History of the College of Physicians of Philadelphia, November 21, Dr. Arnold C. Klebs, Washington, D. C., read a paper on "Some Recent Results of Paloeopathologic Research," illustrated by lantern slides, and Dr. Charles W. Burr presented a paper on "Early Resurrectionists."

Personal.—Dr. H. Brooker Mills has been appointed visiting physician to the Philadelphia Hospital for Contagious Diseases.——Dr. Barton K. Thomas has been appointed instructor of clinical medicine in Jefferson Hospital.——Dr. C. Lincoln Furbush has been appointed assistant to the American Embassy at Berlin as medical superintendent of allied prison camps in Germany, and will sail for Europe this month.——Dr. Wilmer W. Trinkle has been appointed coroner's physician, succeeding the late Dr. Thomas J. Morton. ——Dr. Frank C. Abbott has returned after a year on the western war front.——Dr. Gwilym G. Davis has been elected a member of the executive committee of the North American Children's Sanatorium, to fill the vacancy caused by the death of Dr. William L. Rodman.——Dr. John Chalmers Da Costa has been appointed consulting surgeon of the Philadelphia General Hospital, succeeding Dr. J. William White.——Dr. T. Hollingsworth Andrews has retired after fifty-two years of practice in Philadelphia.——Dr. Louis W. Schwindt has been appointed a police surgeon to fill the vacancy caused by the death of Dr. Harry W. Weyant.——Dr. Chevalier Jackson, Pittsburgh, has been selected by the board of trustees of the Jefferson Medical College to fill the chair of laryngology made vacant recently by the death of Prof. D. Braden Kyle.——Dr. Ellwood R. Kirby, a former director of health, has been named one of the surgeons at the Philadelphia Hospital, and medical director of St. Mary's Hospital.

SOUTH CAROLINA

Personal.—In the suit of W. H. Hawkins against Dr. Joseph B. Earle, Greenville, in which damages of $10,000 were claimed on account of alleged malpractice, the jury decided in favor of the physician, October 21.——Dr. James E. Daniel, Greenville, has returned after eighteen months' work at the American Women's War Hospital, Paignton, South Devon, England.

Hospital for Westminster.—Through the efforts of Drs. J. H. Johns and William A. Strickland, the residence of Dr. Burt Mitchell, Westminster, has been secured for a hospital. The building has been refitted and equipped, and will be opened this month.——At a meeting of the trustees of the $70,000 fund left by Mrs. Rosa Thompson to the South Carolina Medical Society, it was decided to expend the money in the erection of a new hospital building fronting on Calhoun Street, Charleston, and west of the Riverside Infirmary.

SOUTH DAKOTA

Personal.—Dr. Theodore F. Riggs is under treatment in St. Mary's Hospital, Pierre, for septicemia due to an infected wound of the arm.——Dr. Richmond Favour, Rosebud, has succeeded Dr. Leo L. Elliott as physician at the Red Lake Indian Agency.

Hospital Items. — The Homestake Mining Company announces that it will erect a $50,000 hospital on a site purchased at Lead several years ago.——A campaign has been inaugurated in Watertown and surrounding towns to raise a building fund for St. Mary's Hospital, Watertown.

CANADA

Provincial Councilors.—Drs. W. J. Stanley Millar, Battleford; George R. Peterson, Saskatoon; James F. Irving, Yorkton; William H. Wardell, Moosejaw; David C. Johnstone, Regina; Hugh E. Eaglesham, Weyburn, and Andrew W. Argue, Grenfell, have been elected to the Medical Council of Saskatchewan.

Personal.—Dr. John M. Rogers, Ingersoll, Ont., has been nominated for the legislature.——Dr. A. N. Hardy, Regina, Sask., underwent operation in Chicago recently.——Dr. Alexander D. Campbell, North Battleford, Sask., has been appointed superintendent of the Saskatchewan Hospital for the Insane.——Dr. Daniel D. Ellis, Fleming, Sask., has been reelected by acclamation Grand Master of the Grand Orange Lodge of British America.——Dr. Harry Morell, Regina, Sask., who has spent two years in France in laboratory work, returned to his home for a few days, and has left again for overseas service.

Board of Inquiry on the Report of Colonel Bruce.—Sir George Perley, Canadian high commissioner (acting) in England, has been appointed by the Canadian government minister of overseas service. One of his first official acts has been the appointment of a special board of inquiry on the report on the Canadian medical services by Col. Herbert A. Bruce, Toronto. Surg.-Gen. Sir William Baptie will act as president of this board. He was selected on the recommendation of the director-general of the Imperial Medical Corps. Other members of this special board of inquiry are: Col. Ernest C. Ashton, Brantford, Ont., G. O. C., Shorncliffe; Gen. John T. Fotheringham, C. M. G., Toronto, A. D. M. S., Second Canadian Division; Col. Arthur E. Ross, Kingston, Ont., A. D. M. S., First Canadian Division; Lieut.-Col. John M. Elder, Montreal, Third Canadian Hospital, Boulogne.

Hospital News.—It is announced that the Canadian government has rejected the proposal for exclusive Canadian hospitals in England.——During the past few months the Provincial Bureau of Public Health, Saskatchewan, has been taking a deep interest in the matter of hospital provision for small urban centers and wide stretching rural municipalities. The hospital act passed at the last session of the legislature of Saskatchewan provides that two or more municipalities may cooperate for the erection and maintenance of hospitals to accommodate their ratepayers during sickness. The act allows for the imposition of a 2 mill tax rate, but it is considered that less than 1 mill will be sufficient for the purpose. The system has been in operation in Lloydminister, where the first rural municipal hospital was established four years ago. One cent an acre under the old system of assessment was found ample for all their needs. Many municipalities have signified their intention of submitting by-laws to the ratepayers at the coming annual elections. In several places by-laws have already been submitted and have received the assent of the ratepayers.

GENERAL

Southern Railway Surgeons Meet.—At the annual meeting of the Southern States' Association of Railway Surgeons, held in Atlanta, November 13, Dr. Joseph M. Burke, Petersburg, Va., was elected president; Dr. Inman W. Cooper, Newton, Miss., vice president and Dr. Ambrose McCoy, Jackson, Tenn., secretary-treasurer.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Hospital, St. Francis' Hospital, Home for the Blind and St. Rose's Home for Incurable Cancer, New York, each $500, by the will of Mrs. Caroline Wilson.

New Rochelle (N. Y.) Hospital, $1,000, by the will of Mrs. Lydia W. Thorne.

Providence Hospital, Chicago, $2,000, for the endowment of a bed, by the will of Mr. George H. Webster.

Hahnemann Medical College and Hospital, Philadelphia, $40,000, by the will of Marcus M. Darr.

Women's Medical College of Pennsylvania, Philadelphia, $2,000, for the endowment of two babies' cribs, by an alumna of the college.

Civil Service Examinations.—An open competitive examination will be held by the United States Civil Service Commission for physicians (male), December 13, at various places throughout the United States, to fill vacancies in the Indian and Panama Canal Service. The salaries range from $1,000 to $1,200 a year in the Indian Service, and $1,800 per year in the Panama Canal Service. Applicants must be between the ages of 21 and 40; must be graduates or senior students in recognized medical schools, citizens of the United States, and must pass the required examination. Those who desire to take this examination should apply to the United States Civil Service Commission, Washington, D. C., or the secretary of any civil service board, for Form 1312.——On the same date, an open competitive examination will be held for dental (male) interns, to fill vacancies at $600 per year with maintenance at St. Elizabeth's Hospital, Washington, D. C. Applicants must be 20 years old or over, citizens of the United States, and graduates or senior students of regular incorporated dental colleges. Applicants must state explicitly the exact title of the examination.

New Officers for Southern Medical Association.—The Southern Medical Association held its tenth annual meeting in Atlanta, November 14 to 16, and elected the following officers: president, Dr. Duncan Eve, Nashville, Tenn.; vice presidents, Drs. Stewart R. Roberts, Atlanta, Ga., and Bransford Lewis, St. Louis; secretary-treasurer and editor of the *Southern Medical Journal,* Dr. Seale Harris, Birmingham, Ala. (reelected), and business manager of the journal, C. P. Loranz, Birmingham, Ala. (reelected). The section on surgery elected Dr. F. Webb Griffith, Asheville, N. C., president; Dr. Jere L. Crook, Jackson, Tenn., vice president, and Dr. Lucian H. Landry, New Orleans, secretary. The section on public health elected Dr. Arthur T. McCormack, Bowling Green, Ky., president, and Dr. Lewis B. McBrayer, Sanatorium, N. C., secretary. The section on medicine elected Dr. James S. McLester, Birmingham, Ala., president; Dr. Randolph Lyons, New Orleans, vice president, and Dr. James E. Paullin, Jr., Atlanta, Ga., secretary. The section on diseases of the eye, ear, nose and throat elected Dr. Thomas W. Moore, Huntington, W. Va., president; Dr. Edward H. Cary, Dallas, Texas, vice president, and Dr. William T. Patton, New Orleans, secretary. It was announced at the closing session that $10,000 had been subscribed to pay the indebtedness on the *Southern Medical Journal* which would leave a balance of $3,500. A gold medal was presented to Dr. J. Shelton Horsley, Richmond, Va., in recognition of his services in original research regarding operations on blood vessels and intestines. Memphis was selected as the place of meeting for next year.

FOREIGN

Memorial to Fargas Roca.—The municipal and university authorities of Barcelona recently placed a marble memorial tablet on the house at Castellersol where had been born Dr. M. Fargas Roca, professor of obstetrics and gynecology at the University of Barcelona, and senator of the realm. After this ceremony the procession passed to the city hall, where his portrait was installed.

Pediatric Association of the Northland.—The incumbents of the chairs of diseases of children at the universities of Copenhagen, Stockholm, Christiania and Helsingfors have organized the Nordisk pediatrisk förening to study scientific and practical questions connected with pediatrics. A special meeting will be held at intervals alternately in these four Northland countries. The first is to convene at Copenhagen in August, 1917. The officers of the new organization are Bloch, Monrad and A. H. Meyer for Denmark; Johannesen, Looft and Collet for Norway; Pipping and Lövegren for Finland, and Jundell, Wernstedt and Lichtenstein for Sweden.

Opium Traffic.—By a decree of the governor of the Society Islands, in accordance with instructions from the French Minister of Colonies, the importation and sale of opium in the islands will cease after Dec. 31, 1920. The decree was issued October 1. According to the report of U. S. Consul T. B. L. Layton at Tahiti, opium is a government monopoly and produces a large part of the revenue of the islands, and the governor was given discretion to continue or discontinue its sale during the next ten years. The price at which it is to be sold is fixed by the governor, and is, for 1917, $43.75 a pound; for 1918, $48.15, and for 1919 and 1920, $52.50 a pound.

Deaths in the Profession Abroad.—**Nielsine Nelson,** the first woman physician in Denmark, died recently from diabetes, aged 66. She obtained her license to practice in 1885. She bequeathed to the medical faculty of the University of Copenhagen three funds of 20,000 crowns each for scholarships for needy women medical students, and a further 50,000 crowns for the same purpose in the name of Ludvig Trier, a friend who had aided her and other students at critical times.——**Eugene Louis Doyen,** aged 57, the Paris surgeon, who had made a special study of cancer and claimed to have discovered a microbe which caused the disease; died at his home, in Paris, November 21. He is said to have been the first to use moving pictures of surgical operations, and pictures showing him at work were displayed in public throughout Europe, as The Journal mentioned at the time, Feb. 2, 1907, p. 433. Doyen brought suit against the photographers for using the films for public representations, and obtained damages and an injunction against their use in France. Inheriting a fortune, he equipped lavishly his "Institut Chirurgical" on the rue Druet, and is said to have been a very skilful surgeon. His statements in regard to a cure for cancer, for foot and mouth disease, as well as many other conditions, have not been confirmed.

Swiss Chemical Industry.—The great extent of the Swiss chemical industry is indicated in a report of Consul W. H. Schulz at Berne (*Commerce Reports,* Nov. 13, 1916). Not only are chemicals for industrial purposes, paints, dyes and colors, manufactured on a large scale in the 107 factories of the country, but pharmaceutical products, drugs and perfumeries are important items of manufacture. This business has increased rapidly since the beginning of the European war. The exports of chemicals for industrial purposes increased from a little over three and a half million dollars in 1914 to nearly six million in 1915; exports of paints, dyes and colors increased from about six and a quarter millions in 1914 to about six and a half millions, and pharmaceutical products, drugs and perfumery, from about three million to four and three-quarter millions. In 1914 the United States imported about four hundred thousand dollars worth of Swiss pharmaceuticals and products other than dyestuffs, and in 1915 over five hundred and fifty thousand dollars' worth, among them being Swiss alkaloids, saccharin, nucleinic silver, oil of ginger, glycerin, oil of orris root, potassium tartrate, boric and phosphoric acids, sodium, tanning extracts, oil of lavender, carnation oil, camphor, methyl alcohol, collodion, phosphogen, chlorin, codein, bromin, benzylchlorid, nitrobenzene, naphthol and a large list of coal tar derivatives. Swiss chemists are said to have played a great rôle in the development of the artificial dyestuff industry, and some of the most important standard coal tar colors originated in Swiss laboratories. Many pharmaceutical specialties are made there, such as protargol, collargol, argyrol, etc.

WAR NOTES

Red Cross Supplies Released.—The state department has obtained an agreement with Great Britain which will permit the American Red Cross to ship supplies to Germany and Austria-Hungary. The conditions imposed by England were severe, but have been accepted. All members of units sent to the central powers must be Americans, known to be neutral, must agree to remain not less than six months, must be mature, and must be able to speak German.

Ambulance Notes.—One hundred graduates of the Stanford University volunteered, November 4, for service with the American Ambulance Corps in France. The term of service will be six months or more and the expenses are to be paid by San Francisco people.——French army orders of November 12 note the gallantry of Section One of the American Ambulance Field Service under the command of Herbert Townsend, an American officer, who in August and September, 1916, completed the evacuation of three divisions, successively, under particularly dangerous circumstances.

OUR TROOPS ON THE BORDER

Mortality of Troops for October.—The mortality reports for October, which were not available when the article by Lieut.-Col. W. P. Chamberlain, this issue, page 1573, was submitted for publication, show twelve deaths among the regulars and seventeen among the militia. Only four were due to acute infectious diseases. The strength of the command, October 31, was 39,543 for regulars and 102,150 for militia. The causes were as follows:

	Regulars	Militia
Gunshot wounds	2	6
Injury	1	3
Suicide	2	..
Drowning	..	1
Diseases of heart	1	..
Pneumonia	1	..
Appendicitis and peritonitis	1	1
Meningitis, acute	1	..
Dysentery	1	1
Cirrhosis of liver	1	..
Abscess of liver	..	1
Diseases of kidney	..	1
Intestinal obstruction	..	1
Septicemia	1	2

LONDON LETTER

London, Nov. 6, 1916.

The Training of Mutilated Soldiers

The Queen Mary's Hospital, Roehampton, is devoted to the treatment of soldiers who have lost limbs. Not only are they provided with the best substitutes which art can devise, but also while waiting to be fitted they are enabled to learn a trade. Most of them go a step higher in the industrial scale. Thus a boiler maker, who has lost a leg, has elected to become a bookkeeper. In future he will wield a pen instead of a pneumatic riveter. A number of the men are learning typewriting, and spelling classes are held and are most popular. A commercial class put through sixty men last month. There are other classes in plenty, and a man has a varied choice, from diamond polishing to draftsmanship, from hair dressing to electricity. There is a motor shop where repairs are taught. Lathe work is found particularly suited for men who have only one leg, for they can sit at it all day without feeling handicapped by their infirmity. Another place that is always well filled is the electricians' shop. The men begin with elementary work on electric bells, and go by degrees through various stages, dealing in turn with dynamos and motors, accumulators, instruments and telephones. Switchboard manipulation work is always open to the one armed. Wood working as well as metal working is suited to men who have lost a leg or an arm. Nearly all the men have developed a meticulous accuracy, which stands them in good stead; they seem determined to make up for their handicap by making a better use of the limbs they have left. In another shop the men are taught to make women's satchels and hand bags by a firm which guarantees them employment afterward. Poultry keeping is another occupation in which regular instruction is given. The various classes are interrupted every now and then by a man being called away for "walking parade." At these parades the men are taught how to make the best use of their artificial limbs. An employment bureau has been started at the hospital. Employers all over the country are asking for men, and they are finding them a good investment. The men have several advantages. They will not be called up again for military service (a great trouble of employers now is that their hands are constantly being taken for military service); they are well grounded in their trades; they are disciplined, and they are not afraid of hard work.

The Property in a Prescription

A case of considerable interest to the profession has been decided in the courts. A woman consulted a physician who gave her a prescription which she took to a firm of pharmacists to be dispensed. The prescription was not returned to her, and when her husband asked that it should be, this was refused, the pharmacists stating that they had undertaken at the request of the physician not to return his prescriptions to patients unless they were expressly authorized by him to do so. An action was brought by the husband against the pharmacists for the return of the prescription. In giving evidence, the physician stated that the course adopted by him with regard to prescriptions was taken for the protection of the public. He illustrated the danger of allowing prescriptions to be retained by the patient by saying that not infrequently a medicine ordered for an adult was given, without any physician being consulted, to an infant. He had requested pharmacists to inform him whenever a patient asked for the return of a prescription, and he made a practice of writing on prescriptions which might properly be handed back without question the words "Return to patient." The lawyer for the defendants pointed out that the prescription was of no value to them, and that they were only contesting the case on the question of principle and in order to keep faith with the medical profession. The judge held that no property in the document had passed to the plaintiff, as the prescription had been handed to the patient only in order that it might be conveyed by her to the pharmacists to be made up instead of the medical man himself sending it. The claim, therefore, was dismissed with costs.

The School Medical Service

The annual report of the chief medical officer of the board of education, Sir George Newman, has just been issued. The expansion of his staff during the past eight years has been great, and would have been greater but for the all absorbing war. At present it consists of 855 school medical officers and assistant medical officers. Besides these there are 144 ophthalmic surgeons, 35 aural surgeons, 217 dental surgeons, 29 Roentgen-ray specialists and 20 anesthetists. These figures exclude the 215 medical officers who form the staffs of the treatment centers in London; 103 of the 1,300 are women physicians, eighty-eight of whom are whole time officials. Besides the physicians 1,484 school nurses are employed, of whom 996 do whole time service. Sir George Newman reports that a large amount of disease exists among schoolchildren, not less than a million of whom are so physically or mentally defective or diseased as to be unable to derive reasonable benefit from the education which the state provides. Further, a large number of children show defects on entering school which clearly indict the home conditions. Some suggestions are offered regarding these "anteschool conditions." If we are to rear a healthy race, we must from a physical standpoint begin earlier and continue later than the hitherto accepted period of education. A complete scheme is in process of building; education committees, directors, physicians, nurses, teachers and others are playing their part in the work. In the school medical service, about 2,000,000 children are annually examined. Machinery now exists for examining annually not less than two fifths of the children attending public elementary schools; 201,695 children were examined in regard to their nutrition, with a resultant percentage of 16.3 for children who were found to be subnormal in this respect. Among "minor ailments," defective vision and "adenoids" are important, so also are enlarged tonsils. These conditions are being treated as far as possible. Heart disease and tuberculosis are also discussed. Schemes for the prevention and treatment of tuberculosis vary in different areas; but, generally speaking, early diagnosis is the important thing. The visits to the homes of the children of school nurses and care committees is found to be a direct preventive agency to the spread of tuberculosis.

Overtime Fatigue

A government investigation of industrial fatigue by physiologic methods has just been made by Dr. Stanley Kent, the physiologist. His report is divided into three sections. The first deals with fatigue as a result of overtime. It is stated that when the week-end rest is suspended, fatigue will persist; residual fatigue resulting from inadequate rest leads to lowered efficiency and lessened output. Overtime periods worked on consecutive days produce more fatigue than if separated by days of ordinary length. Overtime induces more fatigue late in the week than it does early in the week. Overtime is physiologically and economically extravagant. It frequently fails in achieving its object, as the following case shows: A girl in one of the works frequently did not attend during overtime. She also habitually began work at 8:30 instead of 6 a. m. Thus she usually worked only eight hours a day, instead of 12. When asked the reason, she replied that the extra rest enabled her to work so much more quickly that she was able easily to make up for the lost time.

The second section of the report deals with the influence of fatigue and of overtime on output. The total daily output may be diminished by the introduction of overtime, for the rate of working and total output are limited by fatigue rather than by other conditions. A group of piece workers increased their earnings considerably as a result of a diminution in the length of the working day. In the third section it is stated that the total output of a factory is a question of adjustment of the factors concerned, the principal of these being the actual time worked and the actual rate of working. Reduction of the latter will soon counterbalance increase of the former, and thus overtime frequently leads to a diminution of total output. The health of the worker, on which his rate of working and his endurance depends, is prejudiced by overtime and to a less extent by work in the early morning hours. The suspension of overtime was followed in every case by an improvement in the conditions of the worker, and was found to effect a saving of 4.5 per cent.

The experiments on which the foregoing conclusions are based were carried out with great care and by means of all kinds of ingenious apparatus for testing attention and working power. Both male and female labor was employed in the factories concerned. Dr. Kent also points out that the evidence is against Sunday labor, which is liable to prove "disastrous." As a result, the minister of munitions has stopped all Sunday work in the factories producing munitions.

PARIS LETTER

Paris, Oct. 19, 1916.

The War

WOUNDS OF VASCULAR TRUNKS WITHOUT HEMORRHAGE

Dr. Pierre Duval of the Faculté de Médecine de Paris, and surgeon of the hospitals, reported to the Société de chirurgie de Paris nine cases of wounds of the great vessels without hemorrhage, observed in surgical ambulance. Such wounds are almost invariably produced by shell fragments. In four of these nine cases of wounds of the vascular trunks, there was no external hemorrhage, and no clot was found; in three there were a few clots surrounding the vascular lesion, but no true hematoma; in one, hemorrage had begun, but it was not found necessary to change the first aid dressing. In three of the cases, the mechanism of arrest of hemorrhage was noted: in one, the fragment of projectile blocked the wound of the artery; in another, a button-shaped clot occupied the end of the artery and its immediate neighborhood; in a third, the two ends of the vessel, drawn apart for the distance of 6 cm., were closed by retraction of the walls. The wounds were treated by ligature from three to fifty-one hours after their infliction, all the patients recovering.

These exsanguine lesions of the great vessels are not without their importance. In view of the possibility of their causing secondary hemorrhage during the transportation of the wounded, two questions suggest themselves: First, should a tourniquet be applied at the first aid station whenever the anatomic conditions cause one to suspect a wound of the vascular trunk? Second, in such a case, though there is no hemorrhage, should one nevertheless at once systematically explore the condition of the great vessels? On account of the dangers of the tourniquet, Duval would prefer immediate exposure of the vessels in every wound in which they are liable to have been injured. The risk of contaminating the vascular sheath in an infected wound can be reduced to a minimum by the employment of instruments other than those with which the wound has been laid open.

Dr. Sencert agrees with Duval that in such a case it is essential to expose the vessel and explore it. By following this line of action he has frequently found a wound of a vessel momentarily blocked by a projectile or a clot. When dealing with a wound produced by a bullet whose track seems to pass through a great vessel, many surgeons are of the opinion that in the absence of external hemorrhage or a hematoma, one should defer action. Sencert is of the opinion that in certain cases it is possible to diagnose the existence of a wound of a great vessel from the pain and from the functional impotence of the limb. These two symptoms usually are only slightly noticeable if the wound is a simple one, but very conspicuous if one of the larger vascular trunks has been injured. In such a case it is better to intervene at once, exposing the vessel and effecting direct hemostasis, rather than to await the formation of secondary hematoma which is so liable to imperil the collateral circulation.

INAUGURATION OF THE EDITH CAVELL HOSPITAL SCHOOL

M. Justin Godart, undersecretary of state for the military health service, recently inaugurated the hospital founded in memory of Edith Cavell by the Association for the Development of Aid to the Sick. The association has placed gratuitously at the disposal of the health service, for the duration of the war and for six months following the signature of the treaty of peace, the premises necessary for a military hospital of 100 beds, the health service being responsible for the equipment and the operation. At the head of the medical staff is Professor Hartmann. Mme. Pierre Curie will direct the roentgenologic teaching service. Besides the surgical pavilion and the general services, the hospital will comprise four ward pavilions—two for the wounded, and two for the sick. Subscriptions of about 200,000 francs (about $38,600), which have already been made, will soon transform this hospital into a permanent hospital school destined to furnish a corps of professional nurses.

Antialcoholism in Primary Education

The National League against alcoholism recently expressed to the minister of public instruction, M. Paul Painlevé, its desire that the moral influence of the teachers should be used to found antialcoholic sections among the schoolchildren. Following this suggestion, M. Paul Painlevé has called the attention of teachers to the necessity of giving their pupils antialcoholic instruction. It is proposed that the children pledge themselves to abstain from spirituous liquors, and that those in each school who have taken this pledge shall be set apart in a special group or antialcoholic section. Although in some schools the abstainers may not be sufficiently numerous to constitute a special section, it is nevertheless worth while (according to the league) to obtain these personal promises even though they be isolated. Similarly, in the forthcoming organization of *"enseignement post-scolaire"* (night schools, etc.), of professional apprenticeship and of military preparation courses, the league believes—and the minister is of the same opinion—that antialcoholic teaching should have an important place. The league is particularly anxious that the "temperance" clause shall be inserted in the programs. In virtue of this clause, the members of the organizations, supplementing school education, will warmly adhere to the antialcoholic propaganda, and will engage themselves to receive and encourage pledges of abstinence on the part of their pupils. At the end of each educational year, the report on these various supplementary works will mention the number of children, of apprentices and of adolescents who have taken such pledges and constituted antialcoholic sections.

Finally, in social reunions, the schoolmasters will see to it that the use of alcohol shall be forbidden in fêtes, excursions, etc., as it is already in the school sports, in imitation of the excellent example of the federation of gymnastic societies, which has excluded from its buffet all spirituous liquors.

The minister has also given orders to all the heads of educational establishments and to the directors of the communal schools, commanding them to forbid people to give schoolchildren other beverages than water, milk, beer, wine or cider diluted with water, "hygienic infusions" without additional alcohol. This reform, in appearance insignificant, will have an important effect. In several departments of the west, families have formed the deplorable custom of giving their children alcohol (spirits) for the midday meal which they take to school.

The Monthly Variation of the Birth Rate

In two communications to the Académie des sciences, Prof. Charles Richet has demonstrated by statistics that in every country the birth rate taken day by day throughout the year follows a regular course, rising to a maximum on a certain day. This day is constant, or practically so, for the same place; or, rather, it undergoes a gradual variation, depending on the number of births. It differs, however, from country to country, and in the same country from one region to another. Carrying back the figures to the date of conception, it is noted that the day of maximal conceptions passes from the commencement of February, in the south of Europe, to the end of March, in the north. For the whole of France, this day is March 12, with a gradual change from department to department as we go from south to north. After having eliminated all other causes, Richet concludes that this phenomenon is physiologic and is due to the influence of the external temperature. The higher this temperature the earlier this maximum will arrive. Between the maximum and the mean there is a difference of 5 per cent., which may be considered as characteristic of this physiologic phenomenon. It is notorious that the tendency is for the birth rate to diminish every year. Step by step with this diminution, the difference between the mean and the maximum is becoming reduced. This difference is twice as great in countries with a high birth rate as it is in countries with a low birth rate. In illiterate countries the difference is much greater, as it is also in the rural regions. According to Richet, these facts agree in confirming the influence of the urban and literary life, which tends to eliminate the influence of the simple physiologic factor and at the same time to reduce the birth rate.

Marriages

Elmer Lawton Kenyon, M.D., to Miss Friede Augusta Heyde, both of Chicago, November 9.

Lieut. Willis Power Baker, M. R. C., U. S. Army, Washington, D. C., to Margarete Darvas, M.D., New York, November 4.

Edward Philip Laskey, M.D., Haverhill, Mass., to Miss Charlotte Belden Tice of Dorchester, Boston, October 26.

William Joseph Cruikshank, M.D., Brooklyn, to Miss Grace Lovejoy Dunning of Palmyra, N. Y., November 4.

George J. Frazier, M.D., Santee, Neb., to Miss Emma Scott of Springfield, S. D., in Sioux City, Iowa, November 8.

John McCrea Dickson, M.D., Gettysburg, Pa., to Miss Marion Ball of Mahanoy City, Pa., November 1.

Charles Farnham Collins, M.D., to Mrs. Helena Gillet Lefferts, both of New York, November 9.

Grover Asa Silliman, M.D., Delhi, N. Y., to Miss G. Ada Herring of Sayville, N. Y., October 14.

Raymond Arthur Ramsey, M.D., Columbus, Ohio, to Miss Leah Ottman of Cleveland, October 28.

Thomas Augustine Maher, M.D., Brewster, Minn., to Miss Margaret McCall, recently.

Isadore Edward Bishkow, M.D., Chicago, to Miss Cecilia Harris of Brooklyn, October 31.

Frank V. Willhite, M.D., to Miss Nellie Abel, both of Yankton, S. D., October 30.

Elizabeth Etta Rusk, M.D., to William Miles West, both of St. Louis, November 4.

Leo B. Schwartz, M.D., to Miss M. Sobôl, both of New York, recently.

Deaths

Emil Hessel Beckman, M.D., Rochester, Minn.; University of Minnesota, Minneapolis, 1901; aged 44; a Fellow of the American Medical Association; a member of the American Surgical Association and Western Surgical Association; formerly city physician of Minneapolis and superintendent of the Minneapolis City Hospital, but for the last nine years a member of the Mayo staff at Rochester; died at his home, November 7, from septicemia, due to a staphylococcus infection of the nose.

Oscar Percy Johnstone, M.D., Reno, Nev.; Rush Medical College, 1905; aged 45; a Fellow of the American Medical Association; formerly professor of pathology in the University of Colorado, and later director of the State Hygienic Laboratory of the University of Nevada; at one time a member of the state board of health and vice president of the Washoe County Medical Society; was found dead in his office, October 9, from arteriosclerosis.

Carl Buttner, M.D., Orange, N. J.; University of Würzburg, Germany, 1867; aged 67; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; a veteran of the Franco-Prussian War; and later a major in the Medical Corps of the National Guard of New Jersey; a member of the surgical staff of the Orange Memorial Hospital; died at his home, November 18.

Henry H. Keith, M.D., Topeka, Kan.; Ensworth Medical College, St. Joseph, Mo., 1900; aged 50; formerly surgeon of the Topeka Street Railway Company and coroner of Shawnee County; postmaster of Mineral, Kan., in 1896, and in 1902 local surgeon for the Missouri, Kansas and Texas Railroad; also a pharmacist; died in the Topeka State Hospital, November 3, from paresis.

Richard H. Parsons, M.D., Mount Holly, N. J.; University of Pennsylvania, Philadelphia, 1880; aged 57; a Fellow of the American Medical Association; for thirty years medical superintendent of the Burlington County Hospital; visiting physician to the Burlington County Asylum; died in Mercy Hospital, Trenton, November 11, from pneumonia.

Eugene Alexander Freis, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1885; aged 56; for twenty years a practitioner of Bushwick and one of the founders of the Bushwick Hospital; formerly chief surgeon of the Chambers Street Hospital and of the hospital on Ward's Island; died at his home, November 6.

Heman Humphrey Robinson, M.D., Goshen, N. Y.; New York University, New York, 1860; aged 78; for two years president of the Orange County Medical Society and for three years its treasurer; local surgeon for the Erie Railroad, and for several years city physician of Goshen; died in Westchester County, N. Y., October 26.

Nathaniel G. McMaster, M.D., New York; Bellevue Hospital Medical College, 1868; aged 73; a member of the Medical Society of the State of New York; a veteran of the Boer War, in which he served as surgeon in the British service; attending physician at the DeMilt Dispensary, New York; died at his home, November 8.

Byron Sinclair Gailey, M.D., Jacksonville, Ill.; University of Michigan, Ann Arbor, 1895; aged 43; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat, and for sixteen years oculist and aurist to the Illinois State School for the Deaf; died at his home, about November 9.

Marcus A. Franklin, M.D., Philadelphia; Jefferson Medical College, 1870; aged 73; a Fellow of the American Medical Association; first intern for the German Hospital, Philadelphia, and visiting physician to the institution for fourteen years; died at his home, November 6, from edema of the lungs.

John Floyd Holt, M.D., Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; aged 39; a Fellow of the American Medical Association and a member of the medical staff of the Passavant Hospital, Pittsburgh; died in Parker, Pa., November 11, from pneumonia.

George Dallas Stanton, M.D., Stonington, Conn.; Bellevue Hospital Medical College, 1865; aged 77; a member of the Connecticut State Medical Society; a widely known practitioner of New England and an authority on genealogy; died at his home, November 7.

Joseph Alfred Brown, M.D., Germantown, Ohio; Medical College of Ohio, Cincinnati, 1878; aged 61; a Fellow of the

American Medical Association; on whom a nephrectomy was performed about a year ago; died at his home, November 9, from disease of the kidney.

John Pressley Brown, M.D., Benton, Ill.; Missouri Medical College, St. Louis, 1878; aged 73; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, August 11, from cirrhosis of the liver.

John I. Grady, M.D., Natchez, Miss.; Tulane University, New Orleans, 1900; aged 38; formerly a member of the Mississippi State Medical Association; a specialist in genito-urinary diseases; was burned to death in his home, November 12.

Guert Merril Tinker, M.D., Sharon, Pa.; University of Pennsylvania, Philadelphia, 1894; aged 47; a Fellow of the American Medical Association; physician to the C. H. Buhl Hospital; died at his home, November 8, from septicemia.

Franklin Sylvanus Jewett, M.D., Providence, R. I.; Hahnemann Medical College, Philadelphia, 1894; aged 59; for many years a clergyman of the Congregational Church and an evangelist; died at his home, October 24.

Thomas S. Masson, M.D., Cape Vincent, N. Y.; Queen's University, Kingston, Ont., 1875; aged 65; formerly a member of the Medical Society of the State of New York; died at his home, October 26.

John Wayt Poindexter, M.D., Prairie Home, Mo.; Medical College of Virginia, Richmond, 1875; aged 65; for thirty-eight years a practitioner of Missouri; died at his home, about September 18.

Joseph Henry Brewer, M.D., Salem, Ore.; Northwestern Medical College, St. Joseph, Mo., 1881; aged 69; for sixteen years a practitioner and druggist of Salem; died at his home, October 12.

George Edward Luster, M.D., Galesburg, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1874; aged 63; was found dead from cerebral hemorrhage in his office in Galesburg, October 19.

Joseph Stokes Garwood, M.D., North Lewisburg, Ohio; Eclectic Medical Institute, Cincinnati, 1873; aged 69; died in the Champaign County Hospital, November 4, from cerebral hemorrhage.

John Edward Maguire, M.D., Dubuque, Iowa; State University of Iowa, Iowa City, 1893; aged 46; for five years county physician of Dubuque County; died at his home, November 8.

Adoniram J. Woofter, M.D., Weston, W. Va.; College of Physicians and Surgeons, Baltimore, 1882; aged 62; was run over by a train at Weston, September 21, and instantly killed.

Ralph Morgan Russell, M.D., Birmingham, Ala.; Bellevue Hospital Medical College, 1888; aged 49; died in an infirmary in Birmingham, November 4, from cerebral hemorrhage.

Christian Albert Weinbach, M.D., Buffalo; University of Buffalo, 1895; aged 42; a member of the Medical Society of the State of New York; died at his home, November 9.

Andrew Jackson Applegate, M.D., Wagoner, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1864; aged 92; a veteran of the Civil War; died at his home, October 20.

Lewis E. Deuble, M.D., Miller City, Ohio; Columbus Medical College, 1886; aged 57; a specialist on diseases of the eye and ear; died at his home, October 20, from pleurisy.

William Robert Knapp, M.D., York, Neb.; University of Nebraska, Lincoln, 1884; aged 60; for several years physician of York County, Neb.; died at his home, October 30.

Seraphin Eusebe Bergeron, M.D., Fall River, Mass.; Victoria University, Cobourg, Ont., 1880; aged 59; died at Warren, R. I., August 21, from cerebral hemorrhage.

William Ernest McLaughlin, M.D., Toronto, Ont.; Trinity Medical College, Toronto, 1904; aged 39; died suddenly near Port Dover, Ontario, July 31, from aphasia.

Lawrence James Dailey, M.D., Gloversville, N. Y.; New York University, New York, 1882; aged 59; died at his home, August 21, from cerebral hemorrhage.

Almon Gleason, M.D., Cleveland; Homeopathic Hospital College, Cleveland, 1873; aged 70; a veteran of the Civil War; died at his home, November 5.

William C. Irby, M.D., Laurens, S. C.; Jefferson Medical College, 1870; aged 68; a Confederate veteran; died at his home, October 26.

John S. Fisher, M.D., Toledo, Ohio; Pulte Medical College, Cincinnati, 1876; aged 70; died at his home, October 25.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED NOSTRUMS

DR. JONES' LINIMENT

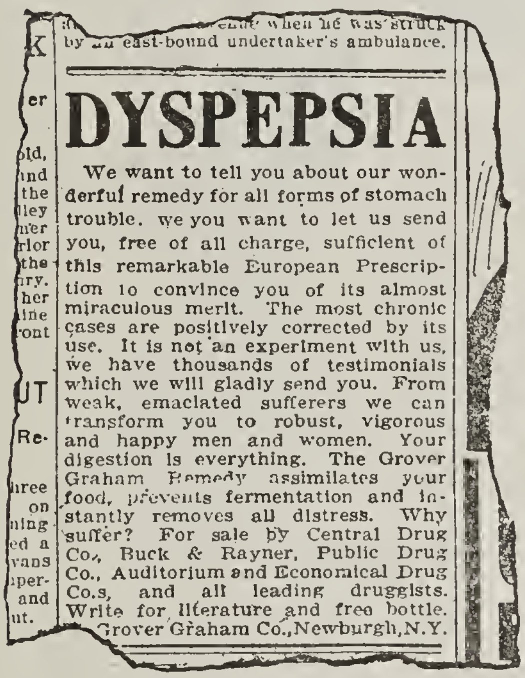
Morris, Leonard J. and Jacob K. Spiegel, trading under the firm name of Dr. M. Spiegel & Sons, Albany, N. Y., put on the market "Dr. Jones' Liniment," recommending it for corns, callouses, toothache, headache, backache, "rheumatism," neuralgia, frost bites, chilblains, sore throat, quinsy and various other conditions. The government chemists reported that analysis "showed it to be essentially a gasolene solution of oleoresin of capsicum, oil sassafras, methyl salicylate, and evidently, volatile oil of mustard." The therapeutic claims were declared to be false and fraudulent and made knowingly and in wanton and reckless disregard of their truth or falsity. The three Spiegels entered pleas of guilty and were fined $25, or $8.33 each.—[*Notice of Judgment No. 4138.*]

GRAHAM DYSPEPSIA AND HEARTBURN REMEDY

This product was put on the market by the S. Grover Graham Company, Newburgh, N. Y. Government chemists who analyzed this preparation reported that it contained, among other things, sodium bromid, sodium bicarbonate, magnesium carbonate, sugar, chloroform, alcohol and small quantities of morphin. The following outrageous claims were made for the preparation:

"Remedy for . . . Gastritis . . . Ulceration or Threatened Cancer of the Stomach, and all disorders arising from an impaired digestive system. . . . This valuable preparation is offered to the public for the correction and immediate relief of the above diseases."

"The Great Food Digester."



...when he was struck by an east-bound undertaker's ambulance.

DYSPEPSIA

We want to tell you about our wonderful remedy for all forms of stomach trouble. we you want to let us send you, free of all charge, sufficient of this remarkable European Prescription to convince you of its almost miraculous merit. The most chronic cases are positively corrected by its use. It is not an experiment with us, we have thousands of testimonials which we will gladly send you. From weak, emaciated sufferers we can transform you to robust, vigorous and happy men and women. Your digestion is everything. The Grover Graham Remedy assimilates your food, prevents fermentation and instantly removes all distress. Why suffer? For sale by Central Drug Co., Buck & Rayner, Public Drug Co., Auditorium and Economical Drug Co.s, and all leading druggists. Write for literature and free bottle. Grover Graham Co., Newburgh, N.Y.

The government, in its suit against the concern, charged that these and similar claims were false and fraudulent and were made knowingly and in reckless and wanton disregard of their truth or falsity. The company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4119.*]

MOTHER HART'S BABY SYRUP

Guy H. Boyd who did business in York, Pa., under the name of Dale & Co., marketed "Mother Hart's Baby Syrup." The preparation admittedly contained 3 grains of opium to the ounce and 10 per cent. alcohol. Some of the claims made for it were:

> "A Safe Remedy For The Home."
>
> "A Safe, Sure and Speedy Relief for the Aches and Pains Starting in the little Stomach."
>
> "Will prevent Convulsions and Cholera Infantum if taken in time."
>
> "The best medicine in the world for children." [This, in German.]
>
> "Cures bowel cramps and colicy pains, diarrhea and all children's diseases caused by teething." [This in German.]

These, and similar claims were declared by the government to be false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity. Boyd entered a plea of *nolo contendere*—neither admitting nor denying his guilt—and was fined $25.—[*Notice of Judgment No. 4101.*]

DR. HALE'S HOUSEHOLD OINTMENT

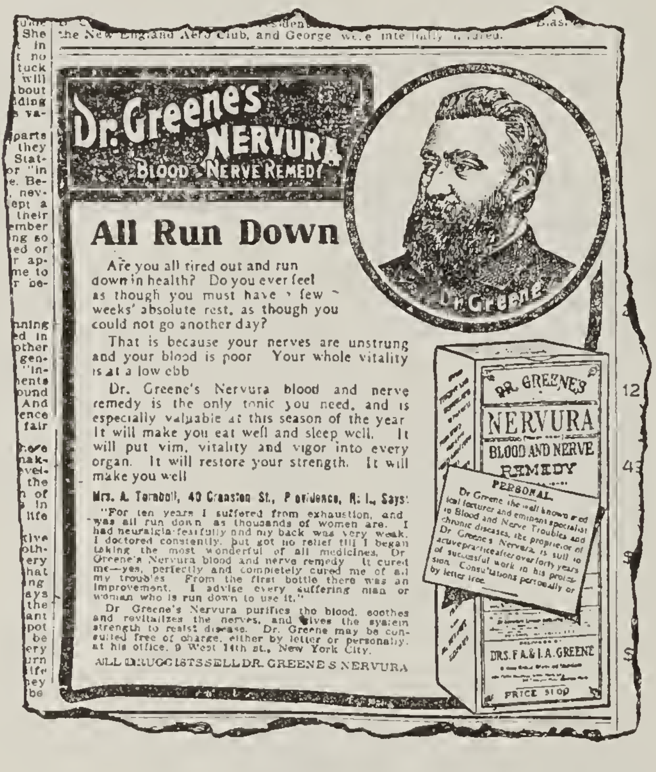
Henry O. Kenyon, Frank S. Kenyon and Charles H. Kenyon, trading as Kenyon & Thomas Co., Adams, N. Y., shipped in interstate commerce a quantity of "Dr. Hale's Household Ointment" which the federal authorities declared was misbranded. Claims such as the following were made for this ointment:

> "A Positive Specific for the Speedy and Permanent Cure of Rheumatism, Lame Back, Neuralgia . . . Sciatica . . . Eczema, Erysipelas . . . and all Scaly Eruptions . . . Scrofulous Ulcers, Piles . . . Croup . . ."
>
> "It has cured catarrh where all other known remedies have failed."
>
> "For ulceration of the Womb, Leucorrhoea . . It is very soothing and healing and has effected remarkable cures."

The ointment was analyzed by the federal chemists who reported that it was "composed of vaseline and camphor with a small amount of aromatics resembling oil of thyme." The claims quoted above, and others of a similar nature, constituted misbranding in the opinion of the federal officials who charged that they were "false and fraudulent" and were made "knowingly and in reckless and wanton disregard of their truth or falsity." The defendants pleaded guilty and were fined $10.—[*Notice of Judgment No. 4098.*]

DR. GREENE'S NERVURA

Frank A. and Jarad A. Greene, trading as Drs. F. A. and J. A. Greene, Boston, shipped in interstate commerce a quantity of "Dr. Greene's Nervura" which the government declared misbranded. It was sold under such claims as:


Dr. Greene's NERVURA BLOOD & NERVE REMEDY
Dr. Greene
DR. GREENE'S NERVURA BLOOD AND NERVE REMEDY
PERSONAL. Dr Greene the well known medical lecturer and eminent specialist in Blood and Nerve Troubles and chronic diseases, the proprietor of Dr Greene's Nervura, is still in active practice after over forty years of successful work in his profession. Consultations personally or by letter free.
DRS. F.A. & J.A. GREENE
PRICE $1.00

All Run Down

Are you all tired out and run down in health? Do you ever feel as though you must have a few weeks' absolute rest, as though you could not go another day?

That is because your nerves are unstrung and your blood is poor Your whole vitality is at a low ebb

Dr. Greene's Nervura blood and nerve remedy is the only tonic you need, and is especially valuable at this season of the year It will make you eat well and sleep well. It will put vim, vitality and vigor into every organ. It will restore your strength. It will make you well

Mrs. A. Turnbull, 40 Cranston St., Providence, R. I., Says:

"For ten years I suffered from exhaustion, and was all run down as thousands of women are. I had neuralgia fearfully and my back was very weak. I doctored constantly, but got no relief till I began taking the most wonderful of all medicines. Dr Greene's Nervura blood and nerve remedy It cured me—yes, perfectly and completely cured me of all my troubles From the first bottle there was an improvement. I advise every suffering man or woman who is run down to use it."

Dr Greene's Nervura purifies the blood, soothes and revitalizes the nerves, and gives the system strength to resist disease. Dr. Greene may be consulted free of charge, either by letter or personally, at his office, 9 West 14th st., New York City.

ALL DRUGGISTS SELL DR. GREENE'S NERVURA

> "For Nervousness, Nervous Debility, Weakness, Poor Blood, Kidney and Liver Complaints, Rheumatism, Neuralgia, Female Weakness, Malaria, Chills and Fever, Exhausted Nervous Vitality, Nervous Prostration, Sleeplessness, Despondency, Mental Depression, Hysteria, Paralysis, Numbness, Trembling, Pains in the side and back, Apoplexy, Epileptic Fits, St. Vitus Dance, Palpitation, Nervous and Sick Headache, Dyspepsia, Indigestion, Loss of Appetite, Constipation, and all Affections of The Nervous System."

The government chemists reported that analysis showed the stuff to contain 18 per cent. of alcohol, while celery, ginger and other unidentified vegetable material were indicated. Charges of falsehood and fraud in the therapeutic claims was brought by the government and Frank A. and Jarad A. Greene entered pleas of *nolo contendere*, whereupon the court fined each $25.—[*Notice of Judgment No. 4149.*]

HILL'S FRECKLE LOTION

Fred L. Snow, Providence, R. I., shipped into Massachusetts a quantity of "Hill's Freckle Lotion" which government officials claimed was misbranded in violation of the Food and Drugs Act. According to the trade package, the preparation was "absolutely harmless when used externally according to directions." As the government chemists found that Hill's Freckle Lotion contained corrosive sublimate (mercuric chlorid) they naturally declared the stuff misbranded. Furthermore, the label bore the statement:

> "Removes Moth, Tan, Freckles, Pimples, Ring Worms, and all Eruptions of the Skin."

This claim was declared to be false and fraudulent and applied knowingly and in reckless and wanton disregard of its truth or falsity. Snow at first pleaded not guilty, but later withdrew the plea and entered a plea of *nolo contendere* He was fined $20.—[*Notice of Judgment No. 4115.*]

DR. HIATT'S GERMICIDE

The Hiatt Germicide Company of Richmond, Ind., was a trade name under which James A. and William F. Hiatt did business. The company sold "Dr. Hiatt's Germicide" under such claims as:

> "Specific for Croup."
>
> "Cures Smoker's Sore Throat."
>
> "For Croup, Diphtheria, Quinsy, Sore Throat, Catarrh, Coughs, Colds."
>
> "For the prevention and cure of diphtheria."

According to the Bureau of Chemistry, "the product was a sirup containing sodium benzoate, phenol [carbolic acid] alcohol, a small amount of glycerin, probably balsam tolu, and flavored with oil of wintergreen; it contained 6.1 per cent. of alcohol." James A. Hiatt and William F. Hiatt were charged with making false and fraudulent therapeutic claims knowingly and in reckless and wanton disregard of their truth or falsity. They pleaded guilty and were fined $100 and costs.—[*Notice of Judgment No. 4131.*]

PROPRIETARY MEDICAL JOURNALISM

Spain, also, is Afflicted with This Evil

The curse of commercialism in medical journalism is by no means confined to the United States. A protest against this evil now comes from Spain. Dr. C. Juarros in the *Siglo Medico* for Aug. 26, 1916, has an article on this subject, from which we extract certain parts, freely translated:

"On my table lies a medical journal that is published as a piece of commercial propaganda by a pharmaceutical manufacturer. It is distributed free. On the cover appear the names of a number of physicians as comprising the editorial staff, names that are well known for the scientific work their owners have published. That well-known physicians of standing should serve as standard bearers for the exploiters of medicines is surprising beyond belief. . . . Every one knows that one of the reasons our profession has not realized its highest aspirations is because of the financial difficulties that beset the medical press of this country [Spain]. The majority of our professional journals make no profits or very meager ones. For the lack of a strong and influential medical press our best efforts fail and are sterile of results and our scientific prestige in other countries is not commensurate with our actual culture. Medical 'hispano-americanism' is still but a dream, and the diffusion of medical science and knowledge proceeds slowly and with difficulty.

"This is no secret. Why, then, do well-known physicians permit their names to be used as a lure so that their colleagues will be enticed to open the pages of medical house-organs there to read an impassioned pean on the excellencies of this or that panacea. There are but one of three explanations: financial interest, vanity or thoughtlessness. The idea of financial interest may be discarded, for we cannot believe that those names are there as a paid advertisement, for the physicians are men of the highest honor, and the idea of them granting their personal prestige to serve as decoys is inconceivable. The second reason, vanity, seems equally unacceptable. No one with any sense can envy the notoriety acquired by being blazoned forth on the cover of a pharmaceutical house-organ. This leaves thoughtlessness as the only explanation. The names appear there because they were put there and the owners of the names apparently care neither whether they were put on or taken off.

"But the assurance of good faith on the part of these physicians is no excuse when their action results in a positive and serious evil. High-grade medical journals lead a precarious existence, due in no small degree to the fact that these other iniquitous commercial publications are distributed free. Nor is this the only evil. These house-organs cause the worship of proprietaries, thus working great harm to the science of medicine by making unthinking, unscientific machines of physicians. They harm the sick also, who, instead of receiving medicines adapted to their individual cases, get stock preparations of a general and arbitrary pattern. The pharmacists likewise find their shops changed into ordinary stores selling merely bottles and boxes to the detriment not only to their financial interest, but to their scientific standing.

"Every physician should combat in every way this commercialized medical press in which everything inevitably tends to the glorification and apotheosis of the proprietaries put out by the companies publishing such journals."

Correspondence

First Aid and Preparedness

To the Editor:—The most important economic movement in America today, both from a humanitarian and a commercial point of view, is the conservation of human resources. This idea is rapidly gaining in popularity, as is manifested by the ever-increasing effort of agencies to prevent the needless waste of life and the spread of such diseases as tuberculosis, malaria and typhoid fever. It is manifested to a marked degree in the great field of industry, by the serious attention which is being directed toward the problem of preventing unnecessary injuries and illness incurred by industrial workers. The movement has already resulted in reducing sickness and accidents.

At the time of an accident or an acute illness, a person who knows how to render first aid is invaluable. Nowhere has this been more clearly proved than in the European war, where "first aid" is saving many lives. It is said that the fate of an injured person depends on the man into whose hands he falls. I recently heard a noted army officer say that he would rather have a well-trained first-aid team in time of war than six of the best surgeons in the United States, as he was quite positive that it would be of more service to the fighting man. In view of the importance of men thoroughly trained in first-aid assistance wherever accidents or injuries are liable to occur, such training among army men is one of the most necessary branches of instruction for preparation for either war or peace.

During many years' experience in training men and women in such work, I have always been an advocate of simplified method and practical adaptation of whatever means happen to be at hand when assistance is needed. In my lectures and demonstrations to soldiers of the national guard, I have endeavored to impress on them the real duties and responsibility of the first-aid man: how he must act quickly and think more quickly without waiting for orders, assistance or supplies, remembering that the fate of his wounded comrade lies in his hands; and that lacking, as he does, the experience of a well-trained nurse, he yet must act with judgment and caution, and along the line of surgical practice.

The lesson of the European war is that of preparedness. This has found its echo in our country, where the question of the day is that of national preparedness against war. We are, however, a people of peculiar temperament, holding our allegiance with tenacity to only two issues, our politics and our religion. I trust we as a nation will add preparedness as a third and vital issue.

First-aid preparedness means application of efficiency to the conservation of health and life; prevention of those diseases which cause a more or less rapid disintegration of a nation, and then coordination of the life-saving with the life-destroying branches of the industries of our country. This can be attained only by a campaign of education, forcing the public to realize the patent fact that efficient men and women trained in rendering first aid to the injured constitute an asset of incalculable value in time not only of war, but also of peace. Let preparedness become the watchword of the hour. As we push "safety first" to the forefront in connection with the preservation of the public health, so preparedness assumes its rightful position in caring for public weal. Conservation of human life and human energy is by far the most important question before the American people today, and to teach them along this line is a step in the right direction.

Walter S. Rountree, M.D., Birmingham, Ala.
Consulting Surgeon, U. S. Bureau of Mines.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

UNNA'S PASTE IN TREATMENT OF VARICOSE ULCERS

To the Editor:—Please give the treatment for varicose ulcer according to the method of A. J. Ochsner.

M. H. Smith, M.D., Rock Island, Ill.

Answer.—According to Ochsner, in the treatment of varicose ulcers of a mild form, Unna's paste frequently will cause the ulcers to heal or will restore the veins so that they will again act normally, provided the patient does not stand too much in his work. The paste is made by dissolving four parts of the best sheet gelatin in ten parts of water heated over a water bath, the mixture being constantly stirred; while hot, ten parts of glycerin and then four parts of zinc oxid powder are added.

By means of an ordinary paint brush, this paste is applied to the leg as thickly as possible and as hot as the patient can stand it without irritation. Then a 2 inch thin gauze roller bandage is applied over this carefully so as to make no wrinkles and without tension. The outer surface of this bandage is again painted in the same manner, and a further roller bandage is applied. This process is repeated until about four thicknesses of paste and bandages have been applied, when a final bandage is applied without the addition of any further paste in order that the outer surface of the boot which is formed in this way may not stick to the bedclothes.

During the application of this boot, the foot should be held at a little less than a right angle to the leg. The patient is permitted to walk and go to work. The boot usually remains in good condition from six to eight weeks, when a new one is reapplied. This usually has to be repeated from three to six times.

This treatment is also used for several months after the excision of large varicose veins for the cure of large varicose ulcers. In these cases the ulcer is covered with Thiersch skin grafts, which are allowed to become thoroughly firm before the Unna's paste boot is applied.

BLOOD TRANSFUSION

To the Editor:—1. By whom, where and when was the first authentic blood transfusion performed?

2. Who was the first to use the syringe method of transfusion, and when?

3. Who first used citrated blood in transfusions, and when?

4. Please give a bibliography of transfusion articles, especially the indirect methods.

Kindly omit name and address. M. Y. D.

Answer.—1. It is impossible to say definitely when the first blood transfusion was performed. According to J. L. Joughin (The Journal, Feb. 14, 1914, p. 553), who refers to Villari's "Life of Savanarola," the first transfusion of which we have record occurred in an attempt to prolong the life of Pope Innocent VIII. This attempt was made in April, 1492. Three times it was attempted to pass the blood of the pope into the veins of a youth whose blood was retransfused into those of the old man. The experiment cost the lives of three boys and was not successful in saving the life of the pope. Previous to this, vague references to such operation had been made from time to time, at least so far back as the Augustan era. In June, 1667, Jean Baptiste Denys, physician to Louis XIV, is reported to have transfused the blood of a calf or lamb into the veins of a young man dying from repeated venesection. The patient survived, and apparently recovered his health. It is also reported that Francesco Folli, born in 1624, demonstrated the operation of transfusion of blood before the grand duke of Tuscany. In November, 1666, according to the diary of Samuel Pepys, blood transfusion from one dog to another was performed.

2. Probably the first indirect method of blood transfusion used was to defibrinate blood and then reinject. This method was given up because of the possibility of infection and changes in the blood resulting from such treatment. In 1911, Curtis and David announced a combined syringe-cannula method. In 1913, Lindeman described a method of transfusion by the use of several record syringes and special cannulas. This method has been variously modified and improved. Consultation of the references given below shows the steps in this improvement.

3. The first use of citrate in blood transfusion was probably that published by Hustin. This method was further developed by Weil, who suggested the use of 1 per cent. citrated blood, and by Lewisohn and Agote who have shown that 0.2 or 0.25 per cent., respectively, are the safest dosages. References are given below.

4. The following references may be consulted:

Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, *Am. Jour. Dis. Child.*, July, 1913, p. 28.
Curtis, A. H., and David, V. C.: Transfusion of Blood by a New Method, The Journal, Jan. 7, 1911, p. 35.
Unger, L. J.: A New Method of Syringe Transfusion, The Journal, Feb. 13, 1915, p. 582.
Abelmann, H. W.: New Method and Apparatus for Transfusion of Blood, The Journal, April 17, 1915, p. 1315.
Hustin: Principe d'une nouvelle méthode de transfusion muqueuse, *Jour. méd. de Bruxelles*, 1914, xii, 436.
Weil, Richard: Sodium Citrate in the Transfusion of Blood, The Journal, Jan. 30, 1915, p. 425.
Lewisohn: *Med. Rec.*, New York, 1915, lxxxvii, 141.
Agote, Luis: Nuevo procedimiento para la transfusión del sangre, *An. d. Inst. mod. de clin. méd.*, January, 1915.

For a general review of the subject, the following references may be consulted:

Transfusion of Blood, editorial, The Journal, Oct. 16, 1915, p. 1368.
Hemorrhagic Conditions, Therapeutics, The Journal, June 17, 1916, p. 1923; June 24, 1916, p. 2068.
Satterlee, H. S., and Hooker, R. S.: Transfusion of Blood, with Special Reference to the Use of Anticoagulants, The Journal, Feb. 26, 1916, p. 618.

LOTION FOR THE FACE

To the Editor:—1. Please suggest an efficient prescription to whiten and soften the skin of the face and yet not cause superfluous hair. 2. Also an application to be used on a very sensitive skin after shaving.
A. P. M.

Answer.—1. A good preparation to soften the skin and to whiten it is a bland ointment. One of the best ointments of this sort is the official cold cream. There is no better cold cream than the official cold cream if it is well made. It seems doubtful that cold cream, petrolatum or any other grease will cause a growth of hair, although many persons who have a superfluous growth of hair believe that this is true. If superfluous growth of hair occurs, they are determined to lay the blame for it on something. Sometimes it is laid to the use of hot compresses on the face or of a hot water bag for toothache, or of some irritating application that a physician has prescribed, but the commonest thing to invoke is some perfectly innocent cold cream or petrolatum. There are some skins, which are already too greasy, to which an application of cold cream is not desirable. A good substitute for cold cream is a tragacanth lotion such as the one for which prescription is given below. It cleans the skin well, it does not leave it greasy as a cold cream does, and it is a good toilet application.

	gm. or c.c.	
Tragacanth	4	ʒ i
Glycerin	30	℥ ii
Boric acid	11	ʒ iii
Oil of bergamot	|66	gtt. x
Water	q.s.ad 500	O i

Liquefy by slow boiling with constant stirring.

2. The same prescription as is given above may be used as a shaving lotion on a sensitive skin.

EXEMPTIONS UNDER THE HARRISON LAW

To the Editor:—Under the law and the present construction of the law, if a physician dispenses his own remedies is he violating the law when he puts 1 grain of morphin in a 4 ounce cough mixture and fails to make a record of the same?
J. S. W.

Answer.—The Harrison law provides "that the provisions of this act shall not be construed to apply to the . . . dispensing . . . of preparations and remedies which do not contain more than . . . one fourth of a grain of morphine . . . in one fluid ounce, etc."

The preparation described would seem to come within the letter of the law, provided it is dispensed as a medicine and not for the purpose of evading the law. But Treasury Decision 2172 provides that exemptions apply only to United States Pharmacopeia standard preparations or to remedies prepared under private formula such as are usually carried in stock by druggists and dispensed without prescriptions (in other words, "patent medicines"). A mixture prepared and dispensed by a physician would probably not be regarded as coming under either one of these heads. Under Section 6 of the Harrison law and Treasury Decision 2172, each physician must keep a record of all narcotic drugs dispensed. A failure to keep such a record would constitute a violation of the law.

The Harrison law was enacted to provide a complete record of all transactions involving opium or cocain or any of their derivatives. The object of such a record is to make possible the enforcement of state laws. The best thing for all physicians to do, when in doubt, is to make a record. Then no criticism can arise. Perhaps our correspondent might be within the letter of the law in dispensing such a mixture as he describes, without any record of such transaction, but there is no reason why he should not make a record of it; and if he does, then his acts cannot be subject to criticism.

TRANSMISSION OF SYPHILIS

To the Editor:—1. Is it possible for a child to be born syphilitic without the Wassermann reaction being positive in the mother for any period after? 2. Are there any such cases on record? If so, where can I find an account of them? 3. Is it possible for the mother to have no manifestations of syphilis until the baby is put to breast, and then develop them?
C. B. Bromberg, M.D., Chicago.

Answer.—1. It is possible for a child to be born syphilitic without a positive Wassermann reaction appearing in the mother at that time or at any time thereafter. In such a case the mother is always syphilitic, but the Wassermann reaction is negative in about 20 per cent. of cases of syphilis, and syphilitic mothers can, like other syphilitic patients, show negative Wassermann reactions.

2. Such cases will be found reported in most textbooks taking up this subject. For example, in Marchildon's book, "The Wassermann Reaction," Boas is quoted on the relation of the Wassermann reaction in the mother and child, and a positive reaction in the child with a negative reaction in the mother is given among the possible combinations.

3. A mother, previously free from manifestations of syphilis, might show them at the time the baby is put to breast, provided she had become infected during her pregnancy. It should also be remembered that the mother might have shown evidence of syphilis previously, and the lesions have passed unrecognized, or they might have been so insignificant that the condition was not recognized.

GLANDULAR THERAPY AS GALACTAGOGUE

To the Editor:—Please refer me to literature relating to the effect of glandular therapy on the secretion of the breast, either experimental or clinical.
Allan R. Cunningham, M.D., Boston.

Answer.—Lane-Clayton and Starling, and others, have shown that an extract of the fetus or placenta will produce hyperplasia of the nonlactating mammary gland, but has no effect on secretion of milk. Mackenzie claims that the mammary gland contains a true galactagogue or milk-producing hormone. This would be of great clinical importance, if true, but Gavin's results contradict Mackenzie's. Gaine's work also renders it probable that Mackenzie was in error. At present there appears to be no rational or useful organotherapy of the mammary gland.

The following original references may be consulted:

Gaines: *Am. Jour. Physiol.*, 1915, xxxviii, 285.
Gavin: *Quart. Jour. Exper. Physiol.*, 1913, vi, 13.
Lane-Clayton and Starling: *Proc. Roy. Soc.*, 1906, p. 517.
Mackenzie: *Quart. Jour. Physiol.*, 1911, iv, 22.
The Functions of the Corpus Luteum, editorial, The Journal, July 4, 1914, p. 32.
Corpus Luteum and Mammary Gland, Current Comment, The Journal, Aug. 30, 1913, p. 689.

REMOVAL OF BLOOD STAINS

To the Editor:—What will remove blood stains from cotton cloth (mattress)?
J. H. Lindsey, M.D., and W. A. Pickens, M.D., Bentonville, Ark.

Answer.—According to the *Druggists Circular* (January, 1913, p. 13), blood stains may be removed by treatment with a concentrated solution of chloral hydrate (from 70 to 80 per cent.). Not only recent blood stains on lint, cotton or other tissues and subtrates, but even blood stains existing for from ten to twenty and more years, first moistened with a drop of acetic acid and then soaked for one or several hours in the above-mentioned chloral solution, are said to be so thoroughly extracted that scarcely a shade of the original deep-brown-red color will remain.

Blood stains on white material may also be removed by treatment with hydrogen peroxid solution. It may take some hours to act if the stain is old.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka;

KENTUCKY: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MARYLAND: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MISSOURI: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

OHIO: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.

VIRGINIA: Richmond, Dec. 12-15. Sec., Dr. J. N. Barney, Fredericksburg.

Bogus Diplomas Being Issued?

A diploma of the Dallas Medical College, dated April 1, 1904, and issued to one "Bishen Singh Mutto," was found in the possession of a man named Warrick in Shreveport, La., by Dr. Oscar Dowling, health officer of Louisiana. On Warrick's desk was seen a business card giving the following information: "Bishen Singh Mutto, Pinjah, India, General Commercial Agent, 329 South San Joaquin, Stockton, California." The card indicated also that Mutto was a job contractor for several different lines of work. The diploma was evidently fraudulent. A photographic reproduction of it shows eighteen names signed to it, all of which were apparently written by one individual, although crude attempts had been made to disguise the writing. The diploma was doubtless from the old plate of the Dallas Medical College in 1904, the year it became extinct. Mutto's name is not found on the lists obtained of those who graduated from this college in 1904, or any other year. Licensing boards are advised to be on the lookout for these bogus diplomas.

Alabama July Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Health, reports the written examination held at Montgomery, July 10-13, 1916. The total number of subjects examined in was 10; total number of question asked, 100; percentage required to pass, 75. The total number of candidates examined was 63, of whom 46 passed and 17 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1913)	79.6
University of Alabama	(1915) 77.2, 85.9; (1916) 77.1, 79.8, 81.4, 81.9, 81.9, 82.1, 82.6, 83.6, 83.7, 83, 86.2, 87, 87, 89.1	
Atlanta Medical College	(1916) 76.5, 78.1, 78.9, 78.9, 80.4, 83.1, 83.1	
University of Georgia	(1912)	75.5
University of Louisville	(1916)	79.5
Tulane Univ. of Louisiana	(1915) 80.9; (1916) 81.5, 83.3, 84.6, 87.4, 88.3	
University of Oklahoma	(1912)	81.9
Jefferson Medical College	(1912)	85.9
Meharry Medical College	(1915) 80.2; (1916) 75, 78.3	
University of Tennessee	(1916) 75, 75.6, 76.9, 81.7	
Vanderbilt Univ.	(1914) 76.3; (1915) 81.4; (1916) 76.8, 81.9, 86	
FAILED		
Birmingham Medical College	(1915) 48.7, 59.7	
University of Alabama	(1916)	67.3
Atlanta Medical College	(1916) 71.1, 71.5, 72.6	
Bennett Medical College	(1915)	66.9
Mississippi Medical College	(1910)	70.2
St. Louis University	(1913)	73.5
Meharry Medical College	(1910) 47.4; (1912) 61.2; 1916) 53.1, 67.8	
Memphis Hospital Medical College	(1912)	61.4
University of Tennessee	(1916) 70.9, 74	
Vanderbilt University	(1915)	68.3

District of Columbia July Report

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 11-13, 1916. The total number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, of whom 10 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1915)	84.1
George Washington University	(1907), 77.9; (1908) 84.3; (1915) 75.9; (1916) 76.5, 77.1, 77.5, 80.6, 83.1; 85.1.	
FAILED		
University of Maryland	(1915)	70.4
Meharry Medical College	(1913) 62.9; (1916)	63.7

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1908)	Maryland
George Washington University	(1912)	Maine
Baltimore University	(1896)	Maryland
Syrian Protestant College, Beirut	(1872)	Virginia

Maine July Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration in Medicine, reports the practical and written examination held at Portland, July 6-7, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 16, of whom 14 passed and 2 failed. Six candidates were licensed through reciprocity.. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Bowdoin Medical School	(1916)	9
University of Maryland	(1916)	1
Harvard University	(1916)	1
Tufts College Medical School	(1916)	1
Dartmouth Medical School	(1910)	1
New York Homeo. Med. Coll. and Flower Hosp.	(1916)	1
FAILED		
Bowdoin Medical School	(1916)	1
Baltimore Medical College	(1896)	1

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Johns Hopkins University	(1901)	Dist. Colum.
University of the South	(1901)	Vermont
University of Vermont	(1890) (1891) (1915)	Vermont
University of Virginia	(1911)	New Jersey

Massachusetts July Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 11-13, 1916. The total number of subjects examined in was 14; total number of questions asked, 75; percentage required to pass, 75. The total number of candidates examined was 123, of whom 87 passed, including 11 osteopaths, and 36 failed, including 17 osteopaths. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1915)	77.2
Chicago College of Medicine and Surgery	(1912) 78; (1916)	84.7
Baltimore Medical College	(1913)	75
Johns Hopkins University	(1916) 76.2, 79.5, 81.5	
Maryland Medical College	(1913)	75
University of Maryland	(1916)	82.4
Boston University	(1914) 78.9; (1916) 75, 76.6, 76.6, 78.2, 80.1	
College of Physicians and Surgeons, Boston	(1916) 75, 75.7 77.2	
Harvard University	(1912) 75.2; (1914) 81.5, 82.8, 83.5; (1915) 75; (1916) 75.3, 76.5, 77.2, 79.4, 80, 80, 80.1, 80.4, 81, 82, 83.7, 86.5	
Tufts College Medical School	(1915) 76.9; (1916) 75, 75, 75.2, 75.5, 76.2, 76.5, 76.9, 76.9, 77.3, 77.5, 77.5, 77.6, 77.6, 77.7, 77.7, 78.5, 78.7, 78.7, 78.8, 78.9, 79.2, 79.4, 79.5, 80, 80.2, 80.5, 81, 81.2, 81.3, 82, 82.4, 82.5, 83.6.	
Columbia University, College of Phys. and Surgs.	(1915)	81.6
Jefferson Medical College	(1916)	79.8
University of Pennsylvania	(1916)	80.8
University of Texas	(1915)	78.4
University of Vermont	(1916)	77.4
Montreal School of Medicine and Surgery	(1913)	76
University of St. Joseph, Beirut	(1894)	75
FAILED		
Georgetown University	(1913)	71.7
Chicago College of Medicine and Surgery	(1916)	65
Baltimore Medical College	(1909)	72.4
Maryland College of Eclectic Medicine and Surgery*	(1914)	72.8
Maryland Medical College	(1912)	58.3
University of Maryland	(1916)	73.3
Boston University	(1915)	67.3
Coll. of Phys. and Surgs., Boston	(1916) 58.7, 63.5, 67.3, 72.2, 73.1, 73.4	
Tufts College Medical School	(1915) 70.5, 72.5; (1916) 71.2, 73.8	
Albany Medical College	(1915)	72.1
University of Geneva	(1913)	†

* Officially reported as not recognized by the Maryland State Board of Medical Examiners.

† No grade given.

North Dakota July Report

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, July 4-7, 1916. The total number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 10, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1915)	80
Rush Medical College	(1914) 78.6; (1915) 85; (1916	80
Medical College of Indiana	(1902)	75.1
Tulane University of Louisiana	(1916)	78.7
Maryland Medical College	(1912)	75
Harvard University	(1916)	81
Marquette University	(1912)	75
Eclectic Medical College	(1894)	*

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1913)	Illinois
Coll. of Phys. and Surgs., Chicago	(1909)	Illinois
Indiana University	(1908)	Indiana
University of Michigan Medical School	(1907)	Minnesota
University of Minnesota	(1912) (1913)	Minnesota
Washington University	(1913)	Missouri

* No grade given.

Vermont July Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral, practical and written examination held at Burlington, July 11-13, 1916. The total number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 14, all of whom passed. Two candidates were granted reregistration licenses. Four candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Tufts College Medical School	(1916)	83.1
University of Vermont	(1913) 89.1; (1915) 81.1, 85.1, 88.7, 89.1; (1916) 82.5, 83.1, 84.8, 85.6, 85.7, 86.8, 88.1	
Montreal School of Medicine and Surgery	(1912)	82.4

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Harvard University	(1904)	New Hamp.
Dartmouth Medical School	(1914)	New Hamp.
Albany Medical College	(1898)	New Hamp.
University of Pennsylvania	(1898)	Penna.

Book Notices

The Control of Hunger in Health and Disease. By Anton Julius Carlson. Cloth. Price, $2. Pp. 319, with illustrations. Chicago: The University of Chicago Press, 1916.

This book represents a summary of the work on the stomach, with special reference to hunger and appetite, carried out in Professor Carlson's department at the University of Chicago during the last four years. The book discusses hunger in its protean aspects. The first two chapters concern the biologic significance of hunger and a historical review of the subject. Carlson then describes the mechanism of the study, and finally analyzes hunger in its relation to health and disease. Of course, it is hardly possible to discuss hunger without at the same time considering its corollary—appetite. The "hunger urge," as Carlson points out, is "even more fundamental and primitive than the sexual urge," for feeding is necessary to all forms of life, while sexual reproduction is not.

The work was carried out in man and animals by three different procedures: direct inspection by means of a permanent opening into the stomach through the abdominal wall, the introduction of a rubber balloon into the stomach, and the introduction into the stomach of a balloon coated with bismuth permitting Roentgen ray and fluoroscopic study. Dr. Carlson was, fortunately, in possession, during the last four years, of a "second Alexis St. Martin," and many of the direct studies were made with the aid of this interesting assistant.

As practically all of the work has previously appeared in medical, and particularly in physiologic, publications, it is unnecessary to repeat the findings. It is sufficient to say that they have a direct application not only to the physiologic or normal conditions, but to disease as well. Carlson found that smoking inhibits the gastric hunger contractions; he found that belt constriction appeared to diminish or interfere with the hunger sensation, and that muscular activity may augment the gastric hunger activity, etc. Further, when the appetite fails it has been the custom to give the so-called bitters in the hope of stimulating the appetite. It was found that "in therapeutic quantities the bitters, acting in the stomach alone, have no effect on the gastric tonus or the gastric hunger contractions or on the parallel sensation of hunger. In greater than therapeutic doses the bitters inhibit the hunger contractions and abolish the hunger sensation, probably by stimulation of nerve-endings in the gastric mucosa. Acting in the mouth alone, the bitters, even in traces, inhibit the hunger contractions and abolish the hunger sensations in direct proportion to the intensity and duration of the stimulation in the mouth, and there is no after-effect in the way of augmentation of hunger contractions and hunger sensations."

It can be seen that this work is of the greatest significance as the beginning steps in a scientific study of normal and pathologic gastric processes. The book is accompanied by a bibliography of the important work on hunger to the date of its publication, and by a good index.

The Mother and Her Child. By William S. Sadler, M.D., Professor of Therapeutics, Post-Graduate Medical School of Chicago, and Lena K. Sadler, M.D., Associate Director of the Chicago Institute of Physiologic Therapeutics. Cloth. Price, $1.50 net. Pp. 456, with illustrations. Chicago: A. C. McClurg & Co., 1916.

The Drs. Sadler, who have written prolifically for the public, present here a comprehensive book on the care of the mother and her child, in response, according to the preface, to demands made on them by patients, the public and their publishers. The book is dedicated to their own child, and is said to represent their experiences "both as parents and physicians." It is in three parts, on the mother, the baby and the child. The advice is generally sound, and answers most of the questions which inquiring mothers put to physicians and teachers. Their opinions express, in most instances, medical thought as derived from current literature. The authors do not seem to have had clearly in mind current usage as regards petrolatum, liquid petrolatum, vaseline and albolene. They counsel against the use of "patent medicines," but apparently have not greatly concerned themselves about so-called ethical proprietaries. A mouth wash recommended in the appendix contains listerine and sodium bicarbonate—certainly a peculiar combination! Listerine appears also in a lotion for eczema. One wonders if the authors are familiar with the composition of listerine; if so, why multiply its ingredients? Among the best features of the book are the unusual chapters devoted to the nervous child, growth and development, caretakers and governesses, play and recreation, and teaching truth. In these chapters common sense is presented in most readable language.

Lessons in Pharmaceutical Latin and Prescription Writing and Interpretation. By Hugh C. Muldoon, Ph.G., Instructor in Organic and Analytical Chemistry and Latin, Massachusetts College of Pharmacy. Cloth. Price, $1.25 net. Pp. 173. New York: John Wiley & Sons, 1916.

This book is designed to present, in a simple and practical manner, such rudiments of Latin as will enable the pharmacist to interpret correctly those portions of the language which he may encounter in the practice of his profession. Especial attention has been given to the writing of titles, and to prescriptions. Detailed explanation of metric prescriptions is given. An unusually large number of prescriptions is presented, many of these having been selected from the files of prominent drug stores of Boston and vicinity. The book should be useful to the physician as well as the pharmacist.

Social Medicine, Medical Economics and Miscellany

SPIROCHAETA PALLIDA OR TREPONEMA PALLIDUM?

WILLIAM ALLEN PUSEY, A.M., M.D.
Chicago

The commonly used name for the organism of syphilis is *Spirochaeta pallida.* There is, however, a great deal of confusion as to whether that term is correct, or whether the organism should not be called the *Treponema pallidum.* In general, the situation seems to be that nearly every one has a vague feeling that *Treponema pallidum* is correct, but, in spite of this, uses *Spirochaeta pallida.*

This confusion had its origin in the uncertainty of Schaudinn himself as to what the organism should be called. He first named it *Spirochaeta pallida,* then *Spironema pallidum,* and then invented for it the new name *Treponema pallidum.* In inventing this new name, his point was to emphasize that the organism of syphilis had essential structural differences from the spirochetes, of which *Spirochaeta plicatilis* is the type species. Authorities are not yet agreed on this point, and, because of Schaudinn's lamented death soon after the discovery of his organism, we cannot know whether or not Schaudinn would have persisted in his belief in the essential peculiarities of his organism. It is certainly true that the organism of syphilis so closely resembles other organisms for which the name Spirochaeta alone is used that usage has found it extremely difficult to preserve for the organism of syphilis another name than that of the *Spirochaeta pallida.*

Authoritative usage determines proper linguistic forms. It will ultimately determine the proper name for the organism of syphilis, if it has not already done so. It is of interest, therefore, to see what usage is accepting as the name for Schaudinn's organism. General usage is overwhelmingly in favor of *Spirochaeta pallida. Treponema pallidum* is used with such relative infrequence that most persons who read much of syphilology involuntarily notice its use as peculiar. But common usage is very different from authoritative usage, and it is interesting to see what good usage is on this point.

The first writers who naturally suggest themselves for this examination are Metchnikoff, Hoffmann, Neisser and Ehrlich. All these use *Spirochaeta pallida.* Metchnikoff's observations on this particular point are so pertinent that they may be quoted:

> We may well conclude this chapter by adding a few words as to the actual name given to the organism of syphilis. Schaudinn, after having first given it the name of *Spirochaeta pallida,* joined later on with Vuillemin in renaming it *Spironema pallidum;* however, after he had found that the name of Spironema had already been made use of to describe another kind of micro-organism, Schaudinn invented a new name, *Treponema pallidum.* At the same time, however, Hoffmann—whose collaboration with Schaudinn had been already of such great value in the progress of our knowledge of this organism — abandoned this name, and used that of *Spirochaeta pallida* or *Spirochaete pallidum.* I shall follow the example of this German syphilographer, as I consider that the time is still premature to make any classification of spirillar micro-organisms.

As Metchnikoff says, Hoffmann used *Spirochaeta pallida* and has continued to do so.

Neisser, who is the foremost living authority on experimental and clinical syphilis, in his "Beiträge zur Pathologie und Therapie der Syphilis," 1911, uses *Spirochaeta pallida.*

Ehrlich and Hata in their "Experimental Chemotherapy of Spirilloses," use *Spirochaeta pallida.* Treponema does not even occur in the index.

Uhlenhuth and Mulzer, in their "Atlas der Experimental Kaninchen Syphilis," 1913, the authoritative book on experimental syphilis, use *Spirochaeta pallida.*

Noguchi in general has used *Spirochaeta pallida,* although he has shown some of the common confusion and made an effort to use the other term at times.

Wechselmann, in his "Treatment of Syphilis with Salvarsan," uses *Spirochaeta pallida.* Treponema does not occur in the index.

Mracek's representative German "Handbuch der Hautkrankheiten," 1909, uses *Spirochaeta pallida.*

Riecke's "Lehrbuch der Haut und Geschlechts-Krankheiten," 1912, uses *Spirochaeta pallida.* Treponema does not occur in the index.

In the *Transactions of the Eleventh Dermatological Congress,* Vienna, September, 1913, there are five articles under the title *Spirochaeta pallida.* Treponema does not even appear in the index.

Andrewes, in his article on the pathology of syphilis in the monumental British "System of Syphilis," uses *Spirochaeta pallida,* as does Metchnikoff in his article on the "Microbiology of Syphilis," in the same work.

McIntosh and Fildes, in their book, "Syphilis from the Modern Standpoint," and Browning and McKenzie, in their "Recent Methods in the Diagnosis and Treatment of Syphilis," two of the most modern books on the subject, both use *Spirochaetá pallida.*

Adami and Nichols, in their "Pathology," which is, perhaps, the most authoritative recent English work on that subject, use *Spirochaeta pallida.*

Osler and Churchman, in their article on syphilis in "Osler's Modern Medicine," use *Spirochaeta pallida. Treponema pallidum* is mentioned only as the synonym of *Spirochaeta pallida.*

The only authority examined who uses Treponema was Darier. In his "Precis de Dermatologie," 1909, he uses Treponema exclusively, both in text and in index; and he is consistent in it, using not only the Latin form, but, when he uses the modernized form, using treponemes.

I have examined the representative journals of syphilis in various countries with the following results:

The *Archiv für Dermatologie und Syphilis* uses *Spirochaeta pallida.* In the index everything is placed under Spirochaeta. Treponema is given only to refer to Spirochaeta. This is the oldest and most authoritative journal on syphilis, not only of German speaking countries, but also of the world.

Hoffmann's journal, the *Dermatologische Zeitschrift,* uses *Spirochaeta pallida,* as Hoffmann himself has always done.

Unna's journal, the *Dermatologische Wochenschrift,* uses *Spirochaeta pallida.* The index contains no reference to Treponema.

In the *Berliner klinische Wochenschrift,* 1914, *Spirochaeta pallida* is used exclusively. Treponema is not in the index. The same is true of the *Deutsche medizinische Wochenschrift* for 1913.

The *British Journal of Dermatology* uses *Spirochaeta pallida,* and does not even mention Treponema in the index.

The *Journal of Cutaneous Diseases* uses *Spirochaeta pallida.* Treponema is given in the index only to refer to Spirochaeta.

In the French journals, *Spirochaeta pallida* is not used so exclusively as in the German. The two names are used—with, however, a very distinct preponderance in favor of *Spirochaeta pallida.*

In the *Annales de dermatologie et de syphiligraphie,* 1913, under "Bacteriology of Syphilis," both *Spirochaeta pallida* and *Treponema pallidum* are used. It is of interest to enumerate the usage of the different writers, because all are men in international reputation in syphilology. The following use *Spirochata pallida* in the titles: Dohi and Hidaka, Noguchi, Nakano, Schereschewski, Tomaczewski, Sowade and Vorpahl. The following use *Treponema pallidum:* Levy-Bing, Fontana, Lannoy and Levaditi.

In the *Presse médicale,* 1913, *Spirochaeta pallida* is used under six titles, and *Treponema pallidum* under two.

In the *Annales des maladies vénériennes,* 1912, *Treponema pallidum* is used in one title, and *Spirochaeta pallida* in six.

The *Gazette des hôpitaux,* 1913, is the only journal examined in whose index *Treponema pallidum* is used exclusively. Spirochaeta is used only for *Spirochaeta gallinarum.*

Of course, the list is not exhaustive, but the books and journals examined were chosen because of their authoritative character, and in them are presented the usage of the greatest and most authoritative names in modern syphilology. It is peculiarly significant that in German literature, in which, because of pride in the achievements of Schaudinn and Hoffmann, the name *Treponema pallidum* would be expected to be preserved, if anywhere, the name *Spirochaeta pallida* is almost universally used. It is only in French literature that this examination showed any use of *Treponema pallidum,* and here the preponderance was in favor of *Spirochaeta pallida.*

The name *Treponema pallidum* seems to linger in the literature of syphilis only where it is maintained through loyalty to the memory of Schaudinn, or occasionally where there is an excessive effort at purism. As a matter of fact, the grounds for inventing the new name, Treponema, and erecting a new species of Treponemata are not yet established, and are evidently not sufficiently conclusive to induce authorities the world over to forego the manifest advantages of the name *Spirochaeta pallida* in favor of *Treponema pallidum.* Even if it were established beyond further question that the organism of syphilis is not strictly a spirochete, it is still true that the name *Spirochaeta pallida* has become established through authoritative and almost universal usage. And such usage is what makes language.

It would be desirable to have every name scientifically accurate, but objects are discovered and must be given names before their exact scientific position can be known. It thus results that in every department of knowledge there are many names which represent inconsistencies; sometimes glaring inconsistencies. These names, however, become so fixed in usage that to change them is impossible. To attempt to do away with them leads to confusion, and usually gets nowhere toward making the desired change. Even if *Spirochaeta pallida* were not an exactly correct name for the organism of syphilis—which is by no means proved—it would still be true that the argument would be strong in favor of the use of the name. Men the world over know the name *Spirochaeta pallida* for the organism of syphilis. The intelligent public knows this name for the organism. On the other hand, I venture that not one in ten of the medical profession throughout the world knows the other name for the organism, or if he knows it, is uncertain whether it is Treponema or Treponoma. The practical grounds for advocating the use of *Spirochaeta pallida* are, therefore, very strong. They are particularly strong when it is remembered that the reasons for the use of Treponema rest only on biologic contentions which are not conclusive.

Professor Novy of Ann Arbor, Mich., in a personal communication to me on this subject, summarizes the situation very well in the following sentence:

> The term Spirochaeta has come into such general use that it hardly seems worth while to make a change unless the difference is absolutely conclusive.

If the best usage means anything, *Spirochaeta pallida* is an acceptable term for the organism of syphilis, and its almost universal use shows beyond question that the name has come to stay. It is impossible in the face of such a situation to hope to change usage to the term *Treponema pallidum,* and in the interest of unanimity there should be general acceptance of the term *Spirochaeta pallida.*

7 West Madison Street.

Infant Diarrhea and Convulsions Due to Bacteria in Breast Milk

The great prevalence of diarrhea among small children and the frequency of deaths from convulsions and meningitis, in Pasig, Philippine Islands, are attributed by Surg. J. D. Long, United States Public Health Service (*Public Health Reports,* Oct. 27, 1916, p. 2966), to the presence of pus-producing organisms in the breast milk of the mother. After thorough disinfection of the breasts, eleven specimens of mother's milk were collected by the use of sterile breast pumps and were immediately plated, with the following results: In two cases, 120,000 bacteria per cubic centimeter were found; in one case, 70,000; in two cases, 25,000; in one case, 20,000, and in five cases, 10,000. The organisms commonly found were of the staphylococcus group; colon bacilli were occasionally present. Blood cultures invariably gave negative results, excluding bacteremia as the cause of bacteria in the breast milk. Investigations are still under way to determine the cause of the condition and to find a method for preventing it.

Medicolegal

A Contract for Services not Required to be in Writing—Proof of Account

(Johnson vs. Jones (Ind.), 112 N. E. R. 830)

The Appellate Court of Indiana, Division No. 2, says that the first paragraph of the complaint was brought on an account for services rendered by the plaintiff as a licensed physician, and the second paragraph was on an account assigned to him which also covered services as a physician rendered by the assignor, a Dr. Stookey. The defendant contended that the agreements made with the two physicians fell within the statute of frauds requiring undertakings to answer for the debts of others to be evidenced in writing, but the court does not think so, because, instead of the defendant appearing as a mere guarantor of bills contracted by her son, it appeared that she as an original promisor contracted to pay the claims both of the physician and the pathologist who rendered services requested by her for her son, when in the state of California, and that credit was given to her and not to her son. Such being the nature of the agreements, they were not void under the statute of frauds, though not in writing. The evidence fully supported the first paragraph of the complaint. There was no dispute about the services having been rendered by the plaintiff, that he charged the defendant therefor the sum of $300, that such services were worth that sum, that he was paid on his individual account the sum of $125, leaving a balance of $175. Moreover, the account sued on in the first paragraph of the complaint became liquidated when the same was presented for payment and accepted and a partial payment made, and the trial court properly allowed interest at the rate allowable in Indiana as a part of the judgment. The judgment rendered in favor of the plaintiff is affirmed as to the amount rendered on the first paragraph of the complaint, but on condition that within thirty days he enter a remittitur of the amount rendered on the second paragraph, as the court is of the opinion that there was no proof whatever to disclose the value of the services rendered by Dr. Stookey. In the absence of an express agreement, one who brings to such a service as was rendered by him due care and skill can recover the reasonable and customary price therefor, but such reasonable and customary fee must be shown by competent evidence. Proof of the price charged by the complaint, without any proof of the value of the service performed, is not sufficient, and does not meet the test. The plaintiff took the position that as each paragraph of the complaint contained a statement of the account sued on, and each paragraph was duly verified, and as the defendant did not introduce evidence to refute the averments of the complaint, that was sufficient, under Section 392 of Burns' Annotated Statutes of 1914. The difficulty with this position was that the statute referred to is applicable to defaulted cases, while in this case there was an appearance and an answer in general denial filed, which cast the burden on the plaintiff who claimed the amount sued on in the second paragraph of the complaint to prove the value of the services rendered, as was done to support the first paragraph.

Failure to Take Blood Test Before Operation—Right to Compensation

(Harvey vs. Richardson (Wash.), 157 Pac. R. 674)

The Supreme Court of Washington reverses a judgment that was rendered for the defendant, as administrator, in this action by a surgeon to recover for professional services. The court says that the patient was suffering from an exophthalmic goiter, and on consulting the plaintiff was advised by him to go to Rochester, Minn., for surgical treatment. Not desiring to do so, the patient and her husband requested the plaintiff to perform the necessary operation. The patient was thereupon sent to the hospital, and in a day or two the operation was undertaken. It progressed until about half of the goiter had been removed, when the patient died. The defendant, over the plaintiff's objection, introduced evidence that no blood test was taken prior to the operation, and that such a test was usual to determine the oxygen-carrying power of the blood, which, if below a given point, renders an operation of this character extrahazardous. The ower court was of the opinion that this testimony raised a question of negligence, and submitted instructions to the jury on that theory. The supreme court thinks this was error. There was no evidence that the blood of the patient was below the required oxygen test, nor was there any attempt to show that the failure to take the blood test contributed to any extent to the death of the patient. Before a charge of negligence can be sustained against a physician or surgeon, here must be some evidence that the failure to use proper skill, either in the thing done or in the thing left undone, was the proximate cause of injury to the patient. In other words, there must be some connection between the act and he result complained of. There was none in this case. The undertaking of a physician or surgeon is not to cure his patient, nor does he insure that his treatment will be successful. Neither does the failure to perfect a cure evidence want of care or skill. It was known before the patient went on the operating table that she was in a dangerous condition, and that the operation would be extrahazardous. The plaintiff could not be deprived of the reasonable value of his services because the patient died during the operation, unless here was some evidence that death was the result of some ack of skill on his part. There was no such evidence, nor any attempt to so prove. The defendant contented himself with showing that no blood test was made, leaving the jury o infer that in some way this contributed to the patient's death. Neither was there evidence that such test had ever been made in operations of this character in that vicinity, although it appeared in the record that a number of these operations had been performed in this same hospital. Again, he defendant urged in support of the judgment in his favor a remark of the plaintiff to the patient, after he had urged her to go to Mayo Brothers and she had refused, "Well, if you are willing to take a chance with me, I will take a chance with you"—contending that by this language it was understood the patient took the chance of death, and the plaintiff ook the chance of losing the value of his services unless the operation was successful. The court sees no connection between the remark and the inference. It was next urged hat the plaintiff based his right of action on a contract to remove a goiter, and not having removed it, his right of action failed. There was no evidence of such a contract, and he plaintiff's right of action, under the evidence, could not be so limited. Because of the error in submitting the case to he jury, the judgment is reversed, and the cause remanded for a new trial.

Physicians as Witnesses to Wills and Competency of Patients

(Points et al. vs. Nier et al. (Wash.), 157 Pac. R. 44)

The Supreme Court of Washington affirms a judgment sustaining a will, although it was contended that the testimony of the witnesses to the will should have been excluded on the ground that their testimony was incompetent and privileged because they were the physicians who attended he testatrix during her last illness. These witnesses testified not only to the execution of the will by the testatrix, but also to her sanity and her mental competence to execute a will. The contestants quoted the provision of the Washington statute that "a regular physician or surgeon shall not, without the consent of his patient, be examined in a civil action as to any information acquired in attending such patient, which was necessary to enable him to prescribe or act for the patient," and cases were cited to the effect that, under such statutes as this, it is held that the privilege is personal with the patient, and that it applies in testamentary cases and cannot be waived by the heirs and personal representatives. But the court says that it does not agree with he reasoning or the holding of the cases cited. The court's opinion is that if the testatrix requested these physicians to attest her will as witnesses or knowingly assented thereto, she waived the privilege, and they were competent to testify as to the execution of the will and the competence of the maker.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Forty-Second Annual Meeting, held at Indianapolis, Oct. 10-12, 1916

The President, Dr. Willard J. Stone, Toledo, Ohio, in the Chair

Protozoic Enterocolitis in the Middle West

Dr. Frank Smithies, Chicago: Among 100 stool analyses, protozoa were observed in ninety-three instances. The geographic diversity of the patients was: Illinois, 29; Iowa, 16; Wisconsin, 13; Nebraska, 8; Michigan, 7; Minnesota, 6; Indiana, 4; South Dakota, 2; Arkansas, 2; Ohio, 2; Texas, 2; Kentucky, 1, and North California, 1. Sixty-six were large eaters of fresh garden truck, unwashed fresh raw fruits or bananas. Diarrhea was complained of in eighty-six cases. Sixty-seven per cent. of the patients had been affected from one to five years; eight patients had been ill less than one year, while a like number had been ailing for more than ten years, the longest period being forty-three years. Constipation occurred in four cases. Dyspepsia was prominent in seventy-five cases. Abdominal pain or discomfort was a complaint in eighty-nine cases. Loss of weight was noted in seventy-five cases. Loss of strength is often striking, even though the weight may have decreased comparatively little. Anemia is usually evident, although in some cases it may not be pronounced. A peculiar malaise or melancholia is frequently observed. On physical examination these patients generally appear both starved and toxic. The stools are commonly of a greenish brown or yellow color and of a purée-like consistency, intermixed with flakes of mucus and food bits. They may be blood streaked or foamy. The reaction is usually definitely alkaline. There were forty cases with gastric achylia; thirty-three cases with subnormal hydrochloric acidity, and twenty cases with normal or increased gastric hydrochloric acid. In one instance of most pronounced acute infection with cercomonads and trichomonads, the free hydrochloric acid was 86. The gastric motility was normal in eighty-three cases. In ten cases there was mild stagnation. In sixteen instances albuminuria was noted. Our study of specimens of gallbladders and appendixes removed at laparotomy indicates that in these parts of the intestine, cysts of protozoa may lurk for years. Reinfection of the bowel is thus possible.

The Secretion of the Mammary Glands; Its Relationship to Albuminuria and Eclampsia

Dr. W. E. Gary, Louisville, Ky.: In eclampsia, by inflating the glands to start secretion, emptying the uterus, eliminating by purgation, supporting the kidney elimination by proctoclysis, and controlling blood pressure with veratrum viride, the patient can be kept alive until full elimination can be secured through the glands.

Ectopic Pregnancy; Diagnosis and Treatment

Dr. Richard R. Smith, Grand Rapids, Mich.: The treatment of ectopic pregnancy is the removal of the offending tube with its contents and extravasated blood. This should be done as soon as suitable arrangements can be completed, but it is unnecessary so to hasten matters as to interfere with the operation being properly performed. If after a few hours the patient shows no improvement, I usually operate; if she does improve, I usually wait six, twelve, twenty-four or even forty-eight hours. In young women or in those who have had few children, or desire more, the tube, if patulous, should invariably be saved. In older women and those who have already borne children and feel that they are through with childbearing, it is wiser to remove it. Usually the less we do in the abdomen of a woman with an ectopic pregnancy the better. The removal of most of the unattached blood clots is necessary, but the removal of partially organized and adherent blood should not be attempted. No drainage should be instituted unless, as rarely happens, we are dealing with a case of infection. The closing and suturing of the abdominal wall should be well done, since postoperative distention is perhaps more common than following an ordinary laparotomy.

Is the Genealogy of the Gonococcus and Meningococcus the Same?

Dr. Charles E. Barnett, Fort Wayne, Ind.: It has been my experience to have acute gonorrhea cases react to meningococcus vaccine. The laboratory findings for both the meningococcus and gonococcus are practically the same. Meningococcus infection of the genital tract is rare, or else only the most virulent infections are recognized. The meningococcus in the genital tract simulates the gonococcus in its action, precisely, with the exception of showing a marked increase in virulence and persistence.

Surgical Management of Acute Perforation, Complicating Intra-Abdominal Infections

Dr. W. D. Haines, Cincinnati: The length of time which has elapsed since perforation took place, the surroundings, the actual findings at operation and the experience of the operator are important factors for consideration in planning the operation. Many of these patients are in such a desperate condition when they are brought to the operating room that locating and closing the perforation and providing drainage as quickly and with as little disturbance to surrounding structures as is consistent with making a water-tight joint and placing the drainage will best subserve the interests of the patient. A bad surgical risk before perforation takes place is not improved by the incident of perforation. A live patient with the perforation closed and peritoneal cavity drained, although the operation is incomplete, with a badly diseased condition in the abdomen which may be removed later if occasion demands, is preferable to a dead patient after a technically perfect operation.

Blood Chemical Analyses in Reference to Diagnosis and Treatment

Dr. R. B. H. Gradwohl, St. Louis: Chronic kidney degeneration is accompanied by the accumulation of all three constituents — uric acid, urea nitrogen and creatinin. The normal finding in respect to uric acid is from 1 to 2.5 mg. per hundred c.c. of blood; of urea nitrogen, from 12 to 15 mg., and of creatinin, from 1 to 2.5 mg. An undue accumulation of all three constituents is a remarkably valuable method of estimation of true kidney function. Values for urea nitrogen in conditions of uremic nephritis have been known to reach as high as 300 mg. per hundred c.c. of blood; of uric acid as high as 15 mg., and of creatinin as much as 30 mg. These high values indicate grave uremia. The presence of over 5 mg. of creatinin in 100 c.c. of blood indicates a fatal prognosis. The combination of nephritis with diabetes mellitus too often is disregarded. If blood chemical analyses were made more often in grave diabetic states, it would be shown that in some of these so-called cases of diabetic coma the patients are really in a state of extreme uremia due to this complicating nephritis. Many patients with diabetes mellitus have died of uremia, and were considered to have diabetic coma and were treated for that condition. Another field of usefulness of these tests which is now opening up is the preoperative survey of surgical cases, the estimation of operation risks, and the manner in which kidneys are functionating after operative interference. This should prove of great help to the operating surgeon.

Operative Treatment of Tuberculous Spine

Dr. Henry B. Thomas, Chicago: The Hibbs technic copies Nature in her preparation for the fixation of the vertebrae. It requires operation only in the posterior region of the spine itself, making unnecessary the removal of bone from the leg. It immediately reduces the kyphotic deformity by the length of the spinous process, usually from one-half to 1 inch. Ankylosing the articular processes greatly aids in the fixation. The most important suggestion regarding the after-treatment concerns the mechanical fixation after the patient is kept in bed for six weeks; either a cast or a brace is worn for from six to ten months, with constant observations of the position and progress.

DISCUSSION

Dr. John Ridlon, Chicago: In these operations of Hibbs and Albee for the treatment of tuberculosis of the spine, I still use braces. Not all these cases are perfect restorations, despite Albee. Some of the patients die as the result of the operation; some of the grafts come out; some of the grafts break, and a great many of them are put into spines already ankylosed through the course of time. In selected cases these operations have a place, and the Hibbs operation is a little more appealing to one's judgment of what is right than the Albee. I have seen many of these operations, I have assisted in some, I have done none myself, and I never shall.

Dr. W. B. Owen, Louisville, Ky.: We make a great mistake in using the word "cured" in these cases. The first reports were really almost too good to be true. I think they have proved not to be true; that is, the results have not lasted. The Hibbs operation seems to be very simple, and in some respects a more feasible procedure, although there would be one objection, and that was first claimed as a point in its favor—the flexibility of the spine. If we allow motion in the spine, the cure is not so apt to take place.

Tumors of the Breast

Dr. J. Garland Sherrill, Louisville, Ky.: The public should be brought to understand the value of early and radical removal of all suspicious tumors of the breast. The physician should make a most careful examination of such cases, and if in doubt he should ask for consultation. Radical removal of the breast with the axillary contents is the best method of treatment, followed or preceded by the employment of the Roentgen ray. Pathologic examination should be made at the time of operation, if the diagnosis is doubtful. Radical removal should be done if the case is certainly malignant, without preliminary examination. This procedure should be urged with all possible force. Even in cases too far advanced for a cure, much can be added to the patient's comfort by the employment of radical operation as a palliative measure.

Tumors of the Kidney, Associated with Stone

Drs. H. H. Martin and H. O. Mertz, LaPorte, Ind.: Epithelial tumors of the kidney are most frequently associated with renal calculi. Cystic tumors, associated with renal stone, are next in frequency. The coexistence of renal calculi and mesotheliomatous and sarcomatous tumors is rare. The stone in the majority of cases, 56 per cent. in epithelial tumors of the parenchyma and 62 per cent. in epithelial tumors of the pelvis and ureter, is the primary lesion. In cystic tumors of the kidney, in the true polycystic degeneration, the calculus is invariably secondary; while in the case of a large cyst it not infrequently is one of the etiologic factors. In mesotheliomatous tumors the stone is always secondary, while of the sarcomatous neoplasms we have collected two cases with an uncertain relationship existing, while in a third case the stone was secondary. The coexistence of stone and neoplasm in the kidney of a child is extremely rare. We have found no such association.

High Frequency Electricity in Treatment of Uterine Fibroids when Operation is Refused, and in Prostatic Enlargements

Dr. Nathan Rosewater, Cleveland: High frequency currents applied through glass vacuum electrodes on the mucosa of the vagina and rectum are not painful, irritating or seemingly harmful in moderate doses over long periods of time. They do not cause sterility, but on the contrary several cases of pregnancy occurred after treatment in married women who had been sterile over periods of from eight to eleven years. In cases of acute specific prostatitis, immediate cessation of painful symptoms and rapid cure without recurrence occurs. In cases of enlarged prostate of the senile, without inflammatory conditions, a slower but equally positive improvement was observed. In cases of even extremely large uterine fibroids, an extra prolonged treatment weekly, or even once a month, was followed by decided reduction in size and in restitution to normal function. It is uncertain how many treatments should be given, over what period of time they should be repeated; but most of those who stopped treatment subsequently submitted to operation; none died subsequently of malignancy. High frequency electricity applied in the rectum and vagina for tuberculous peritonitis is not incompatible with a successful recovery after laparotomy, laparotomy being reserved for those cases in which no improvement is shown without it.

Value of the Cystoscope in the Differential Diagnosis of Abdominal Lesions

Dr. Courtney W. Shropshire, Birmingham, Ala.: The best results in the differential diagnosis of abdominal lesions are obtained by the combined efforts of the surgeon, cystoscopist, roentgenologist and laboratory technician. It is impossible in a great many cases to say without the aid of the cystoscope whether an existing lesion is within the abdominal cavity or represents some pathologic condition of the urinary tract. Therefore a cystoscopic and roentgenographic examination should be made in every case which borders on uncertainty. Too much reliance should not be placed on pain or even tenderness to pressure in vague abdominal lesions. Lesions of the left kidney often produce symptoms referable to the intestinal tract. Renal colic is caused by an overdistention of the renal pelvis; and an obstruction in the lower third will often cause symptoms referable to the kidney region.

Treatment of Fractures of the Long Bones

Dr. F. P. Corrigan, Cleveland: Reduction under anesthesia should be the procedure unless strongly contraindicated by age or infirmity. Immobilization should be done, "immobilization" being used only in the sense of maintenance of reduction. Complete immobilization with splints is not possible, nor is it necessary; if reduction is maintained, slight motion between the fragments does no harm, and it is even held that it is in a sense physiologic and an important factor in stimulating osteogenesis. The principles of extension and early reduction are the ones on which I wish to lay stress. In order to facilitate the early application of extending force to the limb, I have devised an extension bandage or sleeve woven in such a fashion that when pulled on from below it becomes smaller and grips the limb. This extension bandage does away with the disagreeable and annoying features of adhesive plaster. Moreover, it is easily and quickly applied, easily removed, and can be sterilized.

Roentgen Studies in Bone Pathology, With Special Reference to Spontaneous Fractures

Dr. Leon T. Le Wald, New York: In my series of pathologic fractures, bone cyst merits most careful consideration. Without careful Roentgen examination, an ordinary fracture will be diagnosed, and inadequate treatment instituted. Sarcoma is often thought of, and either no operation or a very extensive one might be the method of treatment. In the past, without doubt, many cases of bone cysts have been dealt with too radically, even by amputation of an extremity under the supposition that one was dealing with a sarcoma. Spontaneous fracture may give the first clue to a primary or secondary new growth in bone. Roentgen examination of the part involved may immediately establish the diagnosis. Clinical examination based on the Roentgen findings may then locate a primary growth in some remote part of the body. Syphilis of the bones may not be suspected until a spontaneous fracture followed by Roentgen examination and a Wassermann test establish the diagnosis and point the way to a cure, not only of the bone condition, but also of other unsuspected syphilitic lesions of internal organs.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 12 and 13, 1916

The President, Dr. J. Warren Little, in the Chair

Histopathology of the Anatomic Nervous System in Goiters

Dr. Louis B. Wilson, Rochester: The findings in about thirty cases examined suggest that the primary lesion of exophthalmic goiter may be a bacterial infection of the cervical sympathetic ganglia.

Occurrence of Urobilinogen and Urobilin in the Urine of Pregnant and Nonpregnant Women

Dr. Elizabeth Barnard, Minneapolis: Urobilin was demonstrated in the urine of 71.9 per cent. of pregnant women, and in a small proportion of the nonpregnant. Indican was present in 48.6 per cent. of the pregnant and 54.5 per cent. of the nonpregnant urobilinuria patients. In the total number of tests, however, the proportion is less, being 26.4 per cent. in the pregnant and 46.7 per cent. in the nonpregnant. A parallelism between its occurrence and the presence of urobilin in the urine has not been established. The qualitative estimation of urobilin in the urine alone is of little or no diagnostic value.

DISCUSSION

Dr. E. L. Gardner, Minneapolis: There is no doubt that hemoglobin is one of the sources for the bile pigments, but the relative proportion between the hemoglobin and the food or other substances in the body which might possibly be a source of bile pigment has not been determined. What is the value clinically in estimating the urobilin and urobilinogen in the urine? Very little. In studying hemoglobin metabolism, we must study the pigments at the various locations in the body.

Dr. F. L. Adair, Minneapolis: The condition of the liver in the so-called toxemias of pregnancy is fully as important, if not more so, than the condition of the kidneys; hence the importance of finding a test. The presence of these pigments in such a large proportion of the pregnancy cases, and in such a small proportion of those individuals who are not pregnant is striking. This is rather difficult to explain, but it seems an unwarranted conclusion to draw that the presence of this substance in the urine necessarily indicates any serious interference with kidney function. There are many factors which enter into the production of bile, as the diet, increased metabolism in pregnancy, and the blood changes which go along with pregnancy in addition to actual disease of the liver.

Dr. J. W. George, Minneapolis: Certain women are more subject to toxemias during pregnancy than others. It would be interesting to make a series of tests on the patient before she becomes pregnant, and then during pregnancy.

Dr. L. G. Rowntree, Minneapolis: I have made a great many urobilin and urobilinogen studies from the standpoint of liver function. The variation of this substance from day to day is great, and we get it from many different conditions at different times. I do not believe that the presence of urobilin or urobilinogen can be taken as evidence of decreased liver function unless one has excluded the possibility of increased blood destruction, and that can be done only through a study of their contents in the stool. The factor of safety is so great in the liver that for practical purposes it becomes an extremely difficult proposition to get at that question of liver function in either health or disease.

Syphilis in the State of Minnesota

Dr. H. G. Irvine, Minneapolis: Syphilis is one of the greatest public health problems of the day. Laws should be drawn placing syphilis in the group of infectious and contagious diseases. Regulations and control should rest with the board of health, and a sufficient appropriation should be maintained to furnish adequate laboratory facilities and free treatment, if necessary. Beds should be furnished in all medical institutions depending on public funds for maintenance, where patients with infectious lesions might be detained until the lesions are cleared up, and where treatment should not only be furnished but also be obligatory.

A campaign of education should be carried on by the board of health and various medical societies.

DISCUSSION

Dr. H. M. Bracken, St. Paul: In dealing with syphilis, or venereal diseases, we do not have the primaries and secondaries in the sense in which we speak of other diseases, but the voluntary, the criminal and the accidental. The voluntary cases are those in which the people deliberately take their chances. The criminal cases are those which result from marriage; when people know they should not marry, they are liable to convey infection to the innocent. The percentage of the innocent is small. The percentage of the criminally infected is comparatively large, and the percentage of the voluntarily infected is the largest of the three. The legislature has delegated to the state board of health the right to make regulations to govern these things, and the board can make regulations looking to the control of venereal diseases if it is desired; but there is no use in making regulations unless we can enforce them.

Dr. L. G. Rowntree, Minneapolis: The greatest advances in dealing with the problem of syphilis are to be made through education both of the profession and of the laity. I do not believe that ordinances will control syphilis. The board of health should deal with the problem.

Dr. C. F. Dight, Minneapolis: Syphilis should be made reportable to the state board of health, and while we have no state legislation which requires it, I believe it is quite possible to have an ordinance passed by the city council requiring syphilis to be reported to the state board of health.

Dr. John C. Boehm, St. Cloud: It has been suggested that the state board of health should take a hand in controlling syphilis; that the municipality should pass an ordinance; that the state perhaps should pass laws. All of this has some bearing; but when we remember the usual way that syphilis is contracted—I speak of active syphilis, not hereditary—we find a stumbling block right there. How many would come to us and have us treat them if they knew we would report them? Just answer that for yourself. The only way to control syphilis is by education in schools and in churches. The state should appropriate a certain sum of money so that those who cannot afford to pay for the necessary medicine should have it available.

Technic of Nerve Repair in Traumatic Injuries

Dr. J. F. Corbett, Minneapolis: Anastomosis of normal nerves often gives good results, more than 40 per cent. The failures have been due to: 1. Failure to resect enough intraneural connective tissue in the proximal segment. 2. Failure to control intraneural hemorrhage. 3. Too deeply placed stitches when the sheath is sewed. 4. The use of veins or fascia in areas of preexisting scar tissue. In areas of scar tissue, investment with fatty fascia and complete neurolysis is indicated with or without transplantation to normal muscle. 5. Infection. 6. Defects of over 4 inches should not be repaired by tubulization, but should be the subjects of nerve grafting.

Preservation of the Great Omentum in Hernia and in the Resection of the Colon

Dr. Charles H. Mayo, Rochester: The omentum is an organ of extensive absorbent capacity, probably absorbing more through the blood stream than through the lymph channels. The omentum is always ready with its protective army; in time of need there is quick exudate of lymph with the formation of adhesions. Adhesions of omentum to cancer areas rarely occur unless there is secondary infection from abscess, perforation or impending perforation. Methods of preserving the omentum in colectomy: 1. Lift the omentum and separate it from its colonic attachment with a sharp knife. 2. Make a longitudinal incision through the peritoneum and muscle of the transverse colon only. The mucosa readily peels out of its muscular bed by gauze dissection, and the right colon and descending colon may be removed in toto. Right colectomy removes the greatest absorbent surface and preserves the omentum; it is equally effective in the majority of cases of surgical stasis.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

October, LXXIII, No. 2

1 What State Hospital Can Do in Mental Hygiene. W. L. Russell, White Plains, N. Y.—p. 157.
2 Art in Insane. C. B. Burr, Flint, Mich.—p. 165.
3 *Huntington's Chorea in Relation to Heredity and Eugenics. C. B. Davenport, Washington, D. C., and E. B. Muncey, Cold Spring Harbor, N. Y.—p. 195.
4 Environmental Origin of Mental Disease in Certain Families. L. V. Briggs, Boston.—p. 223.
5 *Duration of Paresis Following Treatment. W. R. Dunton, Jr., and G. F. Sargent, Towson, Md.—p. 241.
6 Treatment of Cerebrospinal Syphilis; Report of Cases. L. W. Grove, Tuscaloosa, Ala.—p. 253.
7 *Syphilis in The East Louisiana Hospital for Insane. C. S. Holbrook, Jackson, La.—p. 261.
8 Psychograph of Rossolimo. B. Parker, Chicago.—p. 273.
9 Recollections of Psychiatrist. J. M. Keniston, Middletown, Conn.—p. 295.

3. **Huntington's Chorea, Heredity and Eugenics.**—A study by Davenport and Muncey of four family complexes in eastern Long Island, southwestern Connecticut, south central Connecticut and eastern Massachusetts which show nearly 1,000 cases of Huntington's chorea, yields the remarkable result that practically all can be traced back to some half dozen persons, including three (probable) brothers who migrated to America during the seventeenth century. But already, numerous "biotypes" having specific and differential hereditary behavior, have appeared. Thus there is a biotype in which the tremors are absent, but mental deterioration present; a biotype in which the tremors are not accompanied by mental deterioration; a biotype in which the chorea does not progress; and a biotype in which the onset of the choreic movements is in early life. In general, the symptomatology of chronic chorea is dissimilar in different strains of families. The age of onset, the degree of muscular involvement, the extent of mental deterioration all show family differences and enable one to recognize various species, or biotypes, of the disease. These biotypes are less striking than they would be were it not for the extensive hybridization that is taking place between biotypes in random human matings.

Among the 3,000 odd relatives of the 962 choreics studied, many nervous traits are recorded. Thus, epilepsy is recorded 39 times, infantile convulsions 19 times, meningeal inflammations and brain fever 51 times, hydrocephaly 41 times, feeblemindedness 72 times, Sydenham's chorea 11 times, and tics 9 times, mostly in one small family. This incidence, which would seem high for an unselected population, suggests that chorea occurs in families characterized by a general liability to nervous and mental troubles. Though it can be shown that the 962 cases of chorea originated from six or seven ancestors and that the tendency has been handed down almost without a break through the generations, and that for generations there have been individuals who recognized the hereditary nature of the disease and were influenced in marriage accordingly, there is no clear evidence that persons belonging to the choreic lines voluntarily abstain to any marked degree from marriage, or are selected against in it.

5. **Duration of Paresis Following Treatment.**—Dunton and Sargent claim that the duration of paresis following treatment by the Swift-Ellis method is about half that of cases treated by the older methods.

7. **Syphilis in Insane.**—Holbrook urges that the serologic laboratory should be an important department of every hospital for the insane, and a routine Wassermann should be made of every patient received. The spinal fluid should be studied in all suspicious cases. Treatment should be given the syphilitic patients and the intraspinal administration of salvarsan and mercury should be employed in cases of syphilis of the brain and spinal cord. General surveys should be made of hospitals, orphanages, penitentiaries and wherever large groups of persons are collected. The Tschernogubow reaction should be more extensively used for it is a very valuable modification of the original Wassermann technic.

American Journal of Physiology, Baltimore

November, XLI, No. 5

10 Studies on Growth of Man. Growth of British Infants During First Year Succeeding Birth. T. B. Robertson, San Francisco.—p. 535.
11 Id. Variability of Weight and Stature of Schoolchildren and Its Relationship to Their Physical Welfare. T. B. Robertson, San Francisco.—p. 547.
12 Physiology of Stomach. Hunger Mechanism of Pigeon and Its Relation to Central Nervous System. F. T. Rogers, Chicago.—p. 555.
13 Some Unusual Experimental Lesions of Cerebellum and Medulla Oblongata. J. G. Wilson and F. H. Pike, New York.—p. 471.
14 Responses of Single Melanophores to Electrical Stimulation. R. A. Spaeth, New Haven, Conn.—p. 577.
15 Device for Recording Physiologic Responses of Single Melanophores. R. A. Spaeth, New Haven, Conn.—p. 597.

American Journal of Medical Sciences, Philadelphia

November CLII, No. 5

16 *Susceptibility of Man to Foreign Proteins. W. T. Longcope, New York.—p. 625.
17 Symptoms and Physical Signs Resulting from Wounds of Chest. C. P. Howard, Iowa City, Iowa.—p. 650.
18 *Specific and Other Forms of Spondylitis. B. Sachs, New York.—p. 661.
19 *Neurologic Condition Associated with Polyarthritis and Spondylitis. P. W. Nathan, New York.—p. 667.
20 *Study of Involvement of Bones and Joints in Early Syphilis. U. J. Wile and F. E. Senear, Ann Arbor, Mich.—p. 689.
21 *Case of Multiple Myelomas; Its Nature and Origin. B. M. Vance, New York.—p. 693.
22 Massive Hemorrhages from Stomach without Demonstrable Ulcer; Report of Four Cases. A. V. Moschcowitz, New York.—p. 714.
23 Chronic Intestinal Stasis; Report of Cases. G. R. Satterlee. New York.—p. 727.
24 Family with Myotonia, Probably Intermittent Form of Thomsen's Disease. N. Toomey, Philadelphia.—p. 738.

16. **Susceptibility of Man to Foreign Proteins.**—The injection of foreign proteins in man, Longcope says, brings about the same condition of hypersensitiveness toward subsequent injections that it does in animals. Certain individuals may show spontaneous hypersusceptibility to one of several foreign proteins. These people differ from the artificially sensitized, in that their susceptibility is very great, is shown toward several different proteins, and has a tendency to occur in families. This state is associated with and directly responsible for some well defined pathologic conditions.

18. **Specific and Other Forms of Spondylitis.**—So far as the treatment of these cases is concerned, Sachs says, that the specific cases should be treated most vigorously by intravenous injections of salvarsan, combined with intramuscular injections of mercury or by inunctions. The nonspecific cases must be treated either by simple rest, by intense heat, or by such measures as it is entirely within the province of the orthopedic surgeon to suggest.

19. **Neurologic Symptoms in Polyarthritis and Spondylitis.**—Nathan's experience has led him to believe that, aside from the atrophy and hypertonia which can, with more or less propriety, be attributed to reflex action, neurologic symptoms are frequent accompaniments of polyarthritic conditions; that these symptoms are definite and that they bear a definite relation to the underlying morbid process. These neurologic phenomena, which for the most part consist of muscular atrophy with spasticity, vasomotor irritation, and disturbed sensation, may be associated with either acute or chronic polyarthritis.

20. **Bones and Joints in Early Syphilis.**—Wile and Senear have studied during the past two years, with particular reference to early bone and joint involvement, 165 cases of syphilis in the primary and secondary periods. Of the 60 cases in which bone or joint involvement was found 36 patients showed some definite constitutional disturbance due to their syphilis. In 31 of the 60 cases careful neurologic examination was made. Of these, 14 gave positive findings in the spinal fluid, together with associated neurologic findings, while 17 were found to be uninvolved. In about 30 per cent. of those cases in which the bones and joints were involved, definite splenic enlargement could be demonstrated. Twenty-seven cases showed involvement of the bones only; in 21 the joints were affected independently; in the remaining 12 cases the bones and joints were involved together. In all but one case in which the bones were involved, more or less pain was present. Objectively, periostitis was the most frequent clinical finding. The tibia was thus involved in 8 patients examined and the sternum was next in frequency, the skull and ribs next. The clavicle was the only site in which the periosteal node was found to be absolutely painless. Arthralgia was the most common finding referable to the articulations. It was present in 17 of 21 cases studied. The pain, as in the cases of the bones, was for the most part nocturnal, and was also relieved by exercise. In the order of frequency, the ankles, the metatarsophalangeal joints and the elbows were affected, and in one case the elbow and shoulder joint of the same side were affected. Pressure on such joints was always followed by sharp pain.

21. **Multiple Myelomas.**—In Vance's case there was found at necropsy a multiple primary neoplasm of the bone marrow, extensively infiltrating the ribs, cervical vertebrae, clavicles, sternum and femur. The tumor tissue caused destruction of the bone, wearing away the cortex to a thin layer and entirely replacing the cancellous bone. The neoplasm was confined to the osseous system, the viscera were not involved nor were the surrounding soft tissues infiltrated, except in the neck. The tumor was yellowish white in color, soft in consistency and homogeneous in appearance, resembling a rapidly growing round-cell sarcoma. The masses in the sternum and the head of the right femur showed extensive hemorrhages, which gave the neoplasm a dark red appearance like clotted blood. On microscopic examination the tumor cells were found packed together in a stroma, consisting of very fine cellular connective tissue, delicate blood vessels, a fine eosinophilic ground substance, and red blood cells whenever the section was taken from a hemorrhagic area.

Boston Medical and Surgical Journal

November 9, CLXXV, No. 19

25 Treatment of Weak Labor Pains. S. Rushmore, Boston.—p. 659.
26 *Symptoms and Treatment of Congenital Transduodenal Bands; Report of Eleven Cases. J. Homans, Boston.—p. 665.
27 *Indications for Wet Packs in Psychiatric Cases. H. M. Adler, Boston.—p. 673.
28 *Syphilis of Lungs; Report of Eleven Cases. N. K. Wood, Boston.—p. 677.
29 Control of Scarlet Fever. D. M. Lewis, New Haven, Conn.—p. 682.

26. **Treatment of Congenital Transduodenal Bands.**—Eleven cases are reported by Homans in which definite bands passing from the gallbladder and liver across the duodenum have been found, and in which gastric or duodenal ulcers or gallbladder disease have been held to be absent. The average duration of symptoms was eight to nine years. Two patients had suffered with gastric disturbances for twenty years and one for only four weeks. In many instances the complaint is similar to the familiar dull, distressing ache and gnawing discomfort of duodenal ulcer, but the patients suffering from transduodenal bands have a greater variety of symptoms. In this respect they present more the picture of gastric ulcer, and again the irregular time of appearance of the pain or discomfort is more like that of gallstones. Five patients had some intermissions in the steady development of their symptoms. In six food relief was noticeable and when present was of fairly long duration. That is to say, it more resembled that of pyloric or duodenal ulcer than that of ulcer of the lesser curvature. Vomiting was present six times. No history of hematemesis was obtained; blood was never found in the stomach washings, and in only one case was there a story of bloody or tarry stools. The familiar measurement of the free hydrochloric and total acids in the gastric contents proved to be of no diagnostic value.

The Roentgen findings are much more like those of duodenal than gastric ulcer. Studies in gastric and duodenal motility and in the position and outline of the stomach and duodenum showed abnormalities in all instances of well-developed transduodenal bands in which this examination was made. Cholecystitis, duodenal and gastric ulcers are not likely to be mistaken for bands, but bands may simulate the appearances of these other lesions, especially duodenal ulcer and cholecystitis. The general character of the patient's complaint tends to resemble that of ulcer or gallbladder disease, but gives the impression of a reflex symptom complex. Of the eleven, two patients died of other diseases within a few weeks or months of operation. Another patient died of bronchopneumonia immediately after operation. Of the eight living patients who have been traced to the present time, all are well or so nearly so as to express themselves as satisfied. Several still have to exercise care in diet. Division of the bands may be said, then, to have been curative, with this reservation: Division of the bands plus a plastic operation (Finney) has given more completely satisfying results.

27. **Indications for Wet Packs in Psychiatric Cases.**—An analysis of 1,000 packs given at the Psychopathic Hospital, Boston, was made by Adler. These cases were gathered from unselected clinical material in the order in which they were given, and represent 309 patients. According to this analysis, 155 were quieted by the packs, 56 were not quieted by the packs, 98 were quieted by some and not quieted by others, or, in order words, had a partial effect. In the 79 cases of manic depressive insanity, 326 packs were given with a quieting effect in 144, without quieting effect in 218 packs, whereas in the 82 dementia praecox cases, only 217 packs were given, with quieting effect in 143, and without quieting effect in only 74. The same disproportion is shown by the cases of manic depressive insanity showing agitated depression. In 8 cases 26 packs were given, 8 with quieting effect, 18 without quieting effect. In all the other groups, including general paresis, delirium tremens, alcoholic hallucinosis and epilepsy, by far the majority of packs had a quieting effect. It would seem, then, that excitement in conditions other than manic depressive insanity is to be considered rather as a secondary manifestation, and one which is more easily controllable by hydrotherapy.

28. **Syphilis of Lungs.**—From twenty-two patients Wood has selected a series with histories suggestive of syphilis, whose physical examination showed definite lung impairment. If the Wassermann test proved positive, Wood had sputum examinations made and Pirquet tests tried. If these proved negative, he had roentgenograms taken of the chest and long bones of the lower leg. He was able to select seven patients that showed definite histories, definite lung impairment, positive Wassermanns, negative sputum and Pirquet tests. To these were added four cases which did not meet the above requirements. One patient had a few tubercle bacilli in the sputum, Gaffky No. 2, but had in addition a markedly positive Wassermann test and definite roentgenographic findings. The three others were children in whom the diagnosis of tuberculosis had been made and who had been carefully treated for tuberculosis. Repeated examinations of sputum have shown no tubercle bacilli, but their family histories were suggestive of syphilis. No Wassermann tests or roentgenograms were made.

Cleveland Medical Journal

September, XV, No. 9

30 Relation Between Systemic Disease and Focus of Infection in Upper Air Passages. J. D. Osmond, Cleveland.—p. 559.
31 *Ocular Tuberculosis; Report of Cases. R. B. Metz, Cleveland. —p. 567.
32 Medical Missionary's Journey to Persia in War Time. R. E. Hoffman, Persia.—p. 576.

31. **Ocular Tuberculosis.**—In summarizing Metz' report the following facts seem salient: Of ten cases comprising scleritis, sclerosing keratitis and sclerochoroiditis, tuberculosis was definitely present in eight. This was shown by a reaction following tuberculin inoculations in five, all the patients who were inoculated reacting; in three there were signs of pulmonary tuberculosis; in one case signs of an old pulmonary process, and in one case the examination could not be completed. All four patients with choroiditis reacted to tuberculin injections. Each of the ten cases, four of scleritis, two of sclerochoroiditis and four of choroiditis, in which the blood Wassermann test was performed, reacted negatively, while the nine of these patients inoculated with diagnostic doses of tuberculin, reacted positively. In one patient not inoculated, the physical signs of pulmonary tuberculosis were prominent. The seven patients in whom a general reaction followed the diagnostic use of tuberculin, showed negative physical findings. The eighth patient has yet to be roentgenographed. Of the nine reactions to tuberculin, eight were general, without an ocular focal reaction, while one was an ocular focal reaction without a general reaction. All six of the patients in whom the positive Pirquet reaction was followed by a diagnostic inoculation of tuberculin, reacted positively to the latter. Tuberculin therapy, in the five cases in which it was employed, accomplished the apparent cure or marked improvement not attending the use of the routine measures.

Delaware State Medical Journal, Wilmington

September, VII, No. 10

33 America's First Doctress. V. Robinson, New York.—p. 3.

Journal of Cutaneous Diseases, Boston

November, XXXIV, No. 11

34 Acrodermatitis Hiemalis; Report of Four Cases. M. B. Hartzell, Philadelphia.—p. 791.
35 Unusual Variety of Vitiligo (Leukoderma Acquisitum Centrifugum); Report of Four Cases. R. L. Sutton, Kansas City, Mo. —p. 797.
36 Undescribed Superficial Atrophy of Mucous Membranes of Tongue and Mouth. H. H. Hazen, Washington.—p. 801.
37 Exudative Diathesis, and Study of Acetone Bodies in Blood of Nine Cases. M. F. Engman and R. S. Weiss, St. Louis. —p. 804.
38 Importance of Visceral Symptoms in Dermatoses of Exudative Erythema Type. B. Foster, St. Paul, Minn.—p. 808.

Journal of Experimental Medicine, Baltimore

November, XXIV, No. 5

39 *Cicatrization of Wounds. Relation between Size of Wound and Rate of Its Cicatrization. A. Carrel and A. Hartmann, New York.—p. 429.
40 Id. Mathematical Expression of Curve Representing Cicatrization. P. L. Du Noüy, New York—p. 451.
41 Id. Relation Between Age of Patient, Area of Wound and Index of Cicatrization. P. L. Du Noüy, New York.—p. 461.
42 *Prophylaxis of Weil's Disease (Spirochaetosis Icterohemorrhagica). Y. Ido, R. Hoki, H. Ito and H. Wani, Kyushu, Fukuoka. —p. 471.
43 *Serum Treatment of Weil's Disease (Spirochaetosis Icterohemorrhagica). R. Inada, Y. Ido, R. Hoki, H. Ito and H. Wani, Kyushu, Fukuoka.—p. 485.
44 *Experimental Observations on Pathogenesis of Gallbladder Infections in Typhoid, Cholera and Dysentery. H. J. Nichols, San Francisco.—p. 497.
45 Studies on Blood Proteins. Serum Globulins in Bacterial Infection and Immunity. S. H. Hurwitz and K. F. Meyer, San Francisco.—p. 515.
46 *Relation Between Thyroid and Parathyroid Glands. A. Tanberg, Christiania.—p. 547.
47 Studies on Treponema Pallidum and Syphilis. Further Studies on Relation of Culture Pallida to Virulent Pallida and on Reinfection Phenomena. H. Zinsser, J. G. Hopkins and M. McBurney, New York.—p. 561.
48 *Respiratory Mechanism in Pneumonia. L. H. Newburgh, J. H. Means and W. T. Porter, Boston.—p. 583.
49 *Influence of Vagus Nerves on Conduction Between Auricles and Ventricles in Dog During Auricular Fibrillation. G. C. Robinson, St. Louis.—p. 605.

39. **Relation Between Size of Wound and Rate of Its Cicatrization.**—The rate of cicatrization of a wound, according to Carrel and Hartmann, is greater at the beginning than at the end of the period of repair. It depends on the area rather than on the age of the wound. There is a constant relation between the size of a wound and the rate of cicatrization. The larger the wound the greater is the rate of cicatrization. Two wounds of different size have a tendency to become equal. The rate is proportional to the area, but diminishes less rapidly than the area. The process of contraction is the more important factor in the repair of a wound. Epidermization completes the work of contraction. After the wound is healed, the cicatrix, as a rule, expands.

42. **Weil's Disease (Spirochaetosis Icterohemorrhagica).**—Experimentally, the authors could show that spirocheticidal and spirochetalytic bodies develop in the blood of the guinea-pig after repeated inoculations which protect the animal from an injection of fresh, virulent spirochetes. They have not yet tested the duration of this active immunity. Passive immunization is perhaps not possible. They undertook the immunization of a horse through inoculation with vaccine. After demonstrating the appearance of immune bodies in the blood of the horse, they proceeded to the active immunization of man. At first they tested the vaccine which was

employed for immunizing the guinea-pigs, but unsuccessfully. Later they prepared a vaccine ten times as strong as the first and with it obtained good results for the first time. Individuals subject to, but who had not had Weil's disease, were inoculated subcutaneously, and tests were made for the immune bodies after a definite period. Pfeiffer's test made with the serum taken before inoculation does not differ from the control test, while that made with the serum drawn after the inoculation shows the presence of immune bodies. The authors are convinced of the existence of a relation between Weil's disease and rats. The infection is transmitted probably from rats to man by means of the urine of the rats, directly or indirectly. On the injection of 0.1 gm. of rat urine which contains *Spirochaeta icterohemorrhagia* into the peritoneal cavity of guinea-pigs, the infection arises, while the injection of the liver or the blood of the rats into guinea-pigs does not produce the typical disease.

43. **Serum Treatment of Weil's Disease.**—The authors first employed serum from recovered patients and later serum obtained from actively immunized horses. As human convalescent serum is not procurable in large quantities, a horse was immunized with *Spirochaeta icterohemorrhagia.* Of the thirty-five patients who received the serum treatment, seven died. The mortality of Weil's disease in Japan is said to be from 30 to 48 per cent. In view of the reduction in the mortality rate, the authors claim that the administration of the serum has a marked effect in Weil's disease. With rare exceptions the serum destroys completely the spirochetes contained in the circulating blood. The development of antibodies is promoted by the serum injections. The number of spirochetes in the organs is reduced by the treatment. Secondary manifestations due to the serum are slight and disappear promptly. The ultimate effects of the serum treatment on the symptoms and final outcome of the disease have still to be determined.

44. **Pathogenesis of Gallbladder Infections.**—The results of Nichols' experiments support the theory of descending infection of the gallbladder through the bile from the liver. Infection of the gallbladder wall cannot be ruled out absolutely and probably occurs at times, but the bile ducts seem to be the regular avenue of infection. This conclusion suggests that prophylactic measures and possibly curative measures should be directed toward the bile rather than toward the blood stream and tissues. Vaccination, for example, appears to have little effect in the prevention and cure of experimental or clinical lesions, and in fact may favor the production of lesions by increased elimination of organisms in the bile. Human bile must have some antiseptic action, because, in any septicemia, some micro-organisms undoubtedly pass through the bile-ducts and gallbladder, but in only a comparatively few cases do they produce a definite cholecystitis. Alkaline therapy is suggested in the prevention and cure of gallbladder carriers.

46. **Relation Between Thyroid and Parathyroid Glands.**—The experiments performed by Tanberg showed that an excessive meat diet develops hypertrophy of the thyroid. A definite hypertrophy of the parathyroids under the same conditions has not been established. A meat diet does not develop hypertrophy of the thyroid when insufficiency of the parathyroids exists at the same time, even if no clinical symptoms are present. In cases in which a pronounced hypertrophy caused by a meat diet has already developed, the hypertrophy disappears and the gland assumes its ordinary appearance after extirpation of a sufficiently large number of parathyroid glands. After parathyroidectomy no hypertrophy of the thyroid takes place. In chronic tetany the thyroid seems, on the contrary, to atrophy in spite of a meat diet. After complete extirpation of the thyroid, the parathyroid does not change its structure, even in cases in which the cachexia lasts for several years. Small remaining parts of the thyroid may through hypertrophy develop into compact tissue and thereby seemingly present some points of resemblance to the parathyroid. When the parathyroid hypertrophies, as in some forms of chronic tetany, this hypertrophy is characterized by the development of large, transparent, sharply defined cells, with large nuclei rich in chromatin. The parathyroid and thyroid are independent organs, each having specific functions. This, however, does not exclude the occurrence of a direct or indirect interaction in the functions of the two systems. There is reason to believe that an insufficiency of the parathyroid checks to some extent the function of the thyroid. No proof of the existence of a vicarious cooperation between the two glands has been established.

48. **Respiratory Mechanism in Pneumonia.**—Briefly, the authors found that the reaction of the respiratory mechanism to carbon dioxid is greatly diminished in pneumonia. The graver the disease, the less the reaction.

49. **Influence of Vagus on Conduction Between Auricles and Ventricles.**—Robinson's experiments indicate that stimulation of either the right vagus or the left vagus nerve is equally effectual in blocking impulses from the auricles to the ventricles when auricular fibrillation is present. Stimulation of the left vagus nerve is as effectual in blocking impulses from the normally beating auricles as from the auricles when in a state of fibrillation, and the type of auricular activity has apparently no influence on the effect which stimulation of the left vagus has on auriculoventricular conduction.

Laryngoscope, St. Louis

October, XXVI, No. 10

50 Tracheobronchial Diphtheria. H. L. Lynah, New York.—p. 1193.
51 Plea for Electrocautery in Treatment of Laryngeal Tuberculosis. S. Iglauer, Cincinnati.—p. 1237.
52 Case of Spontaneous Hemorrhage from Ear. J. B. Shapleigh, St. Louis.—p. 1241.
53 Ruptured Aneurysm into Mediastinum and Deep Cervical Fascia with Symptoms of Ludwig's Angina; Report of Three Cases. E. M. Holmes, Boston.—p. 1246.
54 Epithelioma of Larynx Treated by Radium. C. G. Coakley, New York.—p. 1250.
55 Use of Tissue Juices for Control of Bleeding Tonsillectomy. J. B. Greene, Asheville, N. C.—p. 1254.

Medical Record, New York

November 4, XC, No. 19

56 Acute Poliomyelitis. H. L. Abramson, New York.—p. 793.
57 Dreams and Dreamers. I. Bram, Philadelphia.—p. 799.
58 Tuberculosis and Cancer. W. M. Dabney, Baltimore.—p. 804.
59 Anaphylaxis to Mercury; Report of Case. M. Zigler, New York. —p. 805.
60 Induced Paranoiac Conditions. A. K. Petery, Norristown, Pa.—p. 807.
61 Development of Litholapaxy During Sixty-Two Years from Civiale to Bigelow. C. A. Bucklin, Glasgow.—p. 809.
62 Anomalous Cases of Mastoiditis. C. B. Broder, New York.—p. 811.
63 Case of Gastric Ulcer. J. R. Verbrycke, Jr., Washington, D. C. —p. 812.

November 11, No. 20

64 Achylia Gastrica; Study of Sixty-Five Cases. A. F. R. Andresen, Brooklyn.—p. 839.
65 Hormone Equation of Psychoses. C. R. Carpenter, East San Diego, Calif.—p. 843.
66 Infant Malnutrition. W. H. Porter, New York.—p. 847.
67 Case of Auricular Fibrillation. J. W. Smith, Jr., Brooklyn.—p. 848.
68 Personal Experiences in Contract Practice. L. F. Herz, New York.—p. 849.
69 Military Quarantine Stations of Hungary. B. F. Morowitz, New York.—p. 852.
70 Economical, Efficient and Speedy Method of Administering Salvarsan and Similar Preparations. G. N. Kreider, Springfield, Ill.—p. 854.
71 Study of Newer Physical Signs in Diagnosis of Early Pulmonary Tuberculosis. M. Grossman, Brooklyn.—p. 855.

Michigan State Medical Society Journal, Grand Rapids

November, XV, No. 11

72 *Age and Arterial Degeneration. B. A. Shepard, Kalamazoo.—p. 515.
73 Anatomy and Surgery of Knee Joint. A. M. Campbell, Grand Rapids.—p. 521.
74 Traumatic Transplantation of Cilia into Anterior Chamber. H. L. Begle, Detroit.—p. 527.
75 Campaign Against Tuberculosis. W. De Kleine, Lansing.—p. 529.
76 *Diagnostic Importance of Pancreas. M. A. Mortensen, Battle Creek.—p. 532.
77 Case of Gangrene of Leg Following Thrombus Occlusion of Popliteal Artery—Post Traumatic. H. J. Vanden Burg, Grand Rapids.—p. 536.
78 Suppuration of Large Dermoid Cyst Reaching to Umbilicus. Cases Illustrating Substitution of Rectal for Vesical Sphincter. R. Peterson, Ann Arbor.—p. 538.

79 Case of Carcinoma of Pancreas. Case of Carcinoma or Syphilis of Stomach. H. B. Schmidt, Ann Arbor.—p. 542.
80 Case of Lead Palsy of Upper Arm Type. C. D. Camp, Ann Arbor.—p. 544.

72. Abstracted in The Journal, Sept. 9, 1916, p. 835.

76. **Diagnostic Importance of Pancreas.**—Mortensen urges that the pathologic conditions of the intestinal organs should be considered more frequently in reference to the possibility of their causing pancreatitis at a later period. He says that the majority of cases of evanescent glycosuria develop graver cases of diabetes at later stages. The fact that pancreatic disease frequently exists without disturbance in the carbohydrate metabolism is often overlooked. In all suspected cases of acute pancreatitis, a careful history should be obtained, as injuries of a minor nature may constitute the etiologic factor. The symptom of pain in the abdomen, and especially in the back, is very important and characteristic. The condition of shock accompanying the hemorrhage is an important symptom. The first hemorrhage causes degeneration of the pancreatic tissue and this in turn leads to subsequent hemorrhages. The symptom of pain in the back also occurs in malignant disease of the pancreas. These cases of pancreatic affection may occur without the presence of sugar in the urine.

Missouri State Medical Association Journal, St. Louis

November, XIII, No. 11

81 Importance of Early Diagnosis and Proper Treatment in Insanity. B. R. McAllaster, Carthage.—p. 525.
82 *Sporadic Meningitis in Children. P. G. Hurford, St. Louis.—p. 528.
83 Sacro-Iliac Strains and Luxations; Report of Cases. J. G. Hayden, Kansas City.—p. 531.
84 *Systemic Blastomycosis and Coccidioidal Granuloma with Description of First Case of Coccidioidal Granuloma Reported in Missouri. S. T. Lipsitz, St. Louis.—p. 534.
85 Differential Diagnosis of Some More Common Types of Psychoses. F. M. Barnes, Jr., St. Louis.—p. 536.
86 Cardiac Incompetency. H. D. Hamilton, Kansas City.—p. 539.
87 *Need of County Health Officer. J. Q. Cope, Lexington.—p. 542.
88 Tetanus. J. M. Hale, Dearborn.—p. 546.
89 Surgical Treatment of Gallstone Disease. R. Hill, St. Louis.—p. 548.
90 Tumors of Bladder and Their Treatment with High Frequency Cauterization. Report of Cases. L. G. Bartels and F. S. Halsted, St. Louis.—p. 550.

82, 84 and 87. Abstracted in The Journal, June 24, p. 2121.

New Mexico Medical Journal, Las Cruces

October, XVII, No. 1

91 Some of the Problems in Southwest. E. F. Frisbie, Albuquerque.—p. 5.
92 Early Symptoms of Upper Abdominal Disease. H. A. Black, Pueblo, Colo.—p. 16.

New Orleans Medical and Surgical Journal

November, LXIX, No. 5

93 Operations on Kidney and Ureter Under Local Anesthesia. C. W. Allen, New Orleans.—p. 329.
94 Dr. Carlos J. Finlay's Positive Cases of Experimental Yellow Fever. C. E. Finlay, Havana, Cuba.—p. 333.
95 Finlay and Delgado's Experimental Yellow Fever. A. Agramonte, Havana, Cuba.—p. 344.

New York Medical Journal

November 4, CIV, No. 19

96 Patient Is Left Out. R. T. Morris, New York.—p. 877.
97 Impotence in Male; Preliminary Report on Use of Anterior Lobe Pituitary Body. T. C. Stellwagen, Jr., Philadelphia.—p. 879.
98 Chronic Appendicitis and Chronic Intestinal Toxemia; Report of Cases. G. R. Satterlee, New York.—p. 882.
99 Chronic Gonorrhea in Male. J. Kaufman, New York.—p. 885.
100 Physics of High Frequency Current. A. C. Geyser, New York.—p. 891.
101 Primary Syphilis of Rectum; Report of Case. W. E. Jost and R. B. H. Gradwohl, St. Louis.—p. 893.
102 Oral Administration of Epinephrin. H. R. Harrower, Los Angeles.—p. 893.
103 Anesthesia Reviewed. J. T. Gwathmey, New York.—p. 895.
104 Tracheobronchitis Due to Nitric Acid Fumes. C. Jackson, New York.—p. 898.
105 Malocclusion of Teeth. H. C. Ferris, New York.—p. 899.
106 Autotherapy in Ivy Poisoning. C. H. Duncan, New York.—p. 901.

November 11, No. 20

107 Blood and Its Vessels in Epilepsy and Their Treatment. T. E. Satterthwaite, New York.—p. 929.
108 Strychnin as Tonic. W. F. Milroy, Omaha.—p. 931.
109 Final Control in Medicine. B. Robinson, New York.—p. 933.
110 Epilepsy. T. E. McMurray, Wilkinsburg, Pa.—p. 934.
111 Postures and Types of Breathing Exercises. N. K. Mankell and E. C. Koenig, Buffalo.—p. 934.
112 Relationship Between Nervous System and Therapeutics in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 939.
113 *Case of Joint Hypotonia. H. Finkelstein, New York.—p. 942.
114 Acute Mastoiditis. H. Hays, New York.—p. 945.
115 Shall We Get Rid of Tuberculosis At Last? R. C. Newton, Montclair, N. J.—p. 948.
116 Struggle for Binocular Single Vision. A. Brav, Philadelphia.—p. 949.
117 One Thousand Wassermann Reactions. J. M. Ladd, Indianapolis.—p. 952.

113. **Joint Hypotonia.**—Finkelstein reports a case which differs in nearly all its essentials from Oppenheim's myotonia congenita. The characteristic feature is a striking degree of joint mobility involving practically all the joints of the body without apparent demonstrable muscle weakness. It is not only congenital, but familial as well. There is no interference with the motor power, not even a weakening of the muscles, nor is there any loss of reflexes. The electric reactions are normal. Nearly all the joints of the body are involved. The roentgenogram shows no evident lesions in the bones. The only structures affected are the capsules and ligaments of the joints. The prognosis, judging by the progressive improvement which occurred in the other affected members of the family is favorable. This is the only case of its kind that has come before the author's observation in a decade, and no similar instance has been cited in the literature.

Oklahoma State Medical Association Journal, Muskogee

November, IX, No. 11

118 Endometritis. L. E. Andrews, Oklahoma City.—p. 349.
119 Some Pathologic Conditions of Thyroid. F. H. Clark, El Reno.—p. 352.
120 Procidentia. W. E. Dicken, Oklahoma City.—p. 358.
121 Danger Signals Due to Approach of Menopause. W. G. Bisbee, Chandler.—p. 361.
122 Parental Care; Its Relation to Conservation of Mother and Child. W. A. Fowler, Oklahoma City.—p. 364.
123 Contagiousness of Puerperal Fever. S. N. Stone, Edmond.—p. 368.
124 Prostatic Abscess Secondary to Infected Hand. J. H. Sturgeon, Oklahoma City.—p. 370.

Ophthalmic Record, Chicago

November, XXV, No. 11

125 Congenital Glaucoma and Some Allied Conditions. R. H. Elliot, London.—p. 541.
126 Case of Refraction Demanding Cylinders Crossed at Oblique Axes, Together with Theory and Practice Involved. C. Sheard, Columbus.—p. 558.
127 Case of Anilin Ophthalmia. W. N. Sharp, Indianapolis.—p. 567.
128 Some Experiences with Pasteurization Method in Treatment of Corneal Ulcers. W. J. Gilbert, Calais, Me.—p. 569.

Providence Medical Journal

November, XVII, No. 6

129 Suppurative Hepatitis. W. B. Cutts, Providence.—p. 308.
130 Empyema of Gallbladder. G. W. Gardner, Providence.—p. 323.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 21, II, No. 2912

1 *Highly Strung Nervous System. G. Rankin.—p. 545.
2 Practical Hints on Functional Disorders. M. Culpin.—p. 548.
3 *Intravenous Injection of Gynocardate of Soda in Leprosy. L. Rogers.—p. 550.
4 *Treatment of Certain Diseases of Protozoal Origin by Tartar Emetic, Alone and in Combination. A. Castellani.—p. 552.
5 Hydrotherapy as Agent in Treatment of Convalescents. F. Radcliffe.—p. 554.
6 Blood Culture Technic. R. L. Thornley.—p. 555.
7 Digested and Diluted Serum as Substitute for Broth for Bacteriologic Purposes. A. Distaso.—p. 555.

1. **Highly Strung Nervous System.**—Rankin concludes his paper as follows: The evidences of a highly strung nervous system furnished by the uterus and ovaries are too numerous to admit of discussion here. They are responsible for much personal misery and domestic discord. The frequency with

which elaborate local treatment of one kind and another has become fashionable raises doubts in the minds of many as to its wisdom—even as to its justification. The removal of an ovary, often for a problematical reason, uterine douchings and curettings, vaginal packings, and all the rest of it, may succeed in relieving the local "congestion" which is supposed to be responsible for the dragging pains, the excessive menstruation, and the failure to conceive. But what about the effect on the nervous steadiness and general tone of the patient? The question in this wider aspect is probably not always seriously enough considered, but if greater attention were given sufficiently early to the maintenance of the central nervous system in a condition of robust and self-reliant integrity, and to the regulation of daily habits of life on lines of greater simplicity and homely regularity, the need for most of such treatment would vanish, and it would be found again, as in the days of our grandmothers, that the pelvic organs, in the absence of actual organic disease, might with advantage be left in most cases to look after themselves.

3. **Use of Gynocardate of Soda in Leprosy.**—Gynocardic acid and chaulmoogric acid are synonymous. The method of preparation of sodium gynocardates is described in detail by Rogers, who has completed a year's experience of the subcutaneous method of administration of this agent in nine cases: five of the anesthetic type and four tubercular. The results in the anesthetic cases are regarded as promising. The tubercular cases have responded rather more slowly to the treatment and there is greater local pain and induration at the sites of the injections. Rogers begins with one-tenth grain, and increases by one-tenth grain at each successive dose, using a 2 per cent. solution. He has given up to four fifths of a grain with no immediate effect, or any sign of toxic influence, apart from local reactions and fever, and, rarely, some headache. Rogers has given about 200 intravenous injections of gynocardate, and his experience has led him to substitute it almost entirely for the subcutaneous method.

4. **Treatment of Certain Diseases by Tartar Emetic.**—Castellani reiterates that tartar emetic is of great efficacy in various protozoal diseases. Its powerful action in trypanosomiasis has been well proved, and it can be considered a specific in espundia, granuloma inguinale, kala-azar and oriental sore. It is efficacious in yaws, especially if combined with other drugs, and seems to have a beneficial action also in relapsing fever. Castellani has modified the formula of his mixture as follows:

	gm. or c.c.		
℞ Tartar emetic		066	gr. j
Sod. bicarb	1		gr. xv
Sod. salicyl.		666	gr. x
Potass. iodid	4		ʒ j
Glycerin	8		ʒ ij
Or syrup	4		ʒ j
Or sod. tartarat.		666	gr. x
Aquam ad	30		℥ j

It is given in the same doses as the original formula, and, as is the case with the original mixture, only half doses should be given to European patients. It should always be given diluted with water.

Glasgow Medical Journal

October, LXXXVI, No. 4

8 *Soldier's Heart. I. Mackenzie.—p. 193.
9 Reduction of Myopia in Children of School Age. W. B. I. Pollock.—p. 214.

8. **Soldier's Heart.**—A mixture which Mackenzie has found extremely beneficial in many cases of "soldier's heart" is the following:

	gm. or c.c.	
℞ Ammon. brom. Liq. extract ergot āā	24	ʒ vi
Tinct. digitalis	8	ʒ ii
Spt. ammon. aromat.	16	℥ ss
Aquae ad	180	℥ xi

M. Sig.: (1) ℥ss. in water, after meals every four hours for two days; (2) ℥ss. in water, after meals three times a day for a week after; (3) gradually reduce to twice daily, and then once daily according to reaction.

When the symptoms of fatigue have passed off, massage should be employed, and cool baths should be given instead of warm baths. Gradual active exercise should then be commenced, and continued under observation. In this way, equilibration of the circulation is mechanically assisted, and the mental attitude is diverted to a more normal course. Special attention should be paid to the treatment of sleeplessness, restlessness and alimentary symptoms. Tobacco and alcohol should be avoided in every case.

Journal of Tropical Medicine and Hygiene, London

October 16, XIX, No. 20

10 Diseases of China. J. L. Maxwell.—p. 237.

Lancet, London

October 21, II, No. 4860

11 Spirit of Medicine. J. M. Bruce.—p. 701.
12 *Some Observations on Dysentery. W. Magner.—p. 703.
13 Series of Military Cases Treated by Hypnotic Suggestion. J. B. Tombleson.—p. 707.
14 Luetin Reaction in Syphilis. W. Fletcher.—p. 710.
15 *Surgical Uses of Ozone. G. Stoker.—p. 712.
16 Placenta Praevia and Cesarean Section. A. G. Tresidder.—p. 712.
17 Left Fallopian Tube Found in Left Femoral Hernia. E. G. Renny.—p. 713.

12. **Dysentery.**—Magner reviews this whole subject from a practical point of view. He says both in amebic and bacillary dysentery secondary invasion of the ulcerated intestinal wall by organisms from the intestinal lumen is an important factor aggravating both the local and general condition. The pyrexia so frequently observed in the later stages of amebic dysentery is a result of this secondary invasion, and though usually toxic in origin may be due to bacterial invasion of the blood stream. A similar septicemia may occur in the bacillary type of the disease. Amebic dysentery may be latent, the ulcers being confined to the cecum and producing no symptoms. Apart from the danger of the disease becoming active, such cases may act as foci for the spread of the disease. Magner advises that every patient with amebic dysentery be treated by the administration of at least 10 grains of emetin. Incomplete treatment may result in the patient becoming a cyst carrier and a danger to the community. The prevention of amebic dysentery depends on the elimination of cyst carriers, rapid and complete disposal of fecal matter, and protection of food from dust and flies.

In bacillary dysentery the earliest pathologic change in the intestinal wall is dilatation of the vessels and a marked hemorrhagic exudation into the submucous coat. Leukocytic accumulation is a later phenomenon resulting on necrosis of tissues. Mannite-fermenting dysentery bacilli can exist in the intestine in an avirulent form. The presence of such an organism in the stools loses much of its significance in the absence of a positive Widal reaction. The agglutination reaction in dysentery is a valuable means of differentiating the bacillary type of the disease. In Shiga infections specific agglutinins are invariably present after the first week of the disease. Distinct agglutination with a serum dilution of 1 in 100 is diagnostic. Judging from serologic tests, Magner says, it would appear that certain organisms, normally saprophytic, may in both types of dysentery stimulate the production of specific agglutinins as the result of invasion of the ulcerated intestinal wall. The toxins of Shiga's bacillus are highly pathogenic to rabbits. Subcutaneous injection with either living or killed cultures results in the development of paralytic symptoms and death. The characteristic lesions of the human disease cannot readily be reproduced.

15. **Surgical Uses of Ozone.**—The treatment used by Stoker in twenty-one cases consists of the application of ozone to the affected parts; ozone is a strong stimulant and determines an increased flow of blood to the affected part. It is a germicide which destroys all hostile micro-organic growth. It has great powers in the formation of oxyhemoglobin. The ozone is applied on the wounded surface or to the cavities and sinuses for a maximum time of fifteen minutes, or until the surface becomes glazed. Ozone has the particular power of disclosing dead bone, foreign bodies, septic deposits, etc. This, Stoker believes, it does by destroying the granulations and micro-organic growths (presumably unhealthy) that are found in close contact with septic deposits, foreign bodies, or dead bone. Wounds, sinuses, etc., are washed twice daily with boiled water and a dressing of dry gauze is applied. At

first ozone causes an increase of the discharge of pus; later the pus is replaced by clear serum, which, at a still later stage, becomes colored reddish or pinkish. In open wounds it is necessary to strip off the parchment-like film surrounding the edges, which is composed of oxidized serum. This is easily effected by applying a hot compress for fifteen or twenty minutes, after which the film can easily be peeled off with dissecting forceps.

Paris Médical

October 14, VI, No. 42, pp. 329-344

18 Bacteriology and Infectious Diseases in German Medical Journals of the Last Two Years. (A travers les journaux médicaux allemands.) P. Remlinger.—p. 330.
19 *Surgery in the Ambulance Close to the Firing Line. A. Schwartz.—p. 335.
20 Roentgenoscopic Diagnosis of Accumulation of Gas in Organs, of Infectious or Therapeutic Origin. De Keating Hart.—p. 339.
21 Mercurial Stomatitis after Ingestion of Calomel; Three Cases. A. Satre.—p. 341.
22 Does Tax on War Profits Apply to Physicians? (L'impôt sur les bénéfices de guerre.) L. Bocquet.—p. 343.

19. **Surgical Work at the Front.**—Schwartz reviews his impressions and the lessons he has learned from twenty-one months' experience in ambulances close to the firing line. His main text is the necessity for clearing out the wound at the earliest possible moment, transforming it into a smooth, clean cavity with no recesses, open to the exterior by one or two large incisions, and amply drained, bearing in mind that at this early stage the wound is only soiled, not infected. Systematic resection of the walls of the cavity into sound tissue is possible at this stage.

Presse Médicale, Paris

October 12, XXIV, No. 57, pp. 453-460

23 *Operative Treatment of Acute Mastoiditis. (Comment doit-on opérer une mastoidite aigue et en particulier une mastoidite traumatique.) J. Guisez.—p. 453.
24 French Health Resorts in Treatment of Wounded and Sick Soldiers. (Les stations hydrominérales et climatiques françaises dans la cure des blessés et malades de guerre.) R. Glénard.—p. 456.

23. **Mastoid Operation.**—Guisez shows steps of the operation in twenty illustrations in order to aid the nonspecialist called on for an urgent operation of the kind, especially after trauma.

Deutsche medizinische Wochenschrift, Berlin

September 21, XLII, No. 38, pp. 1149-1180

25 *Respiratory Affections in the War. (Erfahrungen über die Erkrankungen der Respirationsorgane im Kriege.) H. Hochhaus.—p. 1149.
26 *Nervous Affections, Especially Epilepsy, from Military Standpoint. E. Stier.—p. 1153. To be continued.
27 *Duration of Protection Conferred by Vaccination. (Zur Beurteilung der Dauer des Pockenimpfschutzes.) H. A. Gins.—p. 1155.
28 *Bacterium Found in Typhus Patients That Reproduces the Disease in Guinea-Pigs. (Zur Aetiologie des Fleckfiebers.) H. Töpfer and H. Schüssler.—p. 1157.
29 Glanders in Man; Two Cases. (Zwei Fälle von menschlichem Rotz.) Heinemann and Dschewdet Bei.—p. 1158.
30 Should a Defect in the Dura Be Patched at Once? (Darf die Durawunde der Schädelschüsse primär plastisch gedeckt werden?) Szubinski.—p. 1161. Concluded.
31 Screw Apparatus for Extension Immobilization. (Zur Behandlung der Extremitäten-Schussfrakturen mit der Schraubenextensionsschiene.) H. Wohlgemuth.—p. 1163.
32 *The Internal Ear Serves as a Compass. (Das Ohrlabyrinth als Kompass.) Güttich.—p. 1165.
33 Hematuria from Long Horseback Exercise. (Nierenblutung durch Nierenerschütterung.) Gast.—p. 1166.
34 The Field Hospitals as Schools for Hygiene. (Einiges über hygienische und soziale Aufgaben in den Lazaretten.) H. Ziemann.—p. 1166.
35 The Tasks That Confront Infant Welfare Work. (Die gesundheitlichen Gefahren für unseren Nachwuchs und die Aufgabe und Bedeutung der öffentlichen Fürsorge.) A. Niemann.—p. 1169.

25. **Diseases of the Respiratory System in War.**—Hochhaus analyzes 1,200 cases of disease of the air passages in soldiers, nearly all on active service. The list includes 34 cases of pleurisy with effusion and 68 wounds of the lungs, 48 of pneumonia, 3 cases of a tumor in the lung, and 420 cases of bronchial trouble. The other 560 men had pulmonary tuberculosis. The latter proved to be the flaring up of some old tuberculous process in at least 40 per cent., and necropsy in 50 cases showed old and far-advanced tuberculous foci. The course in all seemed to be more rapidly progressive than in peace times, especially in those who had been on active service. It was noticed in 4 cases that an intercurrent infectious sore throat whipped up the disease. In differentiation, only when all methods were applied and compared was the diagnosis reliable. The Pirquet skin tuberculin test failed to elicit a response in many of the unmistakable cases, even those not far advanced. In some cases with hemoptysis under his eyes, no pathologic findings could be detected although the men were long under observation. The open air life has had an undoubtedly strengthening and stimulating influence in many cases of mild tuberculous affections, so the men have no trouble from them.

Chronic bronchial affections were difficult to manage as new exacerbations constantly followed exposure. Asthmatic catarrh proved exceptionally rebellious. Long bed rest and medication were necessary to restore approximately normal conditions, and a return to service, even to garrison duty, speedily brought on severe relapses, so that the men had finally to be dismissed from the army. It seems wiser not to pass asthmatics for military service, even although the men may happen to feel well at the time. Two of these men with asthma and chronic bronchitis had repeated attacks about every two weeks, with high fever, sweats, cyanosis, dyspnea and rapid pulse. These attacks lasted only for a few days, and then the symptoms subsided completely until the next attack, the intervals gradually lengthening. He noticed that men with an old healed apical process seemed to be especially susceptible to "catching cold."

Mouth-breathing seems to be an important factor in bronchitis. The bronchi are exposed more to injury than when the man breathes through the nose. There were no deaths from bronchial affections alone, but the constant return of trouble on resumption of duty after improvement under treatment finally compelled the discharge from the service of quite a number of the men. Injury of the lungs by bullets caused incredibly small disturbance as a rule. The resulting infiltration and pleuritis were mild and soon subsided. In some cases the men scarcely felt the entrance of the bullet; in others the men fainted from the pain. Even when the bullet had healed in the tissues, the occasional complaints of dyspnea and palpitations seemed to be mainly functional, and other signs of neurasthenia confirmed this. Cancer of the bronchi or pleura in three men in the thirties developed with symptoms suggesting incipient tuberculosis. The extension of the process and the Roentgen findings corrected the diagnosis.

26. **Epilepsy and Military Service.**—Stier remarks that the old regulation that epilepsy debars from military service still holds good, even in these days when the barriers have been lowered to admit many recruits that would have been rejected in peace times. The assumption of epilepsy has however been modified, so that now it requires the testimony of three reliable witnesses who have seen at least one seizure each, and can describe it in detail with the date, place and other details; or the testimony of a physician who has witnessed himself the occurrence of a seizure; or the testimony of a specialist. The three lay witnesses may be members of the man's family, and the details which they relate are most useful for the final decision. The regulations provide further for the acceptance of the testimony of an army or navy medical officer who has witnessed a seizure or the immediate and direct consequences of one. These new regulations have much facilitated the task of speedy weeding out of epileptics. Symptomatic epilepsy and epileptoid psychopathies do not come under the ban of true epilepsy, but are classed under other headings. Stier's article is not completed in this number.

27. **Duration of Protection Afforded by Vaccination.**—Gins states that 500 men and 500 women were recently vaccinated at Berlin against smallpox before they were allowed to serve as nurses to the wounded. The reaction to the vaccination was recorded in each instance and classified according to four grades of intensity. Ten responded with a typical pustule

in those under 20; 16.9 per cent. of those between 21 and 25; 19 per cent., 26 to 30; 30.4 per cent., 31 to 35; 62.7 per cent., 36 to 40, and over 40, about 65 per cent. These and other figures cited show that the German custom of vaccination of infants and revaccination at the age of 12, confers immunity to the age of 40. It begins to dwindle from the thirtieth year onward, and after 40 only about a third are still protected by it and this only partially. At the same time, the testimony presented indicates that when there is no or only a faint response to the revaccination at 12, the subject runs no danger of ever having smallpox. He adds, "This presumptive variola-fast condition, however, cannot be guaranteed, as there is nothing perfect under the sun."

28. **Bacterium Causing Typhus.**—Töpfer and Schüssler found in lice taken from typhus patients a bacterium which induces a febrile affection in the guinea-pig, identical with that induced by injection of blood from a typhus patient. They found it impossible to cultivate this bacterium on any medium except in the intestinal canal of the body louse. The louse body must therefore be utilized for the culture medium until a better is found. Three microscopic fields of louse intestine are reproduced. Their research was done with 401 lice on thirty-five typhus patients, 101 lice on nineteen patients with other diseases, and 118 lice on twelve typhus convalescents. This bacterium was found constantly in the lice on patients with advanced typhus and never on others. After defervescence none were ever found, and the eggs and young of the lice were free from them. The bacterium is probably identical with the typhus "coccobacillus" described by Sergent and his co-workers, and also by Prowazek and Rocha-Lima. Töpfer in his previous communication on the subject stated that he had examined 2,000 lice and found this bacterium exclusively in those taken from typhus patients.

32. **The Ear Labyrinth as Compass.**—Güttich refers to the difficulty experienced by aviators in a fog in keeping their aeroplane horizontal. This is the result, he explains, of the rudimentary condition in man of a certain function of the internal ear, which is well developed in birds. It is connected with the way in which the eyeball retains its relative position, even in the blind, when the head is moved. It does not follow the movements of the head.

Medizinische Klinik, Berlin

September 24, XII, No. 39, pp. 1015-1038

36 Roentgen Diagnosis of Tumor in Large Intestine. H. Schlecht.—p. 1015. To be continued.
37 Gruels in Infant Feeding. (Wert des Schleims bei der Ernährung junger Säuglinge.) E. Klose and H. Bratke.—p. 1018.
38 Nephrosis. (Die Nephrosen.) F. Munk.—p. 1019. To be continued.
39 Gas Phlegmons; Nature and Treatment. Franz.—p. 1023.
40 *Kaolin and Acetone Mixture Sterilizes the Hands. (Ein neues Verfahren zur Händedesinfektion.) W. Burk.—p. 1026.
41 The Nature of Stuttering. (Zur Frage des Wesens der Stotterbewegungen.) E. Fröschels.—p. 1028.

40. **Acetone-Kaolin Method of Sterilizing the Hands.**—Burk reports comparative tests with the method he is now using, the results of the tests, he says, confirming its superior advantages. Kaolin is stirred into acetone to make a thin paste, and this is rubbed into the hands, tanning the skin and plugging all crevices. The paste is rubbed over the hands and forearms for five minutes; as the acetone evaporates a dry coating of kaolin is left. This is wiped off with a dry cloth. He uses about 300 gm. kaolin to 0.5 liter acetone.

Münchener medizinische Wochenschrift, Munich

September 19, LXIII, No. 38, pp. 1349-1380

42 *Electric Treatment with Psychic and Physical Training for Hysteric Contracture and Paralysis. (Ueber die Kaufmannsche Behandlung hysterischer Bewegungsstörungen.) F. E. O. Schultze.—p. 1349.
43 Symptoms of Duodenal Stenosis with Abnormal Ligament Connection of the Gallbladder. H. Schlecht.—p. 1353.
44 *Induced Venous Murmurs. (Ueber experimentell erzeugte Venengeräusche.) O. Muck.—p. 1354.
45 Dysentery. (Einige Fälle von Ruhrerkrankungen.) E. Hummel.—p. 1355.
46 Recent Court Decisions Affecting Physicians. XIV. (Der Arzt in der Rechtsprechung.) P. Kaestner.—p. 1356.
47 First Transportation of the Wounded. (Ueber den ersten Transport Verwundeter und seine Vorbereitung.) Wieting.—p. 1365.
48 Etiology of Five-Day Fever. (Zur Actiologie des Fünftagefiebers.) H. Werner, F. Benzler and O. Wiese.—p. 1369.
49 Tendon Plastic Operations for Radial Paralysis. (Zur Frage der operativen Behandlung der Radialislahmung, bes. durch die Sehnenplastik.) H. Schreiegg.—p. 1370.
50 *Bimanual Exploration and Massage of the Prostate and Seminal Vesicles in Treatment of Gonorrhea. (Die bimanuelle Untersuchung der Vorsteherdrüse und der Samenblasen und ihre Bedeutung für die Behandlung der Gonorrhoe.) J. Jacobsohn.—p. 1371.
51 *Necrotic Acne Subsides on Giving Up Use of Tobacco; Eight Cases. (Acne necrotica und Tabakgenuss.) F. Weinbrenner.—p. 1372.
52 Treatment of Furuncles in Soldiers on Active Service. F. Kastan.—p. 1372.
53 *To Hasten Bacteriologic Diagnosis of Diphtheria. (Die Beschleunigung der bakteriologischen Diphtheriediagnose.) H. Langer.—p. 1373.
54 Device for Correction of Contracture of Knee and Elbow. (Ein Apparat zur Beseitigung hartnäckiger Knie- und Ellenbogenkontrakturen.) F. Loeffler.—p. 1373.
55 *Care of Soldiers' Feet. (Die Fusspflege im Heere.) F. Schede and W. Hacker.—p. 1375. Concluded.
56 Moss for Dressing Material. (Der Moosverband.) Kronacher.—p. 1378.
57 Simple Improvised Artificial Hand. (Eine einfachste Interimsprothese für die Hand.) W. Katz.—p. 1378.
58 Principle of Ball Bearings Applied to Extension Apparatus. (Kugellagerextension.) Köstlin.—p. 1379.

42. **Kaufmann's Method of Treating Hysteric Paralysis and Contracture.**—Schultze gives the minute details of the technic of this special combination of psychotherapy, electricity and exercise which seems to have proved nearly as successful in his fifteen cases as in Kaufmann's extensive experience with it.

44. **Induced Venous Murmurs.**—Muck describes and discusses the J. Müller test and test inhalation of amyl nitrite in estimation of venous murmurs on one side.

50. **Importance of Massaging the Prostate and Seminal Vesicles in Gonorrhea.**—Jacobsohn declares that far too little attention is paid to the prostate and seminal vesicles in treating gonorrhea. The difficulty of palpating the vesicles is mostly responsible for this, and he describes a method of bimanual examination which much facilitates exploration of the prostate and especially of the seminal vesicles. The patient kneels on the table, his thighs perpendicular, and leans his hands on the table or back of a chair nearby. The trunk is bent over in the lumbar region, the sacrum and thighs being held in the same plane, the seat drawn in. The examiner can then palpate through the relaxed abdomen with the finger tips of one hand working toward the forefinger of the other hand in the rectum. The bladder should not be full but need not be completely emptied as it is not in the way. The palpating fingers are worked in about a handsbreadth above the symphysis, to one side of the median line. They can be held flat or at an acute angle to the abdominal wall.

Normal seminal vesicles can be easily emptied by this bimanual procedure, and massage can be usefully applied when palpation reveals plastic infiltration or induration, or succulence testifying that the vesicles are distended with tissue fluids, or taut distention from pus. In several rebellious cases of gonorrhea this palpation revealed that the vesicles on one or both sides were hard and thick. In some cases the whole vesicle apparatus was blended into a thick mass, the details of which it was impossible to make out. Two case reports are given to show the mode of procedure. In one the gonorrhea had been self-treated for six months and then was given systematic and thorough treatment for four months without definite improvement. The prostate then was palpated as above described and found enlarged and hard, the left seminal vesicle much infiltrated, the right less so. Under bimanual massage alternate days, followed by rinsings, by the end of the month the prostate had subsided to normal size and the seminal vesicles could no longer be palpated. Clinically normal conditions were restored, and there has been no further trouble since.

51. **Acne and Tobacco.**—Weinbrenner relates that in eight cases of rebellious necrotic acne, the affection disappeared when the men gave up tobacco. The acne subsided completely

in a few weeks after the men gave up smoking. One of the men chewed tobacco, and this was the last one to recover, over two months elapsing before the acne disappeared in this case. Three of the men had concomitant stomach disturbances. The amount of tobacco consumed is not an essential factor; one of the men smoked only two or three mild *cigarillos* a day. He queries whether stomach disturbances play a part in necrotic acne, and remarks that he knows of no instance of necrotic acne in women.

53. **To Hasten the Diagnosis of Diphtheria.**—Langer relates that diphtheria bacilli can be decolored with alcohol much more rapidly than is the case with pseudodiphtheria bacilli. The latter are still gram-positive long after all cocci in the specimen are decolored. He found it possible to differentiate the alcohol-fast pseudodiphtheria bacilli by this means in a few hours, thus differentiating the disease the same day the specimen was received. He stains with brilliant green instead of gentian violet. After-staining with dilute fuchsin then shows up the bacilli especially distinctly.

55. **Care of Soldiers' Feet.**—Schede and Hacker in this concluding portion of their article give a number of exercises for the feet to keep them in the best of condition. They also describe ways and means to spare the feet unnecessary strain and abuse. They have organized a small dispensary for care of toenails and corns, such as only the rich have been able to afford hitherto. It has proved so useful that they urge the military authorities to organize similar dispensaries for care of the feet. They reiterate that the shoe should hold the foot firm up to the toe region, but here there should be space for the toes not only in width but also in height. Very few shoes allow the big toe to be flexed. This leads to degeneration of the flexor hallucis longus, which is especially important in maintaining the arch of the foot.

Wiener klinische Wochenschrift, Vienna

September 21, XXIX, No. 38, pp. 1193-1224

59 Enuresis in Soldiers. (Enuresis militarium.) K. Ullmann.—p. 1193. To be continued.

60 *Transfusion of Blood in Anemia. J. Philipowicz.—p. 1201.

61 Typhoid from Epidemiologic and Clinical Standpoints. A. Galambos.—p. 1201.

62 Typhoid with Exclusively Paratyphoid Agglutination. F. Pollak.—p. 1204.

63 Injuries from an Avalanche. (Verletzung durch eine Lawine.) N. Hackmann.—p. 1206.

64 Reinfection with Syphilis. (Zur Frage der Reinfektion bei Lues.) L. Lichtenstein.—p. 1208.

65 *Progressive Atrophy of Adipose Tissue. (Lipodystrophia progressiva.) J. Gerstmann.—p. 1209.

66 Case of Alum Necrosis of the Gums. (Alaunnekrose des Zahnfleisches.) C. D. Kessiakoff.—p. 1212.

67 Medical Estimation of Capacity for Sentinel Duty. (Leitpunkte zur ärztlichen Beurteilung der Wachdiensttauglichkeit.) R. Pollatschek.—p. 1221.

60. **Transfusion of Blood for Anemia.**—In the two cases reported the men were moribund from loss of blood after extensive wounds but were saved by transfusion of 200 and 250 c.c. of defibrinated blood, by an emergency technic.

65. **Progressive Wasting Away of Adipose Tissue.**—Gerstmann describes a case of progressive lipodystrophy. There are only sixteen cases on record to his knowledge. His patient is a man of 32 and the lipodystrophy was first noticed at the age of 10. This seems to be the first case known in a man. The face, arms and trunk are exclusively affected; the thyroid is enlarged, and there are symptoms indicating excessive thyroid functioning.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXIX, No. 1, pp. 1-186. Last indexed Sept. 18, 1915, p. 1065

68 *Hemolytic Anemia in the Pregnant with and without the Blood Findings of Pernicious Anemia. (Ueber die perniziosaartige Graviditätsanämie.) P. Esch.—p. 1.

69 Deformity of the Uterus from Hypertrophy of Persisting Distal Portion of Gärtner's Duct. (Ueber eine seltene Missbildung des Uterus.) W. v. Arx.—p. 52.

70 Perforation of Uterine Abscess into Abdominal Cavity. Recovery after Hysterectomy. (Fall von Uterusabszess mit Durchbruch in die Bauchhöhle.) L. Pielsticker.—p. 67.

71 *Principles and Technic for Paravertebral Nerve Blocking. (Grundlagen und Technik der paravertebralen Leitungsanästhesie.) P. W. Siegel.—p. 76.

72 Rupture of Body of the Uterus. (Zur Aetiologie der Corpusrupturen.) E. Sachs.—p. 108.

73 *Eclampsia as Result of Pressure on the Brain. (Die Eklampsie eine Hirndruckfolge.) W. Zangemeister.—p. 124.

68. **Hemolytic Anemia of Pregnancy.**—Esch's long article is an attempt to define better the clinical picture of the anemia of pregnancy, which resembles so closely the pernicious type, and discuss the preferable treatment. He gives the details of two cases in which the blood findings seemed to be identical with those of true pernicious anemia, and of four others with a less typical blood picture. These six cases were encountered in the course of three years at the gynecologic clinic at Marburg, and three of the women died. In only three of the cases was there hemorrhage in the retina and the spleen was enlarged in only three. Although the blood findings resemble so closely those of true pernicious anemia, yet the etiology and course differ widely. He cites various data from the literature to sustain the importance of the pregnancy and its lipoidemia as the responsible factors. The hemoglobinuria and the destruction of the blood in the placenta confirm the hemolytic nature of the anemia, either from pathologic exaggeration of the physiologic processes of hemolysis or by reduced resisting power on the part of the red corpuscles. The changes in the blood marrow are secondary compensating processes while the pathologic destruction of the blood, rendered manifest by the subicteric tint, urobilinuria and hemosiderosis, is the primary process. In all such cases the anemia does not develop until the first half of the pregnancy is past.

The inadequate supply of oxygen seems to benumb the patients so that the labor pains are scarcely noticed. Recovery is rapid after a turn for the better. Esch could find on record only six cases in which the later fate was known, the women having had no signs of recurrence during the years since. Four years have elapsed in two of his own cases and one year in another with no signs of further trouble. Only one case has been published in which true pernicious anemia developed a long time later. In two of Esch's cases delivery occurred the day the woman reached the hospital and in only one case was the interval as long as two weeks before the childbirth. Spontaneous premature delivery is the rule, and no tendency to improvement in the cases on record was apparent until after delivery. Consequently he is inclined to advocate prompt evacuation of the uterus as a leading principle in treatment, to spare the woman further stress. Experiences to date with this have been unfavorable, for which intercurrent infection has usually been responsible, or else all attempts at treatment came too late. The children seem to be nonresistant and succumb readily before or soon after birth. Only three are known to have thrived. One is now nearly 2 years old, one is a boy of 10, and one died before the end of the first year. Iron is not needed in these cases, as the hemosiderosis testifies. Arsenic is the main reliance.

Intramuscular injections of blood were made in five of his cases. No benefit was apparent in two, but in two others this harmless procedure seemed to be an important factor in the recovery. In one case marked improvement followed the first injection. One woman was given eight intramuscular injections—a total of 440 c.c. of defibrinated blood. The hemoglobin increased from 9 to 22 per cent. after the second injection in the course of twelve days, the reds ran up from 1,090,000 to 1,994,000 and the general condition showed great improvement. By the end of the fourth month the hemoglobin had reached 60 per cent.

71. **Paravertebral Anesthesia.**—Siegel writes from the gynecologic clinic at Freiburg to exol the advantages of the paravertebral technic for the gynecologic-obstetric field. He regards it as surpassing all other methods in ease and efficiency. In 1,000 cases the anesthesia was complete enough for the purpose in 95 per cent. It seems to be a great improvement over the lumbar and sacral technics, as he shows by comparison of the results in nearly 2,000 cases in which one or the other of these methods was used. The exact technic for this paravertebral blocking of the special nerves concerned is described with fourteen illustrations. Siegel relates

at in three instances the needle broke off. He does not hink it necessary to search for the broken off part of the eedle. Experience in two cases has shown that it causes no isturbance in the tissues. The scrap was recovered at ecropsy in the third case. Death was due to factors apart rom the anesthesia.

73. **Eclampsia Result of Pressure on the Brain.**—Zangeeister devotes fifty pages to arguments sustaining the ssumption that the hydrops of pregnancy is responsible for clampsia by involving the brain and inducing pressure on it. he early symptoms are those of pressure on the brain, and his may persist and prove fatal even when the convulsions ave ceased or even without convulsions. The clinical picure of eclampsia forces us to recognize increased pressure n the brain as responsible for its main traits. This assumpion is encouraging, as by watching out for and combating ydrops gravidarum we may be able to ward off eclampsia. he various measures applied in treatment of eclampsia act y reducing the edema and irritation of the brain. Labor ains raise the blood pressure and this in turn aggravates he pressure on the brain, while venesection relieves it.

Policlinico, Rome

October 15, XXIII, No. 42, pp. 1223-1246

74 *Aneurysm of the Renal Artery; Two Cases. N. Trulli.—p. 1223.
75 Clinical and Therapeutic Study of Injury from Asphyxiating Gases. (Avvelenamento da gas asfissianti.) R. Cormio.—p. 1231.

October, Medical Section No. 10, pp. 345-376

76 *Clinical and Pathologic-Anatomic Study of Leukosarcomatosis. (Mieloeritrocitoma mediastinico — Eritro-leucemia — Setticoemia da paratifo B.) C. Moreschi.—p. 345.
77 Pernicious Anemia. A. Roccavilla.—p. 367. Commenced in No. 8, p. 281. To be continued.

74. **Aneurysm of Renal Artery.**—The first of Trulli's two atients was a man of 74, and the tumor palpated in the idney region was smooth and hard but very elastic. The eneral condition was good with no signs of metastasis in he glands, but the pains, radiating to the spine, the sense of veight in the legs, and profuse hematuria suggested cancer. Necropsy showed diffuse arteriosclerosis, concretions in both idneys, and an aneurysm as large as a hen's egg in a ranch of the right renal artery. The man had not been onfined to bed until five days before death. He had comlained for two years of the pains but this seemed to be the nly trouble until toward the end. The second patient was a farmer of 66 who had been having attacks resembling angina pectoris during the last three years and for the last year pains in the left flank, and twice he had kidney colic. There was finally sudden intense pain in the left kidney region following a muscular effort and intense hematuria keeping up for two or three days. A smooth tumor was palpated in the left kidney region, not movable and scarcely tender. There was no pulsation in the tumor and no murmur could be heard in it. On the diagnosis of an abdominal tumor involving the left kidney, a laparotomy was proposed. It was refused and an intercurrent pneumonia proved fatal not long after. Necropsy revealed a true aneurysm of the inferior branch of the renal artery. The kidney contained a large stone with the mucosa ulcerated around it. Trulli compares these cases with others on record. With aneurysms of traumatic origin, pain and hematuria dominate the scene. Treatment should be on the same lines as for more accessible aneurysms. The connected kidney was pathologic beyond repair in both his cases, showing that, if at all practicable, removal of the entire kidney and aneurysm offers the best chances for recovery.

76. **Leukosarcomatosis.**—Moreschi's comprehensive study of the modern conceptions of leukemia and the connection between leukemic and neoplastic processes is accompanied by two colored plates, showing the blood and local tissue findings in a typical case of leukosarcomatosis. The patient was a lad of 16 with a myelo-erythrocytoma in the anterior mediastinum, and paratyphoid B infection. The glands and spleen revealed intense proliferation of myeloid elements. He emphasizes that the findings in this case sustain the Pappenheim-Ferrata theory that myelogony proceeds from a single mother cell, the cell which Moreschi calls the *linfoidocito-emocitoblasto.* From this are evolved and become differentiated the granulated elements of the white series as well as those of the hemoglobin series.

Riforma Medica, Naples

XXXII, No. 32, pp. 865-892

78 *Leg Ulcer Simulating Syphilitic Gumma. (Diabetc fostatico di Teissier.) P. F. Arullani.—p. 865.
79 Soldiers "Wounded with Tuberculosis." (Per i feriti della tubercolosi.) A. Ferrannini.—p. 867.
80 Rapid Sterilization of Drinking Water. (Per la rapida potabilizzazione dell'acqua in campagna.) G. Grixoni.—p. 882.

78. **Phosphaturia Leg Ulcer Simulating Gumma.**—The differential diagnosis was obtained by exclusion of syphilis, tuberculosis, etc., by clinical and bacteriologic tests, and by negative inoculation of animals, and there was nothing to suggest hysteria. The blood findings were normal and the urine was free from albumin and sugar, but it contained large amounts of phosphates. This phosphaturia with the polyuria, polydipsia and bulimia, suggested Teissier's "phosphatic diabetes," and treatment on this basis soon cured the patient. Under tonics and large doses of phosphates, the ulcer healed, the general health improved, and strength was regained.

Cronica Medica, Lima, Peru

XXXIII, No. 7, pp. 205-232

81 *Tartrate of Antimony and Potassium in Local Treatment of Superficial Leishmaniosis. (Leishmaniasis cutanea curada por el tartaro emetico.) E. Escomel.—p. 207.
82 Subsidence of Gonococcus Arthritis in Little Girl under Vaccine Therapy. (Artritis blenorragica de la rodilla curada por la autovacuna.) G. A. Valle Riestra.—p. 209.
83 Subcutaneous Injections of Oxygen in Treatment of Gas Gangrene. N. F. Concha.—p. 213.
84 *Paroxysmal Tachycardia. M. Villacorta.—p. 215. Commenced in No. 5, p. 145.

No. 8, pp. 233-264

85 Extra-Uterine Pregnancy. (Consideraciones etiopatogenicas sobre la gestacion ectopica, con motivo de un caso de embarazo ectopico tuboabdominal.) C. A. Bambaren.—p. 233.
86 Tropical Medicine. (Leccion inaugural.) J. Arce.—p. 239.
87 Advantages of Potassium Permanganate in Superficial Infections. E. Escomel.—p. 248.

No. 9, pp. 265-340

88 Genesis and Treatment of Dementia Praecox. H. F. Delgado and C. A. Bambaren.—p. 265.
89 *Pathogenesis of Gallop Rhythm. J. Benavides.—p. 275.

81. **Tartrate of Antimony and Potassium in Treatment of Superficial Leishmaniosis.**—Escomel's patient had three ulcers on the legs and one each on the chin and one ear, rebellious to all measures for months, until he dusted them with tartar emetic after applying an anesthetic, a mixture of equal parts of menthol, cocain and crystallized phenol. The lesions were then covered with boric acid cotton and left undisturbed for twenty-four hours. Two intravenous injections were made of 5 c.c. of a 1 per cent. solution of the tartar emetic at a week's interval, and the local application was repeated once after four days. The cure was soon complete, the lesions below the chin and back of the ear, which had not been given local treatment, subsiding with the others. In another communication in the same number he reports a case of blastomycosis in which tartar emetic treatment failed to modify the disease and the main reliance had to be on the actual cautery. This failure of tartar emetic is the rule with blastomycosis, in marked contrast to its efficacy in leishmaniosis.

84. **Paroxysmal Tachycardia.**—Villacorta concludes his long review of the present status of paroxysmal tachycardia by emphasizing the lessons learned in regard to treatment from the modern conceptions as to the causes of paroxysmal tachycardia. We aim to prevent or abort the attack and ward off its return. To check the excessive action of the heart we can compress the pneumogastric, or apply electric stimulation, or tickle the pharynx to induce retching, or seek to distend the esophagus by having a chunk of bread swallowed. The patient is made to recline and take deep breaths, holding the lungs full of air for a few moments. If all these fail, he gives every ten minutes a small spoonful of ipecac jelly to induce vomiting or injects 0.01 gm. apomorphin

subcutaneously. Pituitary extract has given good results in some hands; this seems to retard the heart beat while raising the blood pressure and stimulating diuresis. An ice bag to the heart region and sedatives may be useful adjuvants. If it proves impossible to abort the attack, the heart must be strengthened with some stimulant. He gives strophanthin by subcutaneous injection once or twice, with an intravenous injection the next day if needed. Digitalis may be required if there is an actual organic lesion of the heart. To ward off return, the nervous system as a whole must be strengthened and stabilized, and the digestion brought to normal. In case of organic heart lesions, the whole mode of life must be regulated to conform to this, and heart tonics given at need.

89. **Gallop Rhythm.**—Benavides devotes nearly sixty pages to this study of the pathogenesis of gallop rhythm, based on the literature and ten cases from his own practice analyzed in detail. He regards it as a premonitory symptom of dilatation of the heart, of asystole, and frequently it persists after their arrival. It coincides with a multitude of factors liable to injure the myocardium. The intensity of the gallop rhythm, its constancy, existing valvular lesions and the rise in the minimal blood pressure, all indicate the extent of the danger confronting the heart. The gallop rhythm seems to be a disturbance in the tonicity of the heart, and the jugular rhythm observed with it is a parallel phenomenon resulting from the same cause. In his ten cases, heart or kidney disease, typhoid, syphilis or tuberculosis, alone or associated, was manifest in every case.

Siglo Medico, Madrid

September 30, LXIII, No. 3277, pp. 625-640

90 *Diphtheria Antitoxin in Spain. (Los peligros del suero antidifterico. Su revision en España.) M. G. Alvarez.—p. 626.
91 Cocain Addiction. (Los cocainomanos.) A. S. Herrero.—p. 630.

90. **Diphtheria Antitoxin in Spain.**—Alvarez reproduces a number of the replies he received to a question blank sent to the physicians of Spain enquiring as to their experience with diphtheria antitoxin and any mishaps they may have had. Transient by-effects from the antitoxin seem to have been rather frequent but are growing less common as the antitoxin is being made now with greater care. These by-effects, pains in muscles or joints, edema, urticaria, etc., subside spontaneously in a little while without treatment. Symptoms indicating anaphylaxis are extremely rare. One fatal case was reported by Llorento among the 18,200 diphtheria patients at his institute. All are unanimous in asserting that the fear of by-effects should never deter from the use of antitoxin in diphtheria. But there is considerable divergence of opinion in regard to its use as a preventive, although all agree that about 35 per cent. of those coming in contact with diphtheria become carriers, and about 14 per cent. of the young people when diphtheria is epidemic. These facts justify the use of diphtheria antitoxin in hospitals, boarding schools, etc., when the disease is epidemic or when isolation is impracticable. Most physicians under other circumstances content themselves with isolation and disinfection, keeping close supervision over the other persons that have been exposed to the contagion, examining their throats carefully and systematically. Most physicians inject antitoxin when the clinical picture suggests diphtheria, without waiting for bacteriologic examination, but in institutions it is usually deemed safe to wait for the analysis.

Russkiy Vrach, Petrograd

XV, No. 35, pp. 817-840

92 Impotence as Cause for Divorce. (Nesposobnost k brachnomu sozhitiu kak povod k prekrashtsheniu supruzheskago coiuza.) L. B. Bertenson.—p. 817.
93 *Intravenous Infusion of Hypertonic Solution of Grape Sugar in Treatment of Purulent Processes. (Vnutrivennoe vlivanie hypertonic, rastvorov vinogradnago sakhara pri gnilostnikh zabolievaniakh.) G. I. Baradulin.—p. 833.

93. **Hypertonic Solutions of Sugar in Treatment of Sepsis.**—Baradulin remarks that in sepsis we have only serums and preparations of silver as weapons against the invading germs, while neither of these is of the slightest use in sustaining the strength by any nourishing property in them. At the same time, the loss of appetite and digestive power renders it particularly necessary to sustain the strength by administering nourishment in an easily assimilated form. This he accomplishes by using a solution of grape sugar instead of salt solution for subcutaneous or intravenous injection. He has been doing this on an extensive scale since the war began, and calls attention to his success with it, expatiating on its manifold advantages. He commends it for wounds in war and for purulent processes and sepsis in general. Under these conditions the tissues seem to be especially avid of sugar and use up huge amounts. At first he used an isotonic, 4.7 per cent. solution, but soon increased the strength until a 30 per cent. solution became the routine strength. He injects into a vein 250 or 300 gm. of this solution, repeating it in the severer cases to a total of two or three times a day, keeping this up at need for three or four days. In one very severe case twelve of these injections were made. The patient recovered. This sugar solution has a strong diuretic action, besides its nourishing properties, but its chief value is in nourishing the heart, which it thus tides past the danger point. His research on dogs has confirmed these and other advantages from the sugar solution. He induced purulent peritonitis in two dogs and injected the sugar solution twice in one dog, injecting 1 mg. per kilogram of weight. The animals were slaughtered the next day. The dog not given the sugar solution had no glycogen in its liver, while the liver of the other dog, injected with the sugar solution, abounded in glycogen. Baradulin warns that the infusion must be done with the greatest care, taking fully an hour to infuse the whole amount. His experience includes several dozen cases, and the results were so gratifying that he does not wait for further experience before calling attention to the excellent results from this hypertonic sugar solution as an improvement in every way over the usual saline. He gives no clinical details in this preliminary announcement.

Hospitalstidende, Copenhagen

October 11, LIX, No. 41, pp. 989-1012

94 *The Electromagnet in Differential Diagnosis of Gastro-Intestinal Disease. (Elektro-magnetisk Undersøgelse af Ventriklens og Colons Sensibilitet.) T. B. Wernøe.—p. 989.

94. **The Electromagnet in Differential Diagnosis of Gastro-Intestinal Disease.**—Wernøe has the patient drink a suspension of pulverized iron a few hours after a meal, and then he passes a magnet over the epigastrium, exploring thus the entire surface of the stomach. The iron particles are attracted and gather on the side wall nearest to the magnet. If this happens to be the site of an ulcer, there is pain at once, like the pain felt at other times from the ulcer. The same method of examination answers for the intestines, injecting the iron suspension into the bowel. In the fifty cases tested the results were so concordant that, although the number is small, yet it seems that we can rely on the diagnostic importance of a circumscribed pain in some special point of the abdomen, elicited by this means, as a sign of some localized lesion within. Diffuse pains speak for a more extensive lesions. Sharp stinging pains suggest an ulcerative process while only slight, pulling, dull pains are felt when the mucosa is still unbroken.

Wernøe meets the various objections that might be urged against the method, saying that the only real objections are the unreliability of the patient's statements as to the character of the pains, and the possibility of adhesions masking the true condition. He suggests that the same principle of the local action of the magnet might be utilized in therapeutics. By causing the accumulation of the iron particles at a given point they might possibly serve as a tampon at need. The action of the gastric juice on the iron will soon transform it into iron chlorid, but this is an old and well-known hemostatic. The magnet he used weighed 3 kg., connected with a current of 220 volts and 100 amperes, and he gave the iron in oatmeal gruel, a level teaspoonful to the liter. He relates the details of several cases of gastric ulcer examined in this way, the completely negative findings later, after successful treatment, confirming the reliability of the previous positive findings.

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ACUTE PURULENT INFECTIONS OF THE NOSE, THROAT AND EAR

OUR RESPONSIBILITY TO THE PUBLIC *

HILL HASTINGS, M.D.
LOS ANGELES

The occasion of the chairman's address to this section offers, it seems to me, an opportunity to deal in a general way with some of our special problems. I wish to direct your attention to some practical phases of the problem of the care of acute, purulent infections of the ear, nose and throat. Especially I desire to point out how we may increase our efficiency to the general public, and to the general medical profession. It is not my purpose to go into the problem of acute and chronic tonsil infections. I do not flatter myself that I am offering anything that is new to you; but I hope that I may be able to summarize your own and my own practical experiences, that the attention of the general medical profession may be aroused more fully to the importance of putting into practice preventive measures in diseases of the ear, nose and throat. We should not lose sight of the fact that our efficiency to the general public depends as much, and perhaps more, on our being able to prevent purulent infections, and to minimize the complications from purulent infections of the nose and throat, as it does on our skill in treating the serious complications that may result.

A great many of the serious complications and many of the deaths are preventable complications and preventable deaths.

SELF TREATMENT

The general public largely depends on newspaper advertisements and a few popular medical writers for its information about the care of the ear, nose and throat. For example, a "cold in the head" is still considered a trivial complaint, and "rhinitis tablets" have taken the place once agreeably filled by sugar-coated homeopathic pellets. An "earache" is just being recognized by the public as a serious symptom, yet prompt attention is still being delayed by the use of "laudanum drops," and also delayed by the ignorant belief that "to cut the eardrum means destruction of hearing." The mastoid abscesses and deaths in every community are still not connected up with the primary cause. "Spitting" is tabooed and regulated against, but "sneezing" still occupies a polite place in the public's manners. Sputum is considered dangerous, whereas nasal secretion is regarded by the public only as disagreeable.

PLUNGES AND SWIMMING POOLS

Fresh and salt water plunges, contaminated by nasal and throat secretions, especially during epidemic periods of nose and throat infections, are far more dangerous than some other conditions for which strict health regulations are enforced. Every summer hundreds of infections of the ear, nose and throat occur from dirty plunges. Such plunges, beautifully tiled, often look immaculately clean, but in reality they are badly contaminated at certain periods and are sources of danger to those not infected and also to those already infected. Many mastoids, and some deaths, occur that should be and can be prevented by keeping people with "colds" from swimming, and especially from diving.

Therefore, one of the problems that confront us is how to teach the public to prevent, or at least help to prevent, infections of the ear, nose and throat.

"COLDS IN THE HEAD" AND "SORE THROATS"

The general public is not aware of the seriousness of "colds," nor alive either to the preventive measures against "colds," or to the preventive measures against the serious complications arising from neglected "colds in the head." That over 90 per cent. of the cases of mastoiditis result from ordinary "colds" and "sore throats" is alone sufficient excuse for making more public our own experience in handling acute infections of the nose and nasopharynx.

There is still much discussion as to the relative values of the various etiologic factors in the production of a "head cold." That an infection is the paramount factor is generally accepted. It may be that the infecting organism cannot always be isolated. The recent experiments of Foster [1] are interesting in showing that a filterable virus, apparently free from any demonstrable micro-organisms, produced typical "colds" in 42 per cent. of thirty-six students inoculated. As a rule, pus organisms — the various forms of the streptococcus, the pneumococcus, the *Micrococcus catarrhalis,* the *Bacillus influenzae* and many other organisms — can be grown from the purulent nasal secretions.

The experiments of Cocks [2] demonstrate the importance of the etiologic factor of atmospheric changes. These two main etiologic factors, infections and atmospheric changes, drafts, etc., have been recognized by clinical experience. There are other factors, such as lowered body resistance from excessive fatigue and indiscretions in diet, tending to congestion of the mucous membrane of the nose.

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* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Foster, G. B., Jr.: The Etiology of Common Colds; The Probable Rôle of a Filterable Virus as the Causative Factor, The Journal A. M. A., April 15, 1916, p. 1180.

[2] Cocks: Experimental Studies of the Effect of Various Atmospheric Conditions Upon the Upper Respiratory Tract, Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1915.

Prevention.—The public is not sufficiently aware of certain preventive measures, which may be briefly summarized as follows: 1. A daily cold bath. If the cold tub bath produces too much shock, a cold sponge bath about the face, neck, chest and shoulders may be substituted. 2. Fresh, circulating air in the bedchamber. The sleeping porch accomplishes this result. The fad for outdoor sleeping, while in the main good, can be abused, for it is our experience that some people, particularly some children, are better off indoors, especially in cold, damp weather. The attempt to "harden" children who are susceptible to bronchitis and laryngitis, by forcing them to sleep outdoors in bad weather, is especially to be condemned. Morse,[3] in an instructive paper on the cold air treatment in pneumonia cases, remarks that he has seen no ill effects from cold fresh air treatment of patients with lobar pneumonia, but believes harm is done in pneumonia cases complicated by bronchitis. This has been the experience of laryngologists for a long time in regard to acute inflammations of the upper air tract. 3. Another preventive measure against "colds" is the avoidance of plunges, especially during epidemics of "colds." Plunges are contaminated at such times by the nasal secretion of those affected. The sanitary control of our college gymnasium and Y. M. C. A. plunges, various baths and athletic club plunges is a problem that is only of late being recognized. There is a widespread ignorance and complete indifference on the part of those in charge of them. A recent paper by Levine[4] gives some facts on this subject based on the examination of the swimming pool of the Iowa State College. Frequent changes of the water of a swimming pool, at least once a week, with periodic cleansing of the bottom and sides of the empty pool with ordinary lime bleach (calcium hypochlorite) is a safe measure. Where the cost of water is such that the water must be used again, Levine recommends that the water be pumped into a filtration plant, the empty tank cleansed, and the water be pumped back again, and disinfected in the tank by the use of copper sulphate, one part to a million. A bag containing the copper sulphate is drawn along the surface of the water until all is dissolved, a procedure that takes about fifteen minutes. 4. Another preventive measure against "colds" is the care in handling the nasal secretion of an infected member of a household. Handkerchiefs of cheesecloth should be used as much as possible and burnt. In the early stage of a "cold" sneezing is not a harmless pleasure. 5. The use of vaccines, much lauded in various quarters to prevent "colds," has not proved of value in the experience of those qualified to pass judgment on this point.

COMPLICATIONS FROM A "COLD IN THE HEAD"

A "cold" or "sore throat" may be a simple affair; but the complications that often result are more serious and may prove fatal. A majority, probably over 90 per cent., of the cases of middle-ear abscess and mastoiditis, result directly from the ordinary "colds" and "sore throats." Nearly all the cases of suppuration of the frontal, sphenoid and ethmoid sinuses, and a majority of the cases of suppuration of the maxillary antrum, result from neglected "colds in the head." While this is well known to otologists and laryngologists, the necessity for preventive measures against these complications is not appreciated sufficiently by the general medical profession, and hardly at all by the public.

The problem of protecting the nasal accessory sinuses from infections that often become chronic depends largely on one factor, that of maintaining good drainage of these cavities during a "cold." That can be well done only when the general medical man realizes that his patients with acute nasal infection should be referred when possible to men who are doing ear, nose and throat work. Such is not generally the custom. The rule rather is to send such patients later, after the complications have advanced to an extent that cause serious concern.

The problem of curing a large proportion of the complications, e. g, frontal sinus suppuration, largely depends on the same factor, that of good drainage, which we have of late years found can be done by conservative intranasal surgery. Drainage by the simpler surgical measures has almost supplanted the dangerous radical procedures of external operations on the frontals, antrums, etc. There will be fewer long standing cases of suppuration of the accessory sinuses of the nose when it is more generally understood that a persisting nasal discharge requires prompt attention. Purulent discharge from no other organ of the body is ignored either by the general practitioner or the public. "Catarrh," "catarrhal discharge" and "remedies for catarrh" are terms that are even now as much abused and as incorrectly interpreted as "catarrh of the stomach" and "catarrh of the bowels" were the terms ignorantly used a generation ago. The "patent medicine" "catarrh cures" thrive in large part by virtue of the ignorance of the public.

The best protection against infection of the ears, especially in children, is the removal of tonsils and adenoids. It is likely no exaggeration to say that nothing has done so much to protect the ears from infections and conserve the hearing of the population now growing up to adult life as the widespread practice of removing the tonsils and adenoid growths of children. The majority of mastoid abscesses in children occur in those whose tonsils and adenoid growths have not been removed. Also, it is noteworthy that in the infectious diseases, such as diphtheria, scarlet fever, measles, etc. no form of local treatment of the nose and throat has so adequately protected the ear from purulent infections as the removal of the tonsils and adenoids prior to the onset of the infectious disease.

The best protection against further spread of purulent infection of the middle ear, as we all know, is prompt incision of the drum membrane as soon as a middle ear abscess forms. Gradually the public is being taught this fact. Nevertheless there is still considerable prejudice against opening the drum membrane. The number of mastoid operations has been greatly reduced in the last ten years, and we must certainly give credit to the two preventive measures emphasized above: (1) the removal of tonsils and adenoid growths in children, and (2) more prompt incision of the drum membrane when a middle ear abscess has formed.

The dangerous practices that tend to the spread of the purulent infections of the nasopharynx into the ear may be summarized as follows: 1. The use of nasal douches of the Birmingham glass-duct type, with the head thrown back, tends to force purulent material up the eustachian tube into the ear cavity. The same applies to snuffing salt water up the nose. 2. Forcible douching of the nose with syringes, particularly where the large olive-shaped bulb tip completely closes the nostril. Gentle douching with a small tip syringe is less harmful. 3. Blowing the nasal secretion out of the nose with too much force. 4. Swimming, and particularly diving, during a "cold in the head." There is notable ignorance on the part of the public on this point, particularly in that it is a common belief that one who has recovered from a "cold," and yet whose nose is stuffed with thick, nasal secretion, is relieved by diving in plunges and especially in salt water plunges, or in the ocean. The purulent material washed out is a danger to others; and the diver himself runs a risk of forcing some of the pus into his middle ear. Most of us have seen many cases of mastoid abscess occur from this cause every summer during the swimming season. At our large ear, nose and throat institutions, it is commonly noted that the swimming season invariably brings on "a crop of mastoids." The advice to keep out of the water until a "head cold" is entirely cleared up cannot be too strongly impressed on the public.

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[3] Morse, J. L.: The Treatment of Respiratory Diseases in Infancy and Childhood, The Journal A. M. A., Jan. 8, 1916, p. 71.

[4] Levine: The Sanitary Control of Swimming-Pools, Jour. Infect. Dis., March, 1916.

These few practical preventive measures, as applied to the ear, nose and throat, obvious as they are to us, are not as well known to the general practitioner and the general public, as we ear, nose and throat men are apt to assume. We must remember, too, that these preventive measures can best reach the public through the medium of the general medical profession.

SYPHILITIC PSYCHOSES ASSOCIATED WITH MANIC DEPRESSIVE SYMPTOMS AND COURSE *

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The routine application of the Wassermann test and the study of the cerebrospinal fluid have shown that, apart from diseases of well marked syphilitic pathology, there are cases which clinically course in ways not usual for the syphilitic types of psychoses, although showing serologically the pathologic changes of that disease.

A considerable number of cases may show positive Wassermann reaction in the blood and no pathologic condition of the cerebrospinal fluid. The majority of these are instances of more or less marked types of nonsyphilitic mental disorders, which show an incidental constitutional syphilis. A smaller number are forms of syphilitic psychoses of a type other than general paralysis.

There are other cases which show syphilitic changes in the blood and cerebrospinal fluid similar to those found in general paralysis, but which in their clinical symptoms and course seem to stand apart from this disease and present interesting points for differential diagnosis. Such are the cases which course clinically with the symptomatology and cyclothymic variations of manic depressive insanity. The occurrence of this type of case has occasionally been commented on in the treatises on general paralysis, in which they have usually been regarded as combinations of general paralysis and manic depressive insanity.

I have been able to collect a number of cases of this type from the records of the State Psychopathic Hospital at Ann Arbor, and for the others I am indebted to the Pontiac State Hospital.

The following brief abstracts are illustrative of this type of case:

CASE 1.—*N. B. H., woman, aged 39. Since 22 short attacks of depression with normal intervals. At 35 severe excitement of the manic type, with extreme irritability continuing without interruption for four years; very slow intellectual deterioration; few neurologic disturbances. Strong Wassermann reaction in serum and spinal fluid. Pleocytosis.*

Little is known of the patient's history before her marriage at the age of 22. Her father is said to have been demented at the age of 65.

Three months after her marriage, she became despondent, accused her husband of not caring for her, and attempted suicide. After a month she recovered completely. Since then she has been commonly mildly depressed before her menstrual periods, and has at these times talked of suicide. She never became pregnant.

In 1910 her husband contracted syphilis, but she herself never had any external evidences of the disease. In April, 1912, she became more irritable toward her husband. She accused him of misconduct and spoke of attempts he had made to poison her.

In May, 1912, she was admitted to the State Psychopathic Hospital. She was then much excited. She talked loudly, and her remarks concerned the attitude which various persons had taken against her. Many of her ideas were of sexual significance. "She had been drugged and thus brought under the influence of others." She comprehended questions, but her attention was not held to the question, and she rambled off into a flight of ideas, made up largely of her accusations, and suspicions, and expansive references to herself.

Her conduct was extremely boisterous and aggressive against whatever was done for her. In her actions there was often an element of playfulness. Her stream of spontaneous thought showed numerous influences of incidents in her environment and of sound associations. At times she decorated herself fantastically. There were several episodes in which auditory hallucinations occurred. Her conduct became violent in the extreme, and she had no regard for personal decency.

Her excitement made a systematic physical and neurologic examination impossible. The pupils were unequal and irregular in outline. The light reaction was present. There was a slight tremor of the tongue. The knee jerks were active and equal.

This excitement continued until the spring of 1913, when she gradually became quieter. A more complete examination at this time showed unequal pupils and lessened reaction to direct light. The tongue deviated to the left. The knee jerks were exaggerated.

During the summer her conduct was such as to allow her to be about the ward, and she did some work. Often there was an element of playfulness in her actions. Delusional ideas were often expressed.

The cerebrospinal fluid in September, 1913, showed 77 cells per cubic millimeter. The albumin was about normal. The Wassermann test was three plus. The blood serum at this time was four plus.

Since then, for the past two years the patient's condition has been one of extreme excitement. There has always been a marked irritability which easily leads to assaults and destructiveness. She has no sense of decency, and in her personal habits is filthy in the extreme. She talks much in a very boisterous manner, and her thought is distractible and influenced by sound stimuli, and is that encountered in severe degrees of manic excitement. At times she will control herself and converse in an orderly manner until irritated by some remark or incident, when coherence will be lost.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Many of her actions show a purposeful character and are directed by impulses toward mischievous and malicious behavior. Her thought, as a whole, is less coherent than formerly, but her perceptions and comprehension are quick and clear.

Her memory for events from day to day and for recall of the past is good, and aside from the degraded character of her conduct, deterioration has not advanced much during the last four years.

There is no speech defect, and the knee jerks are active.

Case 2.—*A. S., woman, aged 31. Indefinite attacks of "nervousness" until 31, when she became depressed for two months, then passed into a state of typical manic excitement. Few neurologic symptoms. Wassermann reaction strongly positive in blood and fluid. No pleocytosis.*

As far as known, the family history is free from nervous or mental diseases.

Meager information regarding her personal history states that at 17 she had typhoid fever lasting two months. She had always been subject to "nervous spells," and has suffered much from neuralgic pains all over her body. She was married at 19 and has had five children, one dying of diphtheria.

For years she has pains and excessive flowing at her menstrual periods. One month before her admission, an operation was done on the uterus to benefit the excessive flowing. She was convalescing well, when one of her children fell down stairs, and she became much upset. Her mood became continually depressed, and she worried much over her financial affairs. She attempted suicide, and two weeks after the beginning of this depression, she was committed to the Pontiac State Hospital, in October, 1915. The examination showed that she was under weight, and there were a few râles heard in the right axilla. Heart and urine were not abnormal.

Neurologically, she told of having had neuralgic pains for a few years, which were worse at night, and attacks of dizziness. The pupils were regular, but the direct light reaction was absent. The knee jerks were much increased. At times during the examination she became agitated and there was some trembling. Her speech was without defect in articulation. The handwriting was done slowly and was rather irregular and tremulous.

The cerebrospinal fluid showed 5 cells per cubic millimeter. There were increased albumin and globulin. The Wassermann reaction was four plus, and Lange's test gave a curve of 1 2 3 3 2 1 1 0 0. The blood serum was four plus by the Wassermann test.

Mentally, her attitude was one of mild depression. Her movements were slow and deliberate, and her speech was low and slow. At times she became mildly restless and apprehensive. Comprehension was clear and orientation correct. At times it was an effort to hold her attention to the question, and she readily became confused. This was quite marked in her attempts to do simple calculations. The memory was fair for recent and remote events.

Her mood was mildly sad. There was a subjective feeling of illness and that her nerves had got beyond her control. Her thought content was chiefly related to her interest in her health, and there were occasional somatic complaints, such as "a feeling of pressure" which she referred to her epigastric region, and this suggested to her that probably she had a growth around her heart. There was some self-criticism, as "I wish I could go back and do what was right by them." Her conduct was at all times correct. She slept badly, and at nights her restlessness was more marked.

She improved rapidly, and about a month after her admission she was cheerful and active, working interestedly, and could not understand why she had held the sad ideas that had been present during her early stay in the hospital. She was taken home and remained away for about six weeks, when she again became depressed and was inclined toward suicide, and was brought back to the hospital, Jan. 18, 1916. She was then about as she was during the first weeks of her former admission; mildly sad, with somatic complaints, and worried unduly over her affairs. She improved rapidly, and a month later was again taken home. At first she did well, and then became suspicious of her husband's conduct. She sought the aid of the police to protect her. At first mildly restless, she later became destructive to things about the home, and, May 11, 1916, she was again returned to the hospital. She was then overactive, laughing loudly, whistling, and boisterous in her conduct. Her mood was elated, and there were ideas against her husband. Since then her attitude has continued typically manic in its character. She is overactive, turbulent and aggressive. Her mood is elated and she shows a very marked flight of ideas, with superficial associations. At all times she is quick and clear in her comprehension and orientation.

Case 3.—*J. C. B., man, aged 64. Syphilis at 19. Periodic attacks of elation and depression of short duration, with normal intervals throughout adult life. At 64 depressed. Neurologic disturbances. Depression passing off, leaving a very mild deterioration. Wassermann reaction strongly positive on blood and spinal fluid. Pleocytosis. Increased albumin.*

In the patient's family, a brother and a sister had been insane. At the age of 15 he is said to have had an attack of cerebrospinal meningitis, which destroyed the vision of his right eye. At the age of 19 he contracted syphilis.

His past history shows the occurrence of periodic attacks of elation and depression at various times during his life. One attack occurred at the age of 48 and lasted about six weeks. One at 49 lasted two months, and one at 50 lasted five months. Other attacks occurred at intervals until his admission to the Pontiac State Hospital at the age of 64.

The important neurologic findings at that time were: blindness of the right eye: Argyll Robertson pupil in the left eye; all of the tendon reflexes slightly exaggerated. There were no tremors or incoordination. The hearing of the right ear was diminished.

Mentally he was clear in his comprehension and orientation. The memory was impaired for both retention and reproduction. His mood was one of a slight depression with mild apprehensiveness concerning his physical condition. Aside from a moderate slowness, there were no thought disturbances.

The cerebrospinal fluid showed 25 cells per cubic millimeter. There were increased albumin and globulin. The Wassermann reaction was three plus on the fluid and four plus on the blood.

His depression continued extremely mild. He showed interest in work, but there was always present a certain lack of spontaneity, and the memory defect was pronounced.

Two years later the depression lifted, but on account of his mild deterioration he remained in the hospital and finally died from a railway accident.

Case 4.—*H. E. B., man, aged 33. Syphilis at 19. At 23 short attack of manic excitement. At 25 manic attack, followed by depression and recovery. Slight neurologic disturbances. At 28 manic excitement followed by depression and recovery. Wassermann reaction strongly positive on blood and spinal fluid. Pleocytosis.*

The family history so far as known was negative. In his youth the patient was regarded as irritable and difficult to control, and in his school work he was backward.

At the age of 19 he contracted syphilis. At about 20 he was noted as being full of schemes, visionary, and unstable in his conduct. At 23 this had increased, and he became so excited as to be committed to the Pontiac State Hospital. There, he was overactive, distractible in his attention and thought, and exhilarated in his mood. After about three weeks he had become quiet enough to be discharged.

In August, 1908, he became overactive and exhilarated in his mood and was again sent to the hospital. At that time he showed slight unsteadiness in Romberg's position, and there were fine tremors of the face and hands. The pupils and knee jerks were within normal limits.

Mentally, he was clear in his comprehension. His memory was not impaired except when influenced by his distractible thought. He had a typically manic flight of ideas, and was overactive and impulsive in his conduct. After three months, the excitement subsided and he passed into a state of mild depression, with retardation of thought and movements. This passed away, and six months after his admission he returned home.

In 1914 he was again admitted to the hospital in a severe degree of manic excitement. The pupils were not abnormal. The knee jerks were exaggerated. There was no speech defect. Three examinations of the cerebrospinal fluid showed cell counts varying between 24 and 35 per cubic millimeter. The albumin and globulin were not increased. The Wassermann reaction was in each examination three plus, and always four plus on the blood serum.

Mentally, he was clear in his comprehension, but overactive and exhilarated, and showed a marked flight of ideas.

Under intraspinal treatment the number of cells of the cerebrospinal fluid fell to 2, and the strength of the Wassermann reaction was lessened. His excitement continued for two months, a depression then occurred which lasted six months, when he again had improved sufficiently to be allowed to return home.

CASE 5.—*A. G. L., man, aged 40. At 24 manic excitement, brief duration, recovery. At 36 manic excitement, brief duration, recovery. Similar attacks at 38 and 40. Neurologic disturbances. Wassermann reaction strongly positive on blood and spinal fluid. Pleocytosis.*

The family history stated that both his father and mother were insane. There was little information as to the patient's personal history until after his marriage at the age of 24. At about this time he had an attack of excitement. For some time previous he had been a little more restless than usual and had drunk heavily. He was sent to the Pontiac State Hospital, where he showed mild restlessness and pressure of thought. He rapidly improved and was discharged recovered four months after the beginning of the attack.

He was well until the age of 36, when he became irritable, getting into difficulties with his family and the neighbors. He was again admitted to Pontiac. There he was restless. His mood was euphoric and his ideas were expansive. He was clear in his comprehension and orientation. The pupils were normal in outline and reactions. The knee jerks were decreased. There were no disturbances of handwriting. After three weeks he had gained control of himself and left the hospital.

He remained well until he was 38, when he again became unstable and overactive, and was brought into the hospital. After a few weeks he was again well.

At the age of 40, he had another attack of excitement and was again in Pontiac. His excitement was somewhat greater than on previous occasions. He was clear in his grasp and orientation. His attention was distractible. He was noisy, singing and talking, with a marked flight of ideas. The pupils were not abnormal, but both knee jerks were absent. There was a slight Romberg. The blood serum gave a four plus Wassermann reaction, and the cerebrospinal fluid showed normal albumin reaction, 25 cells per cubic millimeter, and a four plus Wassermann reaction.

The blood serum of his wife, and son, aged 9, both gave a four plus Wassermann reaction. His thought and conduct were typically those of manic excitement. After seven months he was again discharged recovered.

CASE 6.—*W. C., man, aged 49. Syphilis at 23. At 26 brief attack of depression. Since then annually brief attacks of depression. At 49 depressed. Neurologic disturbances. Wassermann reaction mildly positive on blood and spinal fluid. No pleocytosis. Recovery from mental symptoms. Improvement in serologic findings.*

The family history stated that his grandfather suffered from two attacks of depression. The father showed eccentricities of conduct.

As a youth he had a period in which he had fears and compulsive ideas. At the age of 23 he became infected with syphilis. At 26 while taking his final examinations in a dental college he had an attack of mental depression which lasted about a month. Since then, he has had at least once a year a period of depression lasting several weeks. These usually were associated with a phase of mild elation.

In March, 1914, at the age of 49, he became depressed over business affairs and developed ideas of self-accusation, and had suicidal inclinations, which brought about his commitment to the State Psychopathic Hospital at Ann Arbor.

There were then present irregular and unequal pupils, and dulled reaction to light stimuli. The knee jerks were unequal. The left Achilles reflex was only occasionally obtained. There was slight incoordination of movements, and unequal innervation of the muscles of the face. There was a slight articulatory speech defect. The cerebrospinal fluid in two examinations showed 3 and 4 cells, respectively, per cubic millimeter. The albumin was not increased, but the globulin was a little more than normal. The Wassermann reaction was present in a strength of two plus on two occasions. On the blood serum the reaction was at first one plus, and after treatment it became negative.

Mentally, the patient was inactive, although not slow in his movements or speech. He was always depressed, and his thoughts were sad and centered on his health. At times he expressed suicidal inclinations. There was marked impairment of his memory. He quickly forgot numbers and what he read. Intellectual work was difficult and often incorrect. A week after his admission the depression was less and he returned home.

A few weeks later he returned to the hospital as deeply depressed as at any previous time. He expressed many absurd somatic ideas. At times he was dull and confused. After three months, the depression became less. He was always clear in his comprehension, and his intellectual ability and memory improved. He was at this time discharged, and for eighteen months has been successfully conducting a large dental practice and is apparently free from all mental depression.

CASE 7.—*B. E. S., woman, aged 31. Syphilis before 26. At 30 attack of hypomania followed by depression; mild neurologic disturbances. Wasserman reaction strongly positive on blood and spinal fluid; pleocytosis; marked improvement, remaining nearly recovered for three months, then apoplectiform attacks; rapid deterioration; excitement of manic type, followed by depression, and death from exhaustion.*

The family history showed that the patient's mother was insane, the diagnosis being manic depressive insanity.

At the age of 26 she had paralysis of the right sixth nerve, with headaches and dizziness. These disappeared under treatment. At 30, following an ovariotomy, she became overactive and expansive in her ideas. This continued for a year, when she became depressed, cried much, and attempted suicide. After a short period of improvement, she passed over into a deep stupor, in which she neither spoke nor moved, and in this condition she entered the Pontiac State Hospital. The neurologic examination at that time showed paralysis of accommodation in the right eye. The knee jerks were exaggerated. There were tremors of the hands and tongue.

The spinal fluid showed normal albumin and slight presence of globulin. There were 65 cells per cubic millimeter. The Wassermann reaction was four plus on the fluid and on the blood serum. The patient was put on mercurial treatment, and six months after admission she was regarded as practically normal, and was discharged.

Three months later she became overactive and was returned to the hospital. She was then clear in her comprehension, and there was no memory defect demonstrable. She was restless and overactive, and her thought was flighty.

Ten months later she had a series of apoplectiform attacks and one convulsion. Mental deterioration progressively became more prominent, and there was a pronounced speech defect. This excitement continued for eleven months, when she became depressed and stuporous. Death occurred from exhaustion about two months after the beginning of the stupor.

The brain in this case showed an extreme thickening of the pia mater with a large number of infiltrating mononuclear cells. There were extensive infiltrations of the blood vessels throughout the cortex and pons. The nerve cells and neuroglia were less severely affected than the membranes and vessels, yet there were many evidences of changes seen in the usual process accompanying general paralysis. The aqueduct of Sylvius was much narrowed by a proliferation of the subependymal glia, and this brought about a marked dilation of the lateral ventricles.

In the foregoing histories there is a certain recurrence of attacks which emphasizes the resemblance to manic depressive insanity. There are other instances in which in a single attack the symptoms closely resemble those seen in that disease. These usually are psychoses in which mental depression with slowness of thought and delusional elaboration dominate the clinical picture.

Case 8.—In the family of E. L., man, aged 44, there were several instances of death from apoplexy, but otherwise no important abnormalities. The patient had syphilis at 28. At 29 he had an attack of anxiety with mild depression lasting for two years. He had no more attacks until he was 44, when following a mild attack of syncope he became agitated and depressed, and entered the State Psychopathic Hospital at Ann Arbor.

The physical and neurologic examinations showed a lesion of the aortic opening; chronic nephritis; irregular and unequal pupils, and impaired reactions to light. There were no tremors or speech defect. The Wassermann reaction on the blood and on the spinal fluid was two plus. There were 18 cells per cubic millimeter, but no increase in albumin or globulin.

Mentally, the patient was profoundly depressed. His thoughts were centered on his nervous condition. There were a few somatic delusions. The memory and intellectual capability were not impaired. There was marked insomnia. Under treatment, the serologic findings improved, but his mental condition has not changed, and now, three years after his admission, he is still much depressed and unable to apply himself to profitable work.

Case 9.—The mother of O. S., man, aged 32, died of general paralysis, and a brother died in an attack of mental disorder. At 25 he contracted syphilis. At 30, following the death of his mother, he became anxious regarding his own health. Examinations showed a strongly positive Wassermann reaction on his blood. He was extremely apprehensive, and was continuously mildly depressed.

In 1913 he entered the State Psychopathic Hospital. At this time the knee and patellar reflexes were absent. The pupils were irregular but reacted to light. There was Romberg's symptom and slight ataxia and tremors. There was no speech defect. The Wassermann reaction was strongly positive on the blood and fluid. The cells have varied between 28 to 8 per cubic millimeter.

His depression has disappeared, and he is now working capably.

COMMENT

In all of these cases we have mental symptoms which differ much from the usual clinical picture of general paralysis, and seemingly are unrelated to the direct effects of a syphilitic process involving the brain structure.

Clinically the cases of the first group in their symptoms resembled common types of manic depressive insanity, in which there is no evidence of syphilis. In the majority of these, organic neurologic disturbances were not prominent. In only two cases was memory disturbance at all marked. In but one case, a fatal case, was there any general mental deterioration.

It seems justifiable to regard cases of this type as coincidental occurrences of manic depressive types of reaction and syphilitic diseases of the type of general paralysis.

The relation between the two disorders might be made clearer if one knew how far back in the course of the disease the serologic pathology became manifested. In only one case were there any prominent neurologic disturbances, such as attacks, speech defects, ataxia or reflex abnormalities noted during the early phases of the clinical course. In some of the cases there were signs of manic depressive tendencies before the infection with syphilis. In two cases the first attack of manic excitement occurred a few years after the infection. It thus seems impossible to establish the infection with syphilis as the direct cause of the mental symptoms.

The question of combined psychoses has always been interesting in psychiatric discussions. This interest has lessened as the psychiatric point of view has been turning away from nosologic distinctions, and toward regarding many of the functional psychoses as individual types of reaction to personal experiences. In this way the mental symptoms are only related to structural brain disturbance, so far as the latter introduces difficulties in nervous functioning and makes it possible for tendencies which have resulted from a pathologic nervous constitution, and the effects of personal experiences and mental habits, to assert themselves.

That in these cases there are possibilities for pathologic nervous constitution is shown in the frequency of hereditary instances of mental diseases in the families of these patients. These were present in seven of the nine cases we have been considering. In some of these families there were several members who had been insane, and in several instances the insanity present was of the manic depressive type.

Aside from the structural influence of a syphilitic process of the nervous system in producing disease, there is the possibility of a psychogenic mental disturbance which may develop in the individual who is confronted by the new and distressing problems which come to one who has acquired syphilis. It is not uncommon for functional mental disturbances to occur in the early stages of syphilis, the only explanation for which are the fears consequent upon infection. It is well known that manic depressive psychoses often have their beginning in a disturbance of the normal moods, brought about by a troublesome situation.

It is of interest to note that as far as the evidence of structural involvement of the central nervous system in this group by a syphilitic process is concerned, the progress of the process was slow and mild.

It would seem that some prognostic information might be drawn from the analysis of even these few cases. Of the patients, after the serologic examinations had shown the presence of a syphilitic process in the central nervous system, four made improvement in their mental symptoms to a degree that permitted them to return to their homes, and some to take up their business again in an efficient way.

One might conclude that cases of mental disease with the neurologic findings of general paralysis, when the mental symptoms are those of excitement or depression of the manic depressive type, in a considerable proportion tend to have very complete remissions, and their neurologic symptoms run a mild course.

ABSTRACT OF DISCUSSION

Dr. Frank Parsons Norbury, Springfield, Ill.: Some years ago, before modern methods of diagnosing syphilis were established, a patient came under my observation for treatment, having the clinical secondary manifestations of syphilis. He was admitted to the hospital as insane, manic depressive form, and ran the usual course of manic symptoms and convalescence in that type of case, and returned to his home. The following year we ascertained some facts connected with the history. About two years preceding admittance to the hospital he had an attack not unlike that described as a somnambulistic state. He went to a hotel, in a city distant from his home, registered, saw his friends, and, after a time, came to himself in this hotel and returned home. He had three subsequent experiences of this kind, during which he went through this same reaction, going to the same hotel and then when coming to himself would return home. After passing through the manic depressive period in the hospital, the following year he entered medical school where in his second or junior year while sitting on a bench one day in the clinic he had a convulsion and died. I have always been interested to know, especially in the particular case referred to, whether we were not then dealing with two essential conditions, one manic in which acute syphilis may be a factor; the other, some organic change independent of the syphilis. The syphilitic infection was subsequent to the first somnambulistic experience.

Dr. Hugh T. Patrick, Chicago: I would venture to expand Dr. Barrett's theme a trifle and apply it also to some of the neuroses, drawing the same moral: That if the patient presents a sufficiently typical clinical picture of a neurosis, and we get a positive Wassermann as evidence of syphilitic infection, we must not conclude that he has a syphilitic neurosis (if there be such a thing), or that the neurosis is caused by syphilis. It is the old clinical caution to consider all of the data and try to come to a reasonable conclusion. And I say this because I have had in a few cases an experience almost as uncomfortable to me as to the patient. For instance: A man with all the symptoms, or a sufficient number of symptoms, of ordinary psychasthenia, had a great fear of syphilis. I gave positive assurance that he did not have syphilis and that his symptoms could not possibly be due to syphilis and that there was no use worrying about it whatsoever. But eventually to satisfy the patient I had a Wassermann done, and it was frankly positive. Then the moral follows. These patients, having received adequate treatment for syphilis, have now and have had for a considerable period negative Wassermanns, but continue to have their functional nervous disorder as before.

Dr. W. F. Lorenz, Mendota, Wis.: For the last year and a half we have been making routine Wassermann tests on every admission to the three state hospitals of Wisconsin. Thus far over 3,500 cases have been examined. Among these not infrequently we found cases of manic depressive insanity with a positive Wassermann reaction. It has been the practice to make a spinal fluid examination in every case where the blood serum is positive. A number of cases were thereupon shown to be early paretics. On the other hand, the occurrence of syphilis among manic depressive cases, in which the syphilis is simply incidental, has been in the neighborhood of 5 per cent. The failures to recognize paresis have been in cases which simulate the manic phase of manic depressive insanity. A few years ago I reported a case of manic depressive insanity in which syphilis was contracted after three hospital admissions had occurred. Eight years after the infection, the patient was admitted as a typical paretic with positive blood serum and spinal fluid. The clinical picture of paresis was not affected by the constitutional manic depressive insanity. I would like to emphasize the fact that paretics may very frequently simulate acute mania, and that routine Wassermanns and spinal fluid examinations may be the only means of diagnosing the condition.

Dr. Milton Board, Louisville, Ky.: As I understand the manic depressive group, we have to deal absolutely with hereditary insanity. I have never seen a case of manic depressive insanity in which I could not get, by careful research among the members of the immediate family, a distinct family history. I know of no reason why an individual with such a line of heredity should be exempt from contracting syphilis. He can have syphilis like any one else. And, having syphilis, and showing manifestations which we classify as belonging to the manic group, naturally you will find in the blood and in the spinal fluid the reaction of a syphilitic infection. You will get improvement as far as the syphilis is concerned under specific treatment. You will get improvement from the mental symptoms because in the ordinary run of those cases they tend to recover. The two conditions are entirely separate and distinct, and yet they can and do occur in the same individual. Furthermore, it occurs to me and it is proved that an individual may belong to this type of neurotic individuals which causes him to be susceptible to and present these mental symptoms which we classify as manic depressive insanity, and yet the same person may contract syphilis and later on after one, two, or three attacks of manic depressive insanity, with the recovery that we expect, true paresis may ensue. With our knowledge of the pathology of paresis, however, we know that we then have to deal with a condition which is progressive, which is not going to recover under any treatment that we now have or that, in my judgment, we will ever have, because in true paresis we are dealing with nerve structure which is already dead, and we are as powerless to cure that condition as we are to raise a dead body.

Dr. Julius Grinker, Chicago: Among other things Dr. Barrett's paper emphasizes the fact that one should not overestimate the importance of a positive Wassermann finding, as has become the custom quite recently. A positive Wassermann test does not necessarily mean that the patient is suffering from active syphilis, nor does it indicate that the condition he is suffering from is directly or indirectly the result of syphilis or parasyphilis. Mistaken diagnoses are often made because of the fact that the Wassermann test is positive, while the patient is at the same time suffering from an alcoholic or other psychosis. In my opinion the diagnosis of general paresis should be made only when the neurologic signs are present. Especial attention should be paid to the pupillary reactions, deep reflexes, and speech disturbances, and last but not least, to the positive Wassermann findings in both blood and spinal fluid. The mere finding of a positive Wassermann without the neurologic signs of general paresis does not, I believe, justify a diagnosis of general paresis. On the other hand I have seen cases of manic depressive insanity in which there was a positive Wassermann, and which were falsely diagnosed as general paresis. Subsequently they recovered from the manic depressive symptoms, and, after treatment, also from the symptoms of syphilis.

Dr. C. Euglne Riggs, St. Paul: About four or five years ago I saw a case in which the Wassermann was positive, both in the blood and spinal fluid. There was lymphocytosis and globulin excess. I thought the case was one of general paresis. There was absence, however, of the characteristic neurologic findings to which Dr. Grinker has referred. Since this patient made a satisfactory recovery, it was evidently a manic depressive case.

XANTHOSIS AND OTHER SEPTAL HEMORRHAGES *

CHESTER C. COTT, M.D.
BUFFALO

In discussing the question of nasal hemorrhage I wish to eliminate the general diseases which cause epistaxis. We all know that many general diseases have this symptom, such as diseases of the blood, anemia, for instance, of the heart by causing passive congestion, of the liver and kidneys by raising blood pressure, or of the blood vessels, as in syphilis. In addition, epistaxis may accompany the acute infectious diseases or there may be a hereditary tendency to it, as in hemophiliacs. We need not concern ourselves with these conditions at this time, for it is our duty to recognize them and then return the patients to the general practitioner for treatment. As nosebleed from these causes comprises only a minority of the cases which come to our notice, we shall be saving time by considering by far the majority of nasal hemorrhages, those due to septal lesions.

You are familiar with the traumatic type of nasal hemorrhage, which is usually unilateral, and with that type accompanying ulcerations of the septum and per-

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forations caused by picking the nose or by tuberculosis or syphilis. Then tumors though rare cause very troublesome hemorrhage at times. However, the most frequent cause of septal hemorrhage is that condition called xanthosis and is described by Watson Williams as a "yellowish pigmentation of the pituitary membrane as a result of interstitial hemorrhage." Of all the locations in the nose where hemorrhage occurs the anterior part of the septum is the most frequent. The percentage, according to some authorities, is about 75. Xanthosis is as a rule the start of these lesions. Therefore, in discussing xanthosis and its cure we shall consider the most common, most persistent and the most easily overlooked disease of the nasal septum causing hemorrhage.

In its early stages xanthosis is often not recognized by the general practitioner because the bleeding is not profuse. Slight hemorrhage occurs at any time of the day or night. It is unconsciously swallowed or at night inhaled. The next day it is vomited or coughed up, giving no clue as to its source. As the disease advances blood serum covers the involved area and dries. This finally becomes large enough to be detached by forcible blowing of the nose. A slight amount of mucous membrane is torn off with each scab until eventually blood appears after blowing the nose and the source of the hemorrhage is located.

Occasionally the bleeding is quite profuse, even in the early stages, when a site near the anterior septal artery is attacked. This, however, is usually a later manifestation. The thin mucous membrane and perichondrium are ulcerated and the anterior septal artery or one of its branches is opened. Then the hemorrhage occurs three or four times a day and is profuse each time. Usually it is at this stage that the cases come to us.

REPORT OF CASES OF SEPTAL HEMORRHAGE WITH OPERATION

Case No.	Name	Age	Sex	History of Epistaxis	Remarks
1	C. G. P.	55	M	Slight but continuous	Also had Bright's disease. Too weak to get out of bed
2	J. B. N.	30	M	Bleeds readily when blowing nose	Bilateral
3	A. K.	25	M		Unilateral
4	M. C.	54	F		Unilateral
5	L. McK.	17	F	Occasionally last nine years	Unilateral
6	L. S.	34	M		Unilateral
7	C. T.	17	F	Periodical	Bilateral
8	G. D.	18	F	Two or three times a day for 3 months	Unilateral
9	C. F. B.	30	F	Profuse, especially last 24 hours	Unilateral with very marked pulsation
10	J. S.	55	F		Did not heal for several months
11	F. B. A.	36	F		Unilateral
12	M. W.	42	F		Unilateral
13	E. S.	31	M	Continuous for last two weeks	Alcoholic. Slight recurrence one year later
14	L. C.	22	F	Bleeds on blowing out scabs	Unilateral
15	W. H.	20	F		Unilateral
16	M. S.	21	M	Every other day for last seven weeks	Unilateral
17	J. L. M.	45	F	Frequent for a number of years	Unilateral
18	J. S. S.	60	M	Blood in sputum	Otherwise healthy; unilateral
19	C. H. D.	47	M	Continuous for last 24 hours	Lesion on floor of nose
20	A. M.	37	F	For last two months	Unilateral
21	M. K.	29	F	For many years at menses	Unilateral
22	N. G.	11	F		Unilateral
23	R. W. S.	41	M	Once lost 4 quarts without cessation of hemorrhage, he said	A male nurse; weighed 300 pounds; blood pressure, systolic, 170
24	F. W.	16	M		Bilateral
25	W. H. B.	37	F		Unilateral
26	M. R.	22	F		Unilateral
27	J. R.	35	M	Bleeds on blowing hard	Vessels exposed over large area, both sides
28	J. L.	29	F	Occasionally for many years	Unilateral
29	J. H.	51	F		
30	G. A. H.	24	M		
31	F. M.	54	F	Continuous and severe for last eight days	Two doses of coagulose given with no effect, packing alone stopped it; no bleeding after operation
32	C. B.	17	F		
33	H. B.	29	F	Attacks for last 20 years. Occasionally 3 attacks at night	Very anemic; good recovery
34	C. L.	29	F	Frequent epistaxis	Unilateral
35	W. S.	38	M		Lesion quite high on septum
36	R. D.	21	M		
37	Dr. R. J.	40	M		Bilateral
38	C. B.	21	M	Attacks for last thirteen years	Bilateral; no membrane or perichondrium left on right side

On examination a yellowish spot the size of a dime is seen on the septum about half an inch from the anterior nares. It has seemed to me to be present as often on straight septums as on those deviated. Occasionally one or two spots of blood may be noticed near the center of the lesion. At times there is a steady oozing from the involved surface or from one part of it or a well marked, pulsating hemorrhage. In whatever stage we see it first very slight rubbing with cotton will open the capillaries.

The treatment in the past has to my mind secured only temporary relief. Packing has been used, daily applications have been tried, and chemical or electric cautery has been resorted to. Some men have severed the arteries found bleeding. The first two measures are certainly not of permanent value. The cautery, although occasionally useful, causes a great deal of reaction if applied strong enough to overcome the hemorrhage. The last-mentioned method is good if the hemorrhage is confined to one spot. I wish to bring to your attention a method which was mentioned some time ago at a meeting of the American Academy of Ophthalmology and Oto-Laryngology by my father. As the subject has never come before this body I thought it advisable to describe our method, since it stops the hemorrhage immediately, never to recur.

The mucous membrane and perichondrium are raised just as in starting the submucous resection of the septum. If the hemorrhage is near the floor of the nose the periosteum of the nasal crest of the superior maxillary bone is also raised. The incision is made a quarter of an inch anterior to the lesion and the membranes are freed from attachment a quarter of an inch beyond the involved area in all directions. Then iodoform gauze is packed snugly between the septum and perichondrium. This puts the flap under slight tension and effectually prevents any hemorrhage. If the membrane and perichondrium have been eroded so that there is nothing left to raise, the edges of the ulcer are raised in the usual manner and the bare cartilage gently scraped with an elevator. Then the gauze is put in place. This is left in position two days, during which time the flap becomes somewhat thickened. If there is slight bleeding when the gauze is removed, another piece is inserted for a day. As a rule no hemorrhage occurs after the third day. When packing is no longer necessary, the flap is gently pressed against the septum and encouraged to heal over the crescent-shaped piece of cartilage which is then visible. When this has healed, hemorrhage will never occur again in that region.

If both sides of the septum are diseased, the worse side should be done first and allowed to heal before the second one is touched. Otherwise a perforation will surely result, since the cartilage on both sides of that part of the septum will be without nutrition for a short time. However, this has never occurred to us if only one side is taken care of at a time. Complete healing of the incision takes place in about two weeks. Scarlet red ointment hastens recovery somewhat. We have had only two cases in which circumstances made it necessary to operate on both sides at the same time. These patients had bled so much it was thought no more could be spared and packing was not well tolerated. Considering all sides of the question, we decided to do both sides at one sitting. Both patients made good recoveries with small crescent-shaped perforations about one-eighth of an inch wide.

I shall hand to your secretary a report of thirty-eight cases in the order in which they came to us. These are all private cases. The hospital ward cases are not included. The patient in Case 9 suddenly had a severe nasal hemorrhage. The lesion was close to the nasal crest of the superior maxillary bone. The pulsating hemorrhage was the most marked I have seen in this region. However, I operated immediately, with complete success.

In Case 10 the healing was very poor after operation. The woman was 55 years old and had no general disease. Her perichondrial flap showed absolutely no inclination to stick to the cartilage after it had once been separated. Occasionally this happens. After a Simpson tampon has been left in place for a few hours the perichondrium adheres to the cartilage. But in this one case it did not. After about three months it healed all right. There was no hemorrhage at any time after operation.

Case 31 was the worst one we had. The woman was 50 years of age and lived in the country some distance from her physician. She bled continuously for eight days, except when her nose was packed. She finally would not stand for more packing and became so weak that she was brought to town. She had had two doses of coagulose with no effect. In the office I soon located the source of the trouble, operated on it and packed. When the lesion is situated in this region there is never any difficulty in locating the bleeding vessel and no matter how hard it is bleeding, this operation can be done immediately. This woman was sent to the hospital after operation, where she remained for a week or so. She did not bleed a drop after operation. I have seen her since and she has remained well.

This report of cases which I do not intend to read has been made as concise as possible. All the patients were operated either on one or both sides. All healed well with the exception of Case 10 mentioned above. There were all degrees of hemorrhage, from the slightest to that which if neglected longer would have caused death. The mucous membrane and perichondrium were in all conditions, from typical xanthosis or yellowish pigmentation to ulceration. There was never a recurrence of hemorrhage except in Case 13, an alcoholic, who had a slight attack one year later.

I am well aware that there are other methods used for permanently stopping septal hemorrhage, as for instance those of Beck and Pierce; however, the method outlined here is so simple and the results obtained by it so certain, when careful after-treatment is maintained, that I feel sure you will be well repaid if you try it.

1001 Main Street.

ABSTRACT OF DISCUSSION

Dr. Emil Mayer, New York: If the object of this method is merely the elevation of the perichondrium, I would like to ask whether he could not reach the same result by injecting fluid, such as a saline solution, underneath the mucosa and thus obviate a rather lengthy operative procedure.

Dr. Henry B. Hitz, Milwaukee, Wis.: I would like to call attention to a method I have tried in cases of anterior nasal hemorrhage and that is simple ligation; by passing the threaded needle underneath the point of bleeding in the tissue and tying. I oftentimes have been unable to get directly up against the bleeding vessel, but by taking in rather a large section of the mucous membrane I have been able to control the hemorrhage permanently. If I am able to locate the point of bleeding, one or two sutures will do the work promptly—requiring no packing and resulting in no annoying ulcerations. It has answered in every case met with in the past five years.

Dr. George F. Cott, Buffalo: I fail to see how Dr. Hitz can stop every case of hemorrhage, as those described in the paper, by drawing a ligature around the vessel or the spot that is affected. The area sometimes is half an inch in diameter, and extends perhaps a little farther than you can introduce any kind of a needle. You cannot get them short enough to introduce them, and if you could you would have to take a stitch at least three quarters of an inch in length, which would be impossible. As to injecting under the membrane, in most cases there is ulceration, with pus formation involving a large area from a quarter of an inch to more than half an inch, and anything injected underneath would be lost; it could not possibly be held. Care must be taken against infection, because where the cartilage is denuded it is irritated with the elevator. In one case I tried it on one side and found the cartilage was thin and perforated, so I waited until that healed up and then raised the membrane all around it and curetted the surface. That gradually healed, and then I tried the other side. The thing to do here is to thicken the membrane, and injecting fluid will not thicken it. You must irritate it in some way in order to increase nutrition.

Dr. Cullen F. Welty, San Francisco: I believe this operation of Dr. Cott's is quite in keeping with the best that we have, and I believe it is an improvement on everything that has been done before. However, I wish to say that there is an underlying principle of a bleeding nose that has not been touched on, and that is that when a vessel is eroded it is from this the bleeding comes, and the reason you have the bleeding is because the crust is pushed away and the vessel is again opened. Now the thing to do is to put your nose in such condition that you can deal with it in a surgical way. Dr. Mayer spoke of having trouble in dealing with nasal hemorrhage. I have never seen such a condition in the extreme, and all I have done in my years of experience and practice has been to cocainize that area thoroughly and then, depending on my discretion, use a nitrate of silver cautery or an electric cautery—according to the lesion I find. No hard and fast tampon should be put in that nose, but strict instructions should be given the nurse to change the oil tampon every two hours. You should never allow the crust to form again, and if the oil tampon is changed every two or three hours for a period of two or three days you will have a perfect recovery, and I do not know of but one or two cases that have bled the second time.

Dr. C. M. Brown, Buffalo: I have tried this method and almost always with good results. One or two cases in which I did not get good results were cases of high blood pressure—perhaps around 240—and it was necessary to apply tampons and have the patient come back the next day. But I do not remember a case where the results were not good.

Dr. Chester C. Cott, Buffalo: In answer to Dr. Mayer, I wish to say that I have a great deal of objection to injections for this condition, because watery fluids will be absorbed quickly, and anything solid or semisolid such as paraffin will cause obstruction of breathing. But by our method the tissue gradually recedes to its normal position, although in some cases there is obstruction of breathing on one side for a short time. I have never had it occur to me that there was too much hemorrhage in that region to operate. I have always easily located the hemorrhage and operated on that vessel. Dr. Welty's method of oil tampons very likely will work well in early cases, but in advanced cases where the ulcerations are large I should think something more radical would have to be done. I have never had but one recurrence and that was in a confirmed alcoholic.

DERMATOLOGIC DIETETICS *

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A system of diet for special cases demands a comprehensive knowledge of dietetics in general. The application of dietetic principles presupposes a familiarity with the science of nutrition. Nutrition is upkeep. The question of up-keep is complicated by many circumstances. Essentially it deals with two vital factors, fuel and repair.

The fuel factor exists because of the need to maintain a certain degree of bodily heat. The repair factor is due to the continuous breaking down of constituent cells, so that worn out parts must be constantly made over or repaired.

What is termed basal heat production is the amount shown by a fasting, normal individual in a state of complete rest at a temperature corresponding to that of his body. In an average man of 156 pounds this will be 70 calories per hour. Extra heat produced by the ingestion of food causes an increase of approximately 10 per cent., making 77 calories per hour or 1,848 calories per day. Beyond this point the fuel requirement depends on the quantity of work done. For an average man of sedentary occupation about 2,500 calories are sufficient. The average of farmers is 3,500. The average throughout the city of Paris, according to Gautier's statistics, is 2,500. A boy of 12 requires about 1,500 calories daily.

In the satisfaction of these caloric requirements what are the relative values of proteins, carbohydrates and fats? What special purpose does each fulfil in the processes of nutrition?

Fuel values are expressed as follows:

1 gm. of protein furnishes	4.1 calories
1 gm. of carbohydrate furnishes	4.1 calories
1 gm. of fat furnishes	9.3 calories

Because of its nitrogen content protein is essential to the processes of growth and repair. In excess of the quantity required for these purposes it increases the level of heat production.

The term "nitrogenous equilibrium" is used to denote an agreement between the nitrogen ingested as protein and the nitrogen excreted as urea, uric acid, ammonia, purin and other bodies. When the amount of nitrogen eliminated is less than that received in protein there is evidently a storing up of nitrogenous substance. There exists a positive nitrogen balance, a condition seen in growing children and convalescents. If, on the other hand, the nitrogen excreted is greater than the amount contained in the ingested food, there is developed an inroad on the nitrogen of the bodily tissue, or a negative balance, a phenomenon observed in underfeeding, malnutrition and wasting diseases.

The amount of protein required has caused much discussion. Voit's widely accepted standard calls for from 100 to 120 gm. per day. The experiments of Chittenden showed that from 40 to 60 gm. of protein in a mixed diet were sufficient for the maintenance of good health in well-nourished men following different vocations. It has been said that this establishes the minimum requirement rather than the amount that may be advantageously taken, though it frequently becomes necessary to raise the protein above Voit's standard and to reduce it below Chittenden's.

As to the kind of protein, Voit would have one third animal and two thirds vegetable, though there seems to be no hard and fast rule respecting this ratio.

Carbohydrates, protecting the albumin of the tissues from waste better than a similar quantity of fat, are called albumin sparers.

A mixture of absolutely pure carbohydrates, fats, proteins and salts will not maintain life for a long time. The experiments of Osborne and Mendel show that a satisfactory complement exists in a powder obtained by evaporating milk from which the protein element has been almost entirely removed.

They found further, in experiments with rats, that when lard was the sole fat element of the diet growth stopped, but when butter fat was substituted growth was resumed.

The sensitiveness of the human organism to infinitesimal quantities of certain substances is illustrated by the necessity of epinephrin to maintain life, although this substance is present in the blood only in the ratio of 1 part to 100,000,000.

A minute quantity of some certain substance seems quite as necessary in food. It has been found that a group of so-called vitamins exists in the vegetable kingdom and that the members of this group are essential to growth and nutrition of animal tissue. Deficiency of these substances causes beriberi. Pellagra is undoubtedly of analogous origin.

The importance of the group of amino-acids has only recently been recognized. Peptone, once assumed to be the final stage of protein digestion, is now held to be only an intermediate stage. According to the latest conception of protein digestion a profound disintegration occurs, the ultimate products formed being a variety of polypeptids and amino-acids. Digestion consists in a series of hydrolytic cleavages induced through the agency of the enzymes present in the gastro-intestinal tract. The products formed by these enzymes undoubtedly are identical with those produced outside the body by the action of acids. Amino-

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acids must be regarded as the ultimate nitrogenous foodstuffs.

It is now accepted that amino-acids are normally absorbed directly into the blood from the intestines and distributed to the tissues. The process of repair is assumed to take place in virtue of the mixture of amino-acids thus received. Over and above the quantity required for synthesis the amino-acids are presumably, by a process of deamination, converted into urea and carbonaceous residues. The carbon remainder may possibly be transformed to carbohydrate to yield heat and energy.

The nutritive values of any protein depend largely on the character and the extent of the amino-acids it contains. It is not within the province of this paper more than to hint at the importance of this group from the dietetic standpoint.

Thus, we see that glycocoll, the simplest of all amino-acids, is not found in every protein, as albumin, casein and hemoglobin all fail to yield it. Alanin is a constant decomposition product of protein. Cystin is of importance in metabolism, because it is the only known sulphur-containing amino-acid in the protein molecule.

The metabolism of sulphur is intimately connected with that of protein. Although sulphur is ingested in both inorganic and organic forms, it is not probable that the former figure at all in the processes of metabolism. Sulphur exists in organic combination in some food fats, but so far as is known, this is completely oxidized. The sulphur of protein is contained in the amino-acid cystin, and cystin is absolutely necessary for nutrition. A satisfactory protein ration must include such proteins as contain cystin in sufficient amount.

From cystin apparently come the sulphured lipoids of the central nervous system, of the bile and of the secretions of the cutaneous system. Sulphur is eliminated in the urine, in the stools and in the skin secretions. The amount of sulphur passing through the skin is estimated at 30 mg. per day.

In the metabolism of fat there are only two deviations from the normal to consider. One is the failure of diabetics to form fat from glucose and the other is the acetone complex, or acidosis. In the latter condition fats, instead of being burned completely, are in part eliminated as acetone, aceto-acetic acid and beta-oxybutyric acid. This occurs in diabetes, starvation, infections, gastro-intestinal disturbances, phosphorus poisoning and after anesthesia. Fat subjects, when fasting, show a marked tendency to acidosis.

An interesting phase of carbohydrate metabolism is the relation of increased sugar content of the blood with certain dermatoses. It has not been thought that hyperglycemia, in itself, predisposes to infection, yet Schwartz and co-workers recently found in their investigation of a limited number of skin diseases chosen at random that increased amounts of sugar in the blood apparently favor the occurrence of pilosebaceous disease.

Before beginning the adjustment of diet lists for individual cases it is well to scrutinize the general requirements of a normal diet. Practically all the rules necessary are epitomized by Taylor as follows:

The desiderata are:

1. The maintenance of nitrogenous equilibrium.
2. Energy-bearing foods sufficient to maintain the caloric equilibrium under the individual's conditions of life.
3. Certain fresh or raw foods.
4. A certain fraction of vegetable fiber.
5. Certain salts needed by the body.
6. Certain extractive substances and flavoring materials that stimulate the secretion of gastric juice.
7. Certain reasonable demands of taste and bulk.

If any explanation is needed for repeating so much that is obvious it lies in the fact that there are certain fundamentals which those who constantly regulate diets must remember. It is the one safeguard against dietetic fads and the little personal predilections to which we all fall victims if we fail for a moment to keep these basic requirements of nutrition in mind.

The application of the principles of nutrition to the needs of dermatology is difficult. One may easily be too general or too specific. Some attempts have been made by writers on dietetics, as well as by dermatologic authors, to dismiss the subject in such light fashion as, "For acute cases a fever diet, and for chronic cases a dyspeptic diet." We are not advised as to what constitutes a dyspeptic diet. Other writers content themselves simply by forbidding cheese, nuts, fish, strawberries and pastry in skin diseases.

These are not exaggerated quotations. They are often encountered and accepted as holy writ by many practitioners, who wonder why an acne or an eczema is not cured when treated according to such precepts.

It is possible, also, to particularize too closely. No one can say, for example, that a certain diet will fit a given dermatosis in every instance. There are too many complicating circumstances. The patient must be considered as well as the disease. In one case the outstanding feature of an eczematous individual is diabetes; in another it is simply overeating. Obviously the same rule will not apply to both subjects.

Between the two extremes of generalization and detail the subject may be approached from various angles. We may consider it purely from the standpoint of the different foodstuffs, gathering from the study of the metabolism of each class such general principles as will guide us in the treatment of various dermatoses. We may, on the other hand, begin our inquiry directly with single cutaneous disorders and try to establish the special food indications in each case. If this seems too complicated we may resolve all dermatoses into groups according to pathology, or according to etiology, and designate an appropriate system of feeding for each group, as one for inflammations, one for diseases due to nerve influences, etc. Or we may revert to the old diathesic doctrine and associate each individual or each skin disease with some general systemic state. I suspect that in practice we resort to this last alternative most often.

For our present purposes, however, it has seemed best to arrange loosely into three divisions various dermatoses according to their relationship with diet as follows:

1. Those directly dependent on diet.
2. Those in which diet may not be the cause, but in which it is of capital importance.
3. Those in which diet may be an indirect factor.

Beyond these three groups there remain certain morbid states requiring dietetic care, conditions which are often seen in association with various dermatoses and whose relationships with these dermatoses may be direct, casual or remote.

The dermatoses directly dependent on diet are pellagra, urticaria and toxic erythema; certainly these, possibly others. Pellagra is now grouped definitely as a deficiency disease, the theory being that it occurs in persons whose diet consists mostly of corn which has been deprived of vitamins, or accessory foodstuffs, in the process of milling. The dietetic indication in this case is obvious.

Urticaria may be safely included in the category of diseases referable to dietetic cause, although it often occurs definitely following the bites of insects, as fleas and wasps. Whether due to one cause or another the essential incident is hypersensitiveness and the offending substance is a protein. The toxic erythemas fall likewise in the same group.

As to those cases in which diet, while not necessarily the cause, is still of practical importance, there may be great divergence of opinion. A trio of everyday diseases will serve as illustrations for this group, namely, eczema, psoriasis and rosacea. It will be well to consider the dietetic indications for each of these conditions and to scrutinize the evidence at hand which seems to make dietetic adjustments necessary.

Judgment would be easier in this respect if we were able to state precisely the mechanism of the action of deleterious foodstuffs. It is assumed that they may act on the skin as follows:

1. Reflexly, through irritation of the gastro-intestinal mucosa.
2. Indirectly, through incomplete digestion, intestinal toxemia, etc., in which cases irritating substances are carried into the circulation.
3. Directly, through the elimination by the skin of such substances as the salts of bromin, iodin, etc.
4. Through insufficiency of certain elements, as the so-called accessory foodstuffs, or possibly through a negative balance in nitrogenous equilibrium.
5. Through excess of certain foodstuffs causing, for example, if carbohydrates, hyperglycemia and, in the case of proteins, a positive balance in nitrogenous equilibrium.
6. Through hypersensitiveness.

Take the question of eczema. While there are some cases in which faulty diet seems to be the chief cause, there are certainly many in which, so far as we can ascertain, food has played no part in the production of the disease. Disregarding the cause, however, diet is of importance.

As we are dealing with an inflamed skin in eczema we might reason that, as in the treatment of inflammations in general, the paramount indication is rest. Certainly we aim to give the integument a respite from the external contacts of daily life. But is it possible to grant any diminution in the activities of the skin through the intervention of a modified food intake?

It is a matter of everyday observation that a plate of soup, a cup of coffee or a cocktail will cause an increased feeling of warmth, a dilatation of the superficial arterioles. We concede that these reactions are adverse. Why? Is it because the cellular activities of the skin are quickened in general, or is it because there is an increased eliminative tax on the integument? And if the exacerbation of an eczematous process seems clinically to be in relation with excessive nitrogenous intake, is it because of nitrogen retention, incomplete digestion or some other error in metabolism? It is of importance to know not only that a certain article of food is harmful, but, so far as possible, through what agencies it operates.

The conventional manner of approaching the subject seems to be to search out some particular class of foodstuffs which is supposed to be noxious and banish it from the dietary. This is especially true of the eczemas of infancy. Some go so far as to profess that all that is necessary in such cases is to determine whether there is an excess of starches or fats in the stools and to adjust the diet in accordance with the findings.

Unquestionably this method will succeed in a certain number of cases, but by no means in all. I have for a long time puzzled over a striking difference in the behavior of infantile and adult eczemas toward foodstuffs. In the former, as stated, a certain number respond to reduction of starches and fats. In older subjects, however, there has seemed to be a constant improvement when the nitrogenous intake was sharply limited.

The explanation of this may be that in infants, because of the demands for tissue growth, relatively more protein is required, with a corresponding tolerance for it, and that such metabolic disturbances as occur are more definitely connected with fats and starches. Or it is possible that many more eczemas than we have imagined are due to anaphylaxis. Or, further, it may be that in many cases the fault is quantitative rather than qualitative and that children who are overfed are more subject to excessive amounts of fats and starches while the average adult who overeats is prone to partake of increased amounts of meats and proteins in general.

The question of diet in psoriasis is intimately associated with the subject of protein metabolism. In whatever light we regard diet with respect to the etiology of psoriasis there can be little doubt concerning the value of dietetic regulation in its management.

Bulkley has for a long time advocated a vegetarian diet, favoring particularly one practically limited to rice. The researches of Schamberg and his associates are of great importance in this connection.

While it will not be attempted to present their results in extenso, it may be recalled that, among other things, they found psoriatics possess a strong tendency to store nitrogen, that large quantities of nitrogen may be lost through the skin in the form of scales and that a low protein diet has a distinct and remarkably beneficial influence in the course of the psoriasis.

In the experience of all of us personal clinical observation must have abundantly confirmed the value of the low protein diet in this persistent dermatosis.

The question may be raised as to why one should bother with diet in a disease which can oftentimes be so readily controlled with local applications. The excessive accumulation of scales points definitely to a specific metabolic fault, if one will but interpret it, just as pale cheeks may point to a deficiency in the blood. And it were just as logical to be content with putting chrysarobin on the one as rouge upon the other.

Both in psoriasis and in eczema a greatly reduced protein intake may be indicated. This is far from saying, however, that it must be ordered for every subject of these diseases, or that it is advisable for any patient under all circumstances. A long-continued diet of rice alone would be obviously ill advised and while undoubtedly the average individual will do better on less rather than on more protein, the fact remains that the minimum protein requirement varies greatly in different subjects.

A modified lactovegetarian diet has proved most satisfactory in my experience with both eczema and psoriasis. Liberal quantities of rice and milk with the addition of fruits and vegetables, including peas and beans, are allowed. Meat, fish and eggs are proibited for a limited period. If the amount of milk onsumed is small the addition of a slice of bacon and ather liberal amounts of cream and butter are rec-mmended. A moderate quantity of sugar is not eemed harmful. Tea, coffee and alcohol are of ourse excluded.

The great majority of subjects not only improve as their skin diseases under this regimen, but experi-nce a definite sense of well-being. Proteins are grad-ally restored, but in most instances the aim is never allow them to be resumed in the former amounts.

Rosacea occupies the same position as eczema and soriasis in that no matter how little consequence we ay attach to diet with respect to cause we must cknowledge the effect of dietetic regulation in its reatment. Apparently, however, we cannot connect e disease with any one dietetic fault. A great variety f influences, many of a reflex nature, are associated ith it. Diet is of importance so far as it favors such eflexes. These reflexes may be brought about directly rough the action of stimulants or indirectly as a esult of intestinal indigestion. It has seemed to me at while the starchy foods are most often at fault, any patients are the better for a somewhat restricted rotein intake. This may be true only to the extent at those who eat too much starchy food, as a rule, at too much of everything. In rosacea, as in many ther conditions, the chief indication sometimes seems be not so much selection of food as sharp limita-on of amount.

To illustrate group three, diseases in which diet lays an indirect part, the case of acne may be cited. here are doubtless some who will not agree to its nclusion in this group. It will be said that here diet surely of capital importance. I have never been ble to satisfy myself, however, that any definite article f food actually determines the outbreak of acne sions, though manifestly it may be a factor in many ays in favoring the production of lesions.

If the observations of Schwartz and his associates re confirmed by more extensive reports we may find at starchy foods, by increasing the sugar content of e blood, and predisposing to affections of the pilo-baceous system, so directly concern this disease that is deserving of more dietetic consideration. To date, owever, it has been most generally assumed that the eleterious substances are those which cause reflex yperemias and those which are notoriously difficult f digestion. These observations are likewise appli-able to seborrheic dermatitis.

In many other dermatoses the indirect value of ppropriate diet is apparent, as in the tubercular group nd in the cutaneous reactions resulting from nfections.

There remain certain morbid conditions which call or dietetic adjustment and which are often encoun-ered coincidently with the dermatoses we are called n to treat. The question often before us is the dietetic ndication for the attendant morbid state rather than omething specific for the diseases of the skin. Among ese conditions are acidosis, anaphylaxis, anemia, onstipation, diabetes, dyspepsia, gout, hyperthyroid-m, hypothyroidism, infections, nephritis, neuras-enia, obesity and tuberculosis.

These are all of vital importance to the dermatol-gist as well as to the internist and while they cannot e considered here they present problems to which we ay address ourselves with advantage.

To recapitulate briefly, a knowledge of the essentials of metabolism is necessary for any one who essays to make radical changes in diets. There are but few specific diets in dermatology, but an accurate perception of the individual's needs, from the standpoint of nutrition, is imperative.

One may sometimes find much confusion in an attempt to reconcile theories of metabolism with the practical needs of the individual. Much comfort may often be found in the three simple rules of Brocq: Eat sparingly; eat slowly; rest after meals.

ABSTRACT OF DISCUSSION

Dr. L. Duncan Bulkley, New York: Dr. Chipman referred to the rice diet as recommended by me, but I absolutely exclude milk in connection with this diet in eczema. I myself long suffered from a recurrent eczema of the hands, and have often had the opportunity of proving in my own case the efficacy of the rice diet, under which I have seen the eruption disappear entirely within forty-eight hours, if it is taken promptly, at the beginning. In certain forms of acute eczema or bullous dermatitis I have relieved the itching in five days. There are certain details, apparently trivial, but which I insist on in connection with this diet. The rice should be eaten with a fork, not a spoon; butter can be added to it, but no milk nor sugar; it should be taken three times daily, as hot as the patient may find agreeable, and at least half an hour must be taken in consuming it, with much mastication. No medicines are prescribed, either internally or externally. One half pint of water is allowed with each meal, and the same quantity is given hot, an hour before the morning and evening meals: also as much dry bread (twenty-four hours old) as the patient cares to eat with each meal, and butter, to the extent of quarter of a pound in the day, divided equally among the three meals.

Dr. Jay Frank Schamberg, Philadelphia: The treatment of psoriasis by diet has interested me for some years. I believe there is still a dominant feeling among dermatologists that the dietary treatment of psoriasis is largely without results; it is my conviction that we can influence the course of psoriasis enormously by a low protein diet, but in order to accomplish this result, we must come to some understanding as to what really constitutes a low protein diet. It does not mean simply a vegetarian diet: it means a diet not exceeding five grams of nitrogen a day. It means the elimination of milk, eggs, cheese, nuts and meat, and also the restriction of the use of bread and of vegetables that are relatively high in nitrogen, such as peas, beans, etc. With such a diet, in the course of three weeks, without any external treatment, one will observe a pronounced change for the better in the eruption. We are all familiar with psoriatic eruptions where the use of strong applications, such as chrysarobin, or arsenic internally leads to an extension of the disease. We commonly provoke a dermatitis which becomes the seat of a spreading psoriatic eruption. The eruption may eventually yield to the use of chrysarobin or arsenic, but if one will resort to the diet first and later to the chrysarobin and arsenic, much more rapid results will be obtained. What theory can we advance for this observation. We do not know the cause of psoriasis; it has been a mystery since the days of the Greeks. My own idea of the good results effected by the dietary treatment is that a low protein diet lessens the proliferation of the cells of the skin. Its beneficial effect is not confined to cases of psoriasis, but it accomplishes good in extensive inflammatory dermatoses such as chronic eczema and dermatitis exfoliativa. I believe it acts by restricting the pabulum that goes to the building up of the epithelial cells and their proliferation. When one sends through the blood a decreased amount of protein material, one lessens the proliferating impulse. The cause of psoriasis may ultimately be found to be parasitic, but that need not modify one's views as to the influence on the disease of dietary regulation.

Dr. A. Ravogli, Cincinnati: We do not know very much about pellagra. In Italy it was believed that the disease was due to the use of spoiled corn as a food by the peasants, but that theory has not been proved conclusively. It is, perhaps, due to the contamination of food or to the bite of certain insects. We are apparently dealing with a toxic condition which eventually affects the nervous system, producing dementia, but we cannot say positively that it is a food disease. In connection with this general subject of dermatologic dietetics I recall a patient with a generalized eczema who when he came to me said he had consulted so many physicians who had forbidden this or that favorite article of food until his diet list was reduced to such an extent that he felt furious when he entered a restaurant and looked over the bill of fare. I told him to forget all he had been told and eat anything that agreed with him and he went away highly delighted. The relationship of food to skin affections presents a very complex problem: for example, we find psoriasis in England with its universal diet of beef and mutton; we find it in Italy, where the poor subsist largely on corn meal and bread; we find it among the people of the Tyrol, with their cheese and milk diet, so I think it would be rather difficult to establish any definite relation between certain articles of food and this disease. I believe that alcohol aggravates a severe eczema and that the excessive use of tobacco is also harmful. I am in favor of regulating the diet of our patients to a certain extent, but it should not be carried to extremes.

Dr. Richard L. Sutton, Kansas City, Mo.: With regard to infantile eczema, I agree with Dr. Charles J. White and others that overfeeding with fats or sugars is an important etiologic factor in the majority of instances. In certain cases reported by McBride and Schorer anaphylaxis played an important figure. In certain types of urticaria the presence of certain protozoa has been demonstrated, and these patients have improved under the use of emetin. With regard to diet and psoriasis, in spite of Dr. Schamberg's excellent work along those lines, I still confess that I am inclined to agree with Dr. Ravogli. The same is true of pellagra. We see these eruptions develop in people, while their neighbors, living under the same hygienic conditions and eating the same kind of food, remain free.

Dr. Marcus Haase, Memphis, Tenn.: I understood Dr. Chipman to say that urticaria was always due to an error in diet: I would mention one other cause that we find in the South, and that is malaria. We have had nine cases of urticaria that were unquestionably due to the presence of the plasmodium in the blood, and the skin manifestations promptly cleared up with the administration of quinin. In one instance the skin eruption had existed intermittently for four years. As regards pellagra, I have followed Goldberger's work closely and have often assisted him. Prior to the time when a protein diet was adopted as a curative agent in the City Hospital at Memphis our death rate from pellagra was over 60 per cent.; since adopting the heavy protein diet and relying on that alone our death rate has dropped to 11 per cent., and if you will exclude those cases which had been in the hospital less than twelve days before death, long enough to give the diet a sufficient trial to show its effect, then we have lost no patients whatever from pellagra and our death rate is practically nil.

Dr. Philip Kilroy, Springfield, Mass.: I am inclined to believe that the regulation of the diet in any particular case exerts its good effect not so much on the dermatitis itself as on the general health, and that by depriving the patient of certain articles of food, we keep him from eating too much. Dr. Chipman's paper has suggested that perhaps there are certain specific metabolic faults, and that by remedying these we can exert a beneficial influence on certain dermatoses that now baffle us.

Dr. Everett S. Lain, Oklahoma City: The subject of the anaphylaxis of food and its relation to various dermatoses is only in its infancy. As yet we know but little about the way in which the normal physiologic cell handles the proteins in the food. We know but little about the physiology of metabolism, and yet I believe that if we entered into this work more thoroughly, it would give us a firmer and wider foundation on which to base our study of the sensitization of the human body to foods. That certain articles of food are the sole cause of certain diseases I cannot believe. Pellagra does improve under certain diet; so does tuberculosis, but does this prove that the lack of said diet is the cause of these diseases? Urticaria, also erythema multiforme are examples of an eruption due to a derangement in the chemistry of the cell of that particular individual; this cell derangement may only be temporary. We have all seen cases wherein the hypodermic of emetin, a vaccine, or anything that will produce a shock or change in the relation or manner in which the cell is handling the particular toxic product, will produce instant relief.

Dr. H. H. Hazen, Washington, D. C.: In a series of 100 cases of chronic urticaria we found the Wassermann reaction strongly positive in 33 per cent., and in every one of those cases antisyphilitic treatment cured the urticaria. In another class of cases a primary focus of infection was traced to the tonsils, and during the past winter I have seen two cases of very severe urticaria with streptococcic infection of the tonsils and rapid relief after tonsillectomy. In every case of chronic urticaria a careful search should be made for a focal source of infection.

Dr. Louis Livingston Seaman, New York: At the siege of Port Arthur, when the Japanese finally took that town, they found one third of the Russian army suffering from scurvy. For months they had been compelled to live exclusively on an animal diet. On the other side of the firing line, the Japanese, owing to their fanatic love of a rice diet, were dying by the hundreds from beriberi. With a proper adjustment of the diet in the two armies, the health of both improved very rapidly, both scurvy and beriberi disappearing.

Dr. Henry C. Baum, Syracuse, N. Y.: Practitioners of medicine of wide experience do not need to be convinced of the importance of diet in the successful treatment of disease. The reason why we do not employ it more generally is that we know so little about it. The subject of metabolism is so obscure and there are so many elements at work—the influence of the internal secretions, congenital defects, the overdevelopment or underdevelopment of certain organs—that we have not yet been able to master this complex problem. For that reason I think that every man who makes even one step toward the goal to which we ought to aspire is worthy of praise. I can recall many cases where a modification of the diet helped my patients after drugs had failed. Nature, after all, is the greatest physician; we can only play a little part in the cure by helping to restore the lost balance in one way or another.

Dr. James Moore King, Nashville, Tenn.: Diet has an influence on many dermatoses, while on some it has none Since the work of Rosenow I have become convinced that erythema multiforme is frequently produced by a streptococcic infection. Such a case very recently came under my observation. Physicians in Nashville who have observed many cases of pellagra think the disease is due to an infection. I do not agree with Dr. Chipman that it is entirely a food disease. It is a comparatively new disease, having first become prominent in the United States about 1907, and I cannot understand how so many thousands of cases could have developed since then under practically the same diet conditions as before. Naturally, we give these patients a better diet, just as we do cases of tuberculosis, but this i merely a part of the treatment.

Dr. Ernest Dwight Chipman, San Francisco: There is probably room for honest difference of opinion as to the etiology of pellagra. In stating directly that it is a deficiency disease I recorded my acceptance of the work of Goldberger who produced the disease artificially. Apparently the chie thought underlying my paper was not made sufficiently clear It is not contended that every dermatosis requires a specia diet. The contrary is specifically stated. It was hoped to suggest that dietetic regulation is only to be attempted for definite reason, that it should be developed according to exact indications, and that if it is worth doing at all it i worth doing with precision.

CONSIDERATION OF SOME SELECTED PROBLEMS IN A YEAR'S NEUROSURGICAL SERVICE *

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It is important to study neurosurgical cases from vo points of view: the neurologic, which places its nphasis on the production of symptoms in relation a definitely placed lesion, and the surgical, which nphasizes the question of the adaptability of a given sion to surgical procedure. It is this shifting of nphasis at the hands of two differently trained bservers which we believe will eventually satisfy the roadest demand of neurosurgical cases. Each case , therefore, studied independently by the neurologist nd the surgeon. The resulting data are gathered and scussed before it finally becomes either a strictly urgical problem or is discarded into the class of eurologic with no surgical outlook.

Among the many problems that have arisen during e past year, the following seven are selected for esentation and comment:

1. The reliability of the Bárány observations and imulation of the cerebellum in a conscious patient.
2. Significance of albuminuria in intracranial pres-
ure.
3. Multiple lesions.
4. The place of lumbar puncture in intracranial
ressure.
5. Pseudo-optic neuritis.
6. Tumors of the gasserian ganglion and sinus con-
itions.
7. Disappearance of cord tumor symptoms after
umbar puncture.

RELIABILITY OF BÁRÁNY TESTS

First, are the Bárány tests reliable? How accurate e they?

A. P., aged 18, had a partly cystic glioma, the solid part which was 5 by 3 cm. in size, in the lobus semilunaris perior and lobus semilunaris inferior. The lesion was entical with that reported in a case by Bárány, Feb. 24, 13, to the Berlin Society of Internal Medicine. Repeated rning and caloric tests were made and were normal. ccording to Bárány, a lesion of this region causes errors pointing from below upward and laterally. After the mor was removed, the pointing tests were still normal. he patient then developed a large cerebellar hernia. As e entire tumor had been removed, it was fair to conclude at the hernia was due to a separation of the muscles from eir attachment. A fascial transplant inserted under local esthesia repaired this. The rare opportunity of stimulat- g the cerebellum on a conscious, intelligent patient was thus esented. Though we used strong faradic currents far eater than are ordinarily necessary to get a discharge from e cerebral cortex even under anesthesia, only lateral nystag- us was observed. The lobus medius superior and inferior d lobus semilunaris superior and inferior on both sides ere stimulated as well as the tonsilla. The patient had no nsation whatever when the current was applied. Each lobe as stimulated three times. These observations accord with e work of Horsley and Clarke on the cerebellar cortex of onkeys.

From this case, in which the exact portion of the cerebellum involved was determined twice, the conclusion is obvious that Bárány's findings are not constant.

SIGNIFICANCE OF ALBUMINURIA IN INTRACRANIAL PRESSURE

The problem of albuminuria in intracranial lesions is illustrated by the same case. Albumin was present in the urine, and the deposits about the macular region were similar in appearance to those found in albuminuric retinitis. After operation the eyes cleared up completely and only a trace of albumin was found four weeks after operation. First of all, can eye changes in nephritis be distinguished from those found in intracranial pressure conditions? We believe that at times the two conditions are indistinguishable. Many patients with albuminuric retinitis have later turned out to have brain tumors. Secondly, to what extent are the eye changes in nephritis due to pressure? There is unquestionably an increase in intracranial pressure in nephritis, but this does not account entirely for the changes in the eye grounds. A decompression was done under local anesthesia in an advanced case of albuminuric retinitis. During the several months in which the patient survived, no improvement in the vision could be demonstrated, but this might have been due to the fact that the fundi had atrophied to such an extent that they were beyond the hope of repair, just as the impaired vision due to tumor does not fully recover if the disk is atrophied. In the third place, does the urine in intracranial pressure show albumin? This case and the two others we have had more recently suggest that intracranial pressure may be one cause for the appearance of albumin in the urine.

MULTIPLE LESIONS

It is a tradition that cerebral symptoms must be explained by a *single* lesion if possible. The preponderance of single over multiple lesions in the brain appears to support this. The following two cases illustrate the fallacy of this teaching:

A mentally alert and active lawyer had been suffering from headaches for many years. One day he suddenly developed paresthesia in his right leg. This was followed in a day or two by paralysis of his left arm. Then he became paretic in both legs. Jacksonian convulsions began in his right leg, followed by unconsciousness after the attack. Slight motor aphasia ensued. At this time he was admitted to the hospital. In the next ten days, a bilateral choked disk with hemorrhages developed. The patient was very apathetic and had constant intense headache. In the history, the following impression of the case is recorded: "The jacksonian attack on one side with paralysis on the opposite side, a bilateral Babinski and apraxia of the right hand suggest a lesion near the median line. A corpus callosum lesion more on the right than on the left side seems most probable." Operation was advised, but refused. The patient died ten days later. At necropsy, *multiple* abscesses were found, one under each motor area and two in the frontal region.

A butcher complained of intense headaches, vomiting and failing vision. There was moderate swelling of his disks, and markedly impaired vision in the right eye so that no field could be taken. The left field was normal. Further symptoms were a tendency to fall to the right side; vertigo; marked nystagmus; ataxia of the left leg, and periodic weakness of the external rectus. The interpretative note on this case read: "An intracranial process with apparently considerable change in pressure from day to day. Symptoms point to a posterior fossa lesion. Apparently no nuclear involvement in the cerebellum. Definite localization cannot be made." A cerebellar exploration and decompression was done. Great pressure was found, but no tumor. The patient went home improved, his headaches relieved. He developed a large cerebellar hernia, and returned in six months. The right eye was now totally blind. The left eye showed temporal blindness. The Roentgen ray showed at this examination destruction of the posterior wall of the sella turcica. The diagnosis was revised to a hypophysial process which had been pressing back on the cerebellum. Witzelsucht was very marked at the time. A sella decompression with removal of part of the gland was done, without improvement. Then a second cerebellar exploration was undertaken with negative results. The patient suddenly died, ten weeks later, with symptoms of a pontile hemorrhage. Necropsy showed multiple lesions due to the cysticercus of the *Taenia solium*. A lesion in the fibers of Gratiolet proved that the progressive blindness had been a homonymous hemianopsia, not a bitemporal one as we had supposed. The witzelsucht may have been accounted for by a cyst in the frontal region; the cerebellar symptoms by the process about the base of the cerebellum. The immediate cause of death, however, was a pontile hemorrhage.

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* Read before the American Neurological Association, Washington, C., May 10, 1916.

THE PLACE OF LUMBAR PUNCTURE IN INTRACRANIAL PRESSURE

Lumbar puncture has become such a routine procedure that it is used as if it were without danger. In some clinics, it is done even in ambulatory cases. In suspected posterior fossa lesions, or those with marked intracranial pressure due to a supratentorial process; *we* do not do lumbar puncture. We do *not* believe that doing the puncture with the head lower than the hips makes this a safe procedure. Bad results from lumbar puncture have not been reported as frequently as they occur. This suspicion has been confirmed by a recent article by Schönbeck in which, besides reporting many cases with rather severe symptoms, he records seventy deaths directly due to a lumbar puncture and believes that these represent but 10 per cent. of the deaths that have actually occurred. Most of these have not been reported in the literature, or have been ascribed to other causes. We have in the past year had two cases that have emphasized the danger and crystallized our views on the contraindications for lumbar puncture. In both cases there was intense pain in the cervical region and along the first dorsal and eighth cervical segments. Passive movements of the head were painful. The rigidity of the neck, severe pain and its cervical root distribution suggested the possibility of a meningitis, but the absence of fever and clearing up of symptoms in forty-eight hours excluded such a diagnosis. Therefore, as spinal puncture is dangerous in posterior fossa lesions and in supratentorial ones associated with marked pressure, we never do it in the former, and in the latter only after most careful consideration.

PSEUDO-OPTIC NEURITIS

Pseudoneuritis is a very rare condition and one to which very little attention has been paid. A boy was sent to us by an expert ophthalmologist as having a choked disk. The picture was perfectly clear. The boy had headache, no localizing symptoms, and a negative Wassermann. A palliative decompression was done. The eye grounds remained unchanged. Further study on the part of the ophthalmologist convinced him that this was a case of pseudoneuritis, a congenital anomaly. Wildbrand and Sanger, Bordely and others have warned against this mistake.

This case brings up the interesting question as to what attitude the neurologic surgeon should take in case a patient has a choked disk and no other evidences of intracranial pressure, either general or focal. Since decompression for intracranial pressure is attended by a very low mortality, we feel that a palliative decompression is absolutely indicated, and that by early interference alone can the maximum amount of vision be preserved. We believe that this procedure should be followed even more in the case of children, since we have had a number of cases in which all other general intracranial symptoms were extremely mild or totally absent.

TUMORS OF THE GASSERIAN GANGLION AND SINUS CONDITIONS

Trigeminal neuralgia, with its motor accompaniment known as tic douloureux, may be due to sinus disease, a number of unknown factors, and the much rarer condition, tumor of the gasserian ganglion. The pain in the latter condition is quite different from that of true tic douloureux. It is constant, whereas the latter is paroxysmal. The pain of sinus disease may be as constant and as severe as that of a ganglion tumor; fever and a leukocytosis may accompany the former, though never the latter. An ocular palsy may occur with sinus disease, but the most important, absolutely diagnostic sign is involvement of the motor branch of the fifth nerve. This was the diagnostic sign in our case on which we based our diagnosis. We do not believe it is necessary to wait for atrophy of the muscles of mastication, as was done in other cases. Early recognition of this condition promises the only prospect of relief. Our case, the seventh that has ever come to operation, also has a recurrence with a return of pain. We believe more of these cases will be recognized if every case of pain along the trigeminus has the motor fifth nerve examined with great care.

DISAPPEARANCE OF CORD TUMOR SYMPTOMS AFTER LUMBAR PUNCTURE

The complete relief by lumbar puncture of symptoms apparently due to a localized lesion in the cord is in our experience an unusual phenomenon.

In September, 1915, Mrs. V., aged 23, showed on examination a saddle anesthesia, bladder and rectal disturbances and weakness of one leg, and pain in the left leg. Lumbar puncture showed a normal cerebrospinal fluid. Immediately all sensory disturbances cleared up, and bladder and rectal control were regained. Our explanation at the time was either that we had evacuated the fluid of a circumscribed serous meningitis or that the cerebrospinal fluid had been obstructed by a tumor and had been the prime factor in causing the compression symptoms. Up to the present time the patient has had no return of her symptoms, and we believe the most probable diagnosis to be a circumscribed serous meningitis.

An identical case was reported recently before the Philadelphia Neurological Society by Dr. Weisenburg.

It has seemed to us that problems of this sort could with profit be presented here in place of isolated case reports or statistical studies of cases.

Uses of Pathology.—If we look on pathology as simply the description of damage to bodily structure, and the analysis of the causes of this damage, then pathology may be very helpful in preventive medicine, but does not help much in therapeutics. When, however, pathology studies the processes of adaptation to the unusual, defense of the organism against the unusual, and reproduction of the normal, just as the new physiology studies the maintenance of the normal under ordinary conditions, then therapeutics and surgery will be aided at every step by pathology, and a rational biological pharmacology will have its chance.—J. S. Haldane: "The New Physiology," *Science*, Nov. 3, 1916.

EXPERIMENTAL ENDOCARDITIS

ITS PRODUCTION WITH STREPTOCOCCUS VIRIDANS OF LOW VIRULENCE *

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In October, 1915, there was reported from this laboratory and the department of medicine,[1] results obtained by the special methods of Rosenow in connection with an investigation into the bacteriology of the blood in a form of endocarditis less severe than the type commonly called subacute bacterial endocarditis, and in many cases milder even than those commonly recognized as simple endocarditis. We promised at that time to publish an account of the characteristics of the organisms recovered, and their action on animals. In the pursuit of this work we were hampered greatly by the special conditions made necessary by the exigencies of the war, particularly in regard to the depletion of the staff of the laboratory in response to the call to overseas service. Many phases of the work, therefore, have been allowed to remain untouched until time permits of their further investigation; but sufficient data are at hand to warrant the publication of our findings.

In following out the methods advocated by Rosenow[2] we have elaborated a technic which has been used for some time and which has given splendid results. Thirty c.c. of blood are withdrawn into a record syringe which has previously been sterilized and loaded with 5 c.c. of sterile 2 per cent. sodium citrate solution in normal saline. By inverting the syringe several times a thorough mixture is secured and clotting thereby prevented. The citrated blood is directly transferred to eight centrifuge tubes containing sterile distilled water. The result of this step is the laking of the corpuscles and liberation of the hemoglobin. These tubes are immediately centrifuged at high speed, and the supernatant fluid subsequently pipetted off with a sterile pipet attached to a water suction pump. The sediment remaining in the bottom of the tubes is composed of the broken down hulls of the corpuscles together with any bacteria which may be present.

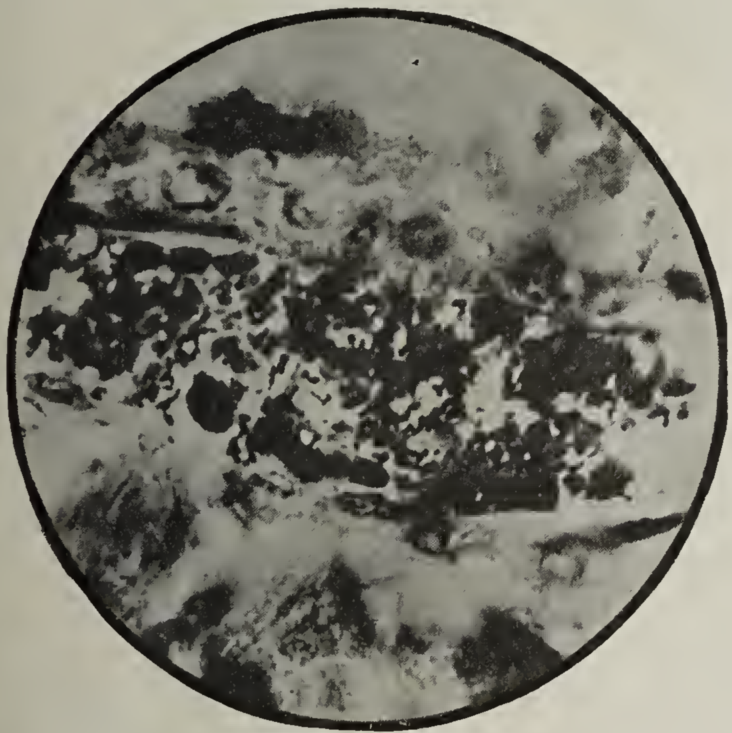
Fig. 1 (R. 517).—Bacteria growing in blood vessel of the myocardium.

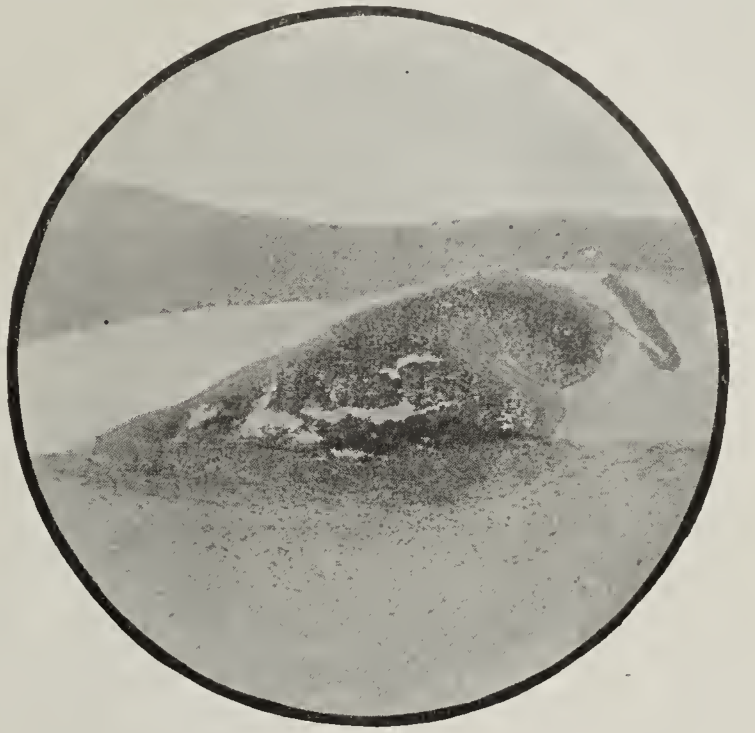
Fig. 2 (R. 968).—Valvular vegetation.

This operation is performed inside a glass cabinet which contains a Bunsen burner, the tube to the suction pump and the tap from the broth reservoir. By merely adding bouillon to the sediment, each centrifuge tube is converted into a culture flask, and is now ready to be placed in the incubator. The sediment of two tubes is reserved to be mixed with ascitic agar for anaerobic conditions. This is obtained in a satisfactory manner by making this mixture after the agar has cooled to 40 C. and pouring into a tall test tube, the result being almost complete anaerobiosis at the bottom and a varying oxygen gradient as the top is approached.

TABLE 1.—ACTION OF DIFFERENT STRAINS OF STREPTOCOCCUS VIRIDANS ON VARIOUS SUGAR MEDIUMS

Strain	Lactose	Levulose	Saccharose	Maltose	Inulin	Raffinose	Mannit	Asparagin	Salicin
R 15-15	+	+	—	+	—	—	—	—	—
R 15-14	+	+	+	+	—	—	—	—	—
R 15-55	+	+	—	+	—	—	—	—	—
R 15-11	+	+	+	+	—	+	—	—	+
R 15-12	+	+	+	+	—	—	—	—	+
R 15-50	+	+	+	+	—	—	—	—	+
R 15-F	+	—	+	+	—	—	—	—	—
R 15-Y	+	+	+	+	—	—	—	—	—
R 15-B	+	+	+	+	—	+	—	—	+
R 15-P	+	+	+	+	—	—	—	—	—
R 15-A	+	+	+	+	—	—	—	—	+
R 16-131	+	+	—	+	—	+	—	—	—

The disadvantages of this method of blood culture are probably confined to two: The first is the time and skill required to carry out the technic, and this precludes its use as a routine measure. Such an objection, however, is not valid in a research laboratory. The second disadvantage is the large amount of unavoidable manipulation. Our only answer to that is the absence of contamination, which has given us the confidence we have in our results.

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* Lack of space has prevented the inclusion of all the cases in this article as it appears in The Journal. They will be included in the reprints, a copy of which may be obtained on application to the authors.

[1] Oille, J. A.; Graham, Duncan, and Detweiler, H. K.: Streptococcus Bacteremia in Endocarditis, The Journal A. M. A., Oct. 2, 1915, p. 1159.

[2] Rosenow, E. C.: The Newer Bacteriology of Various Infections as Determined by Special Methods, The Journal A. M. A., Sept. 12, 1914, p. 903.

The advantages are three: First of all, it seems reasonable that in a case in which the number of bacteria in the blood are few, the larger the sample taken, the more chance of obtaining the organism. Secondly, in chronic cases, such as we are investigating, it is believed that the patient has developed a certain amount of immune bodies in his serum. The provision in this method for the discarding of this immune serum will insure the organism having as little as possible to contend with. The serum removed is replaced by ascitic fluid from a patient who may reasonably be considered not to have an immunity to a streptococcus infection. In this way our medium is enriched by the necessary serum proteins without the danger of including inhibiting bodies. Lastly, the hemoglobin, which is said to have a detrimental effect on certain strains of streptococci, is largely removed.

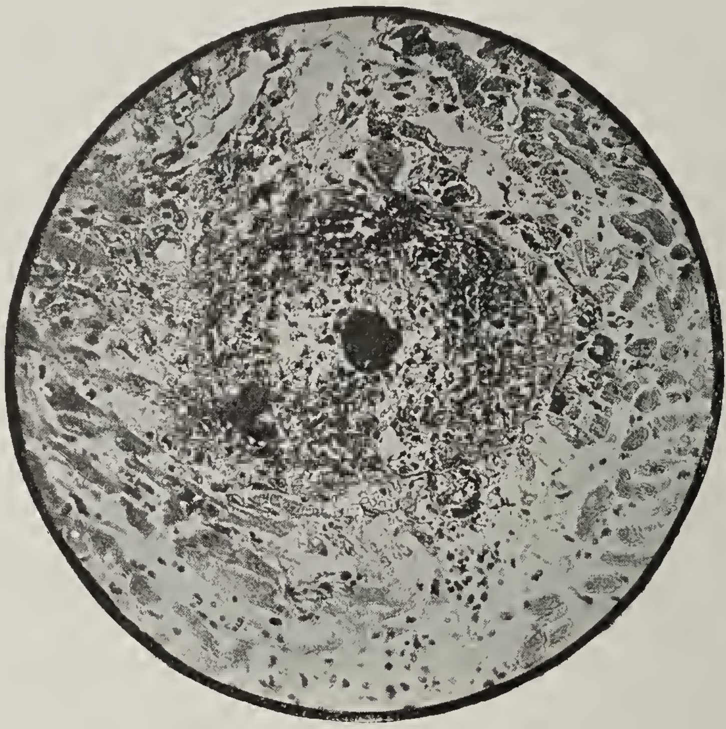

Fig. 3 (R. 664).—Focal lesion in myocardium. Note blood vessel plugged with bacteria.

The organisms used in this series of experiments were obtained from blood in cases of subacute and chronic infectious endocarditis. All of the strains belong to the family of *Streptococcus viridans*, that is to say, while not all of them produced a distinct green on blood agar they resembled each other in their action on the various sugar mediums, and in their low grade of virulence. The minority, which were not green producing, yielded grayish fairly adherent colonies on blood agar; a few produced a brown color. All grades of chain formation, from very short to quite long forms, were found among them. They were usually arranged in pairs throughout the chain. They did not dissolve in bile salts. None of them fermented inulin. All produced acid and coagulation in lactose, maltose and levulose serum water. All but two acted in the same manner on saccharose. Fifty per cent. fermented salicin. Mannite and asparagin, as well as inulin, remained unchanged. The organisms are difficult to keep in stock, requiring to be transferred every two or three days. This is due to the inhibitory action of the acid which they produce on the glucose broth or agar used, the acidity going as high as 3 per cent., whereas the reaction of the mediums on which they are planted should not be higher than + 0.5. Latterly we have been making up the broth for stock cultures with 1 per cent. calcium carbonate, which insures the neutrality of the medium, and on this the organism lives for about seven days.

The animal experiments have been confined to an attempt to produce a condition in the rabbit analogous to that of the patient from whom the organism was obtained. The great difficulty of producing endocarditis experimentally, without previous injury to the valves, is well known. After unsuccessful attempts had been made, several observers succeeded in producing the condition by adding to the emulsion of organisms injected, a mechanical irritant. Among those investigators were Hibbert,[3] who added potato particles, Orth and Wyssowitsch,[4] and Fulci,[5] who used pulverized charcoal. These foreign bodies produced a condition of erosion on the valve cusps, which thereupon became a favorable soil for the inflammation of the organism. Lissauer,[6] Horder,[7] Rosenow[8] and others have succeeded in producing endocarditis in rabbits without the aid of foreign irritants. The condition, of course, is produced with less difficulty with organisms of definite virulence. All are agreed on the fact that the streptococcus obtained in chronic infectious endocarditis is of very low virulence. Rosenow lays especial emphasis on this point. Believing that the strains of streptococci with which we were working were even less virulent than those which this author described, we were anxious to establish conclusive evidence of their ability to produce the disease in animals. Not only that, but we were equally anxious to learn whether these organisms of almost negligible virulence had nevertheless a special affinity for heart valves and the myocardium. We feel that

TABLE 2.—ACTION OF STRAINS ON RABBITS

No. of Rabbit	Strain of Organism	No. and Amount of Intravenous Injection	Clinical Picture	Death After First Inoculation	Postmortem Findings	Postmortem Cultures
R. 518	Stein.........	2 medium 1 V. B. C.	....	18 days......	Liver, spleen and kidney congested.....	Cultures from liver, spleen and heart's blood pure streptococci
R. 125	15-55..........	2 small doses....	....	7 days.......	No evidence of endocarditis; liver congested; hydropericardium; pericarditis	Cultures from liver, heart's blood and pericardial cavity gave streptococci
R. 991	15-55 from R. 125	10 small doses; 1 large dose	Last dose 2 V. B. C.; died early next morning	92 days......	Heart muscles flabby; heart muscle shows numerous small scattered areas of round cell infiltration; some perivascular infiltration; kidney focal and diffuse nephritis; numerous circumscribed areas of round cell infiltration	Cultures from spleen and lung show Streptococcus viridans

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[3] Hibbert: Fortschr. d. Med., 1886, iv, 1.

[4] Orth and Wyssowitsch: Virchows Arch. f. path. Anat., 1886, ciii, 300, 333.

[5] Fulci: Beitr. z. path. Anat., 1908, xliv, 349.

[6] Lissauer: Centralbl. f. allg. Path. u. path. Anat., 1912, xxiii, 243.

[7] Horder: Quart. Jour. Med., 1902, ii, 289.

[8] Rosenow, E. C.: Jour. Infect. Dis., 1909, vi, 245; 1910, vii, 411, 429; 1912, p. 210; Elective Localization of Streptococci, The Journal A. M. A., Nov. 13, 1915, p. 1687.

the results of our investigations have justified this belief.

Rabbits from 6 weeks to 2½ months old were used. The majority were Belgian hares. The cultures were grown in vaccine bottles of 60 c.c. capacity, containing about 40 c.c. of ascitic glucose bouillon. A copious growth was obtained in twenty-four hours, and the bottle was then centrifuged at high speed in a special trunnion cup, and the supernatant bouillon pipetted off. This operation can be done with such nicety that practically no free fluid is left with the bacteria, which are thereupon suspended in 2 or 3 c.c. of sterile saline solution and injected intravenously into the rabbit. Filling the syringe with the emulsion and expelling it through a small needle leads to the clumps being largely broken up. This is repeated several times, and a uniform emulsion results. The marginal vein of the ear was used invariably. Each strain of organism is studied first of all in regard to its virulence. The lethal intravenous dose is roughly estimated by injecting varying amounts of the emulsion into several rabbits. The average dose tolerated is the amount of emulsion obtainable from one to two vaccine bottles. This is an enormous dose of bacteria to be introduced directly into the blood stream of a rabbit weighing, say, 700 grams. When the lethal dose and the *dosis tolerata* are established, we try to keep the injections up to the highest point possible without killing the animal too quickly.

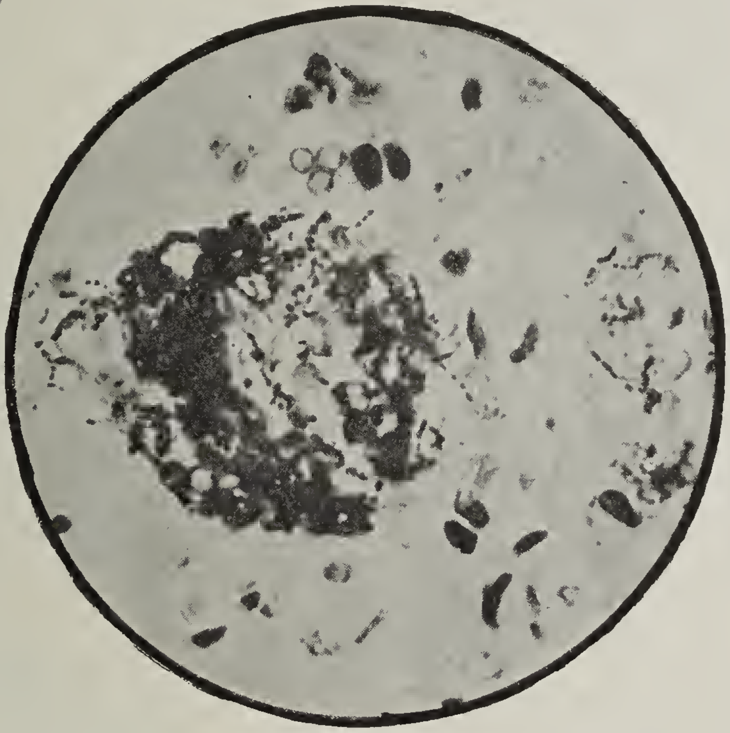
Fig. 4 (R. 574).—Bacteria growing in blood vessel of kidney.

In Table 2, only a few of the cultures obtained are represented. It is impossible to give in this space the details relating to so many different strains. Those given, however, have been carefully chosen so as to be as representative as possible, and may be supplemented, if desired, by our records in the laboratory. Examples are described as showing a gradation of lesions—from ordinary streptococcic bacteremia without localization to endocarditis of the malignant, ulcerative type. Cases R 518, R 521, R 516, R 968, R 341 and R 665 are, in the order named, examples of just such a thing. Cases R 125 and R 281 are good examples of pericarditis in the absence of endocarditis. There seems to be first of all an affinity for the heart valves and, failing this, the organism seems to pick out the pericardium, or, in a few instances, the myocardium. R 991 is a case illustrative of the latter. Of all the rabbits coming to necropsy, heart lesions were found in 56.6 per cent. Endocarditis was present in 40 per cent., pericarditis in 13.3 per cent., myocarditis in 6 per cent., and aortitis in 3 per cent., while 30 per cent. gave a negative result. A slight degree of fever was present in all but one of the cases in which the temperature was taken. The average temperature of the rabbits with endocarditis was 103.8, the temperature of normal rabbits being about 102.5. These figures refer to readings by rectum. One case had a subnormal temperature — 100.8. Blood cultures were taken during life in a number of cases, but although the results are interesting they are necessarily inconclusive, since the measure was not carried out as a routine. It would seem, however, that, excepting in the later stages of the disease, it is fairly difficult to produce a constant bacteremia with the organisms under discussion.

With these data before us, we feel that we have successfully demonstrated that while the organisms recovered in clinical cases of chronic infections of endocarditis are of an exceedingly low grade of virulence, they are nevertheless capable of producing in the rabbit not only a condition closely resembling that of the patient from which they were obtained, but also a condition which often ends fatally, accompanied by the usual signs of acute ulcerative, or so-called malignant endocarditis. We are therefore inclined to believe with Rosenow[9] that the ordinary *Streptococcus viridans* or "endocarditis coccus" may produce all grades of endocarditis, and every grade may be produced in animals by the different strains of the organism. We also have shown that every grade of endocarditis may be produced in *different* animals by the *same* strain of organism.

Some evidence is at hand supporting the theory of implantation. A rabbit, R 374, inoculated with Strain R. 15-131 presented at necropsy a verrucose vegeta-

TABLE 3.—ACTION OF STRAINS FROM NORMAL MOUTHS ON RABBITS

No. of Rabbit	Strain of Organism	No. and Amount of Intravenous Injection	Clinical Picture	Death After First Inoculation	Postmortem Findings	Postmortem Cultures
R. 664	F. A.........	2 V. B. C........	3 days later very sick; lies on its belly with all 4 legs extended continually nodding its head; temp. 97 F.	3 days after inoculation chloroformed	Heart: Pericarditis, myocarditis; vegetations on the tricuspid valve, tip of the papillary muscle and on the wall of the right auricle; these show a hemorrhagic area around them; one small vegetation also on the pulmonary artery 3 mm. above the valves	Culture from the blood shows streptococci, culture from pericardial cavity sterile
R. 573 (1)	Peq.; from a normal throat	3 injections; 2½ V. B. C.	After first injection, temp. 106 F.	7 days.......	Heart: Myocarditis present; 1 large verrucose vegetation of the tricuspid valve, involving all the cusps and extending down on to the wall of the heart; 1 small vegetation on one of the cusps of the aortic valve	Cultures: heart's blood and liver, Streptococcus viridans

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[9] Rosenow, E. C.: Experimental Endocarditis, Jour. Infect. Dis., September, 1912.

tion on the free edge of the valve. The microscopic examination of this specimen reveals no signs of capillary connection with this vegetation, and gives every appearance of its being merely an implantation on the edge of a valve which has been subjected to the constant erosive action of the intimate but intermittent pressure of its fellow. The fact that in the same rabbit there is found a similar vegetation at the base of the valve, or on the valve ring, does not necessarily disprove or even cast doubt on the implantation theory, especially in view of the fact that the site of the vegetation is on the auricular side of the valve. What does seem to favor the embolic theory, however, is the finding of hemorrhages in the valve curtains and under the mural endothelium, as the earliest evidence of the work of the bacteria, or bacterial emboli. Cultures of streptococci can be obtained from these areas, and it is quite likely that on this favorable medium they begin the process which results in the familiar vegetation.

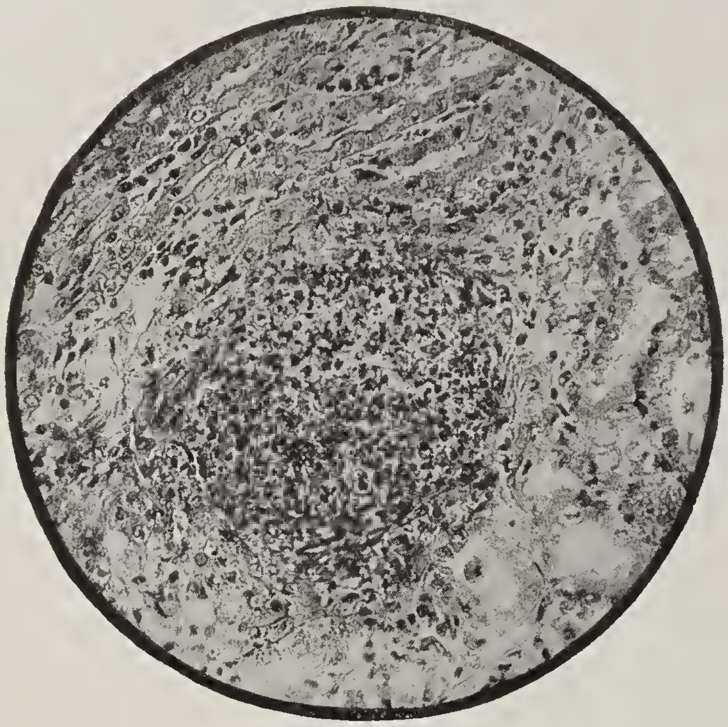
Fig. 5 (R. 574).—Focal lesion in kidney.

The clinical picture of the rabbit with chronic endocarditis resembles in a striking manner that of the patient with the same condition. The low grade of fever seems to be a constant feature of the disease, with periods of no fever, and bacteria-free blood stream. The fact that patients known to have endocarditis do not constantly yield positive blood cultures is, of course, well recognized. In the light of our findings there is no doubt in our minds that if we only had a way of knowing the opportune time, we might recover the streptococcus from the blood in many of these cases which now yield negative results. There is every reason to believe that the presence of streptococci in the blood does not necessarily mean, as was formerly supposed, a fatal issue. Rabbits from which we obtained positive blood cultures apparently, some in recovered cases, lived for months, and when chloroformed, yielded negative results at necropsy. Similarly, in clinical cases with bacteremia there has been improvement, and no doubt the animals will entirely recover. The loss in weight of the rabbits with endocarditis was another noticeable feature of the clinical picture, which also corresponds with the findings in the human types. In some cases the emaciation was quite marked and, at least to some degree, seems to be a constant feature in the animals.

It is exceedingly interesting to note the evident elective localization on the heart, and especially on the heart valve of these strains of streptococci, whose habitat was the heart valve and blood stream of their human host. Injected into the vein, they are pumped immediately into all parts of the body. Why do they not localize in the kidney, the appendix or the joints? Case R 281 was inoculated with a culture from the pericardial cavity of R 9780S with pericarditis. The necropsy next day revealed marked hemorrhages into the pericardium, and the pericardial surface of the heart was definitely inflamed. Yet the heart valves were perfectly normal. Surely there is something uncanny about the way in which these interesting organisms select their own peculiar scene of activity. Possibly much lies hidden in the expressions "elective localization" and "affinity," with which we dismiss these interesting phenomena from our discussions.

The similarity between the organisms recovered from the blood and the streptococci usually found in the tonsils and mouth of normal individuals is worthy of note. This is to be noted not only in the sugar reactions but also in animal experiments. Nor is this similarity at all surprising. If we believe, as we assert, that the *Streptococcus viridans* passes through the diseased tonsil, suppurating alveolar socket, or other favorable lesions of the buccal and pharyngeal cavities, and, entering the blood stream, localizes on the heart valves, is it to be wondered at that the similarity to the saprophytic relative still living in the mouth should be at least outstanding enough to be noticeable? We felt that it was altogether likely that these saprophytic streptococci living in the normal mouth could be proved to have the power to produce endocarditis in an identical manner to that of the organisms described in the foregoing experiments, and we inaugurated plans to carry on at once the necessary experiments to determine this point.

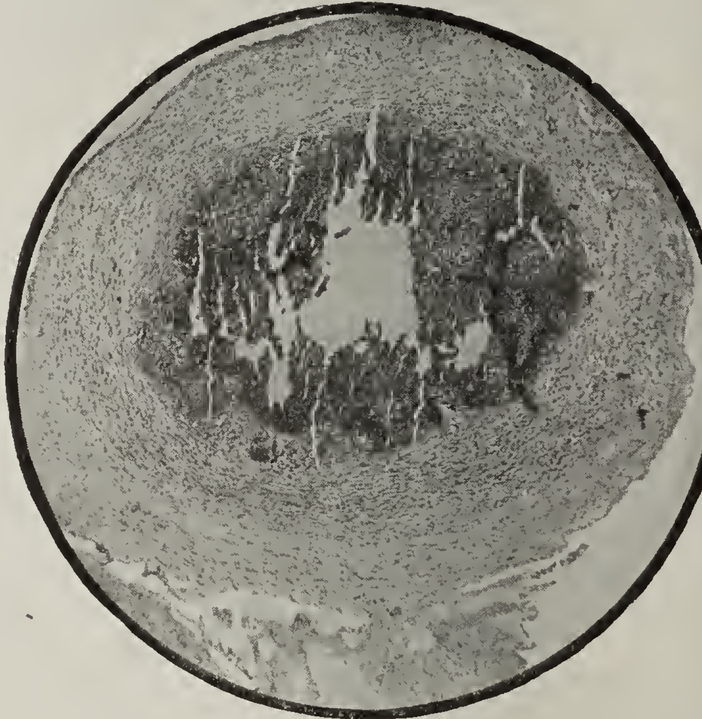
Fig. 6 (A. 374).—Section of vegetation.

Both Horder[10] and Rosenow[9] have reported the successful production of endocarditis in rabbits from streptococci isolated from normal saliva (Horder) and tonsils (Rosenow). Their experiments, however, were very limited, and no attempt was made to issue accurate statistics. Our series, while larger, is not as comprehensive as we should have liked. Still, as far as it goes, it is quite conclusive. The cultures for this series of experiments were obtained from the teeth, gums and tonsils of medical students in the bacteriologic classroom. Eleven strains in all were used, and thirty-one rabbits were inoculated. The technic followed was identical with that used in the experiments recorded in the earlier part of the paper. All the strains were of the *viridans* variety of streptococcus. That is to say, they were capable of producing green on blood agar, gave typical fermentative reactions on the various sugars, and their other cultural characteristics were typical. They did not ferment inulin. Heart lesions of one kind or another were present in 80.6 per cent. of the rabbits. Of these, myocarditis came first with 67.7 per cent., and endocarditis next with 58 per cent. Aortitis was present in 32 per cent., and pericarditis was found in 22.5 per cent. Arthritis was demonstrated in 12.5 per cent.

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[10] Horder: Quart. Jour. Med., April, 1909; Local Gov. Rep., 1906-1907.

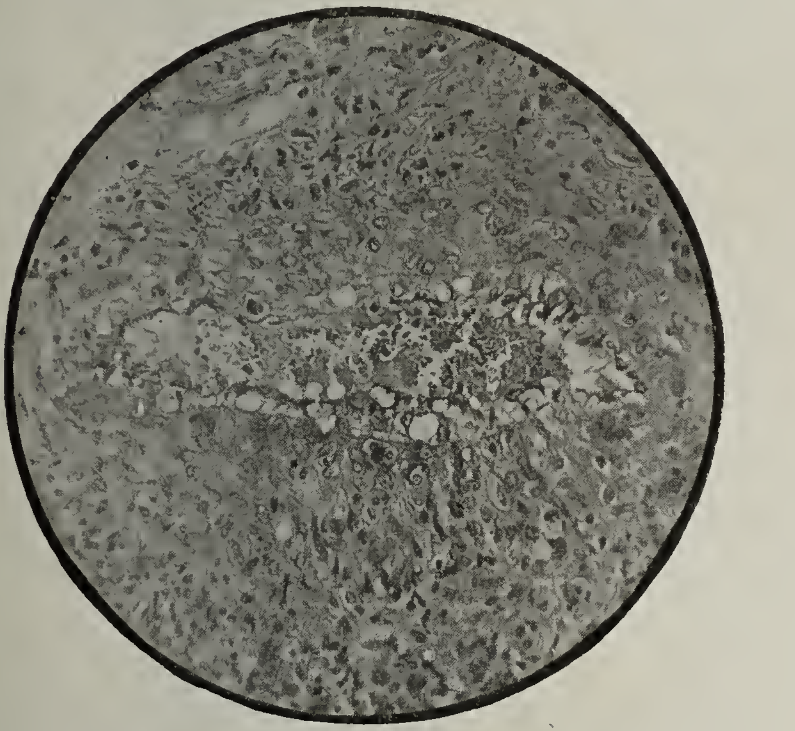

Fig. 7 (R. 374).—Reaction about blood vessel just beneath endocardium, which was bulging at this point. Probably early stage of mural vegetation.

It will be seen (Table 3) that the percentage of positive results in connection with the mouth and throat series is greater than that of the series from strains recovered from the blood. This may be accounted for by the fact that subcultures were made of some of the latter several times before the first inoculation was made, whereas in the former, owing to increased facilities, we were able to begin inoculations from the first and second subculture, or as soon as pure culture was obtained. This discrepancy was true in only a few cases, however, and the presumption is that the organisms, after reaching the blood, remain as avirulent as those which are left in the mouth.

The proportion of myocarditis is high, and evidently no higher than it should be. Although cloudy swelling and fatty degeneration were counted as myocarditis, the great majority had also focal areas of infiltration with round cells, and, less frequently, with polymorphonuclear cells. There were a great number of sections made in those cases showing on casual examination no focal lesions, and careful study given them. It seems likely, from our findings, that the presence of these focal areas would be demonstrated in some hitherto considered negative.

The fact that none of the strains isolated from the blood in cases of endocarditis produced joint lesions, whereas definite arthritis was present in four cases from strains isolated from the mouth and tonsils, seems significant to us. It strongly suggests two possible explanations: First, that an organism may have in some instances a dual affinity, and depending on environment and conditions existing in the particular individual in which they are present, they may attack one organ, or another, or both. Second, and more likely, that two types were present in one culture and each type produced its respective lesion. Pure cultures only of *Streptococcus viridans* were sought, and on being obtained, no attempt was made to grow the organism from one colony alone. When we speak of dual affinity, the term must of course be taken in its broad application. We all know that practically every pathogenic organism can attack a variety of structures. That is not what is meant. But just as the pneumococcus has a special predilection for the respiratory tract, though it does produce lesions elsewhere, and in the same way the meningococcus for the meninges, so the *Streptococcus viridans* confines itself to the heart, or to the joints, or, as we suggested above, to both. It seems plain from our findings, at any rate, that the type of strain in the mouth and throat has a great deal to do with the type of lesion the patient is liable to develop. Take for example the results in respect to aortitis. The regularity with which this condition, in conjunction with endocarditis, was produced by certain strains is very striking. Strains L-7 and M-8 yielded aortitis in every instance. Strain M-8 was inoculated into six rabbits, and definite aortitis resulted in all.

Although the *Streptococcus viridans* usually produces chronic lesions, in which round cells greatly predominate, it can attract leukocytes in relatively large numbers, and therefore produce microscopic abscesses. Sections of vegetations show a small area in the center, composed chiefly of polymorphonuclear leukocytes with some of the nuclei undergoing fragmentation. There are also present some lymphocytes. Surrounding this focal mass of cells there is an area of proliferating endothelial cells. Some of the older vegetations show fatty changes with calcareous deposits in the center.

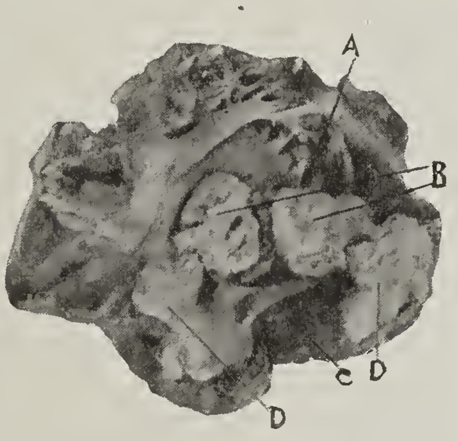

Fig. 8 (R. 341).—*A*, right auricle; *B*, vegetations on tricuspid valves; *C*, right ventricle; *D*, *D*, cut surfaces of same vegetation.

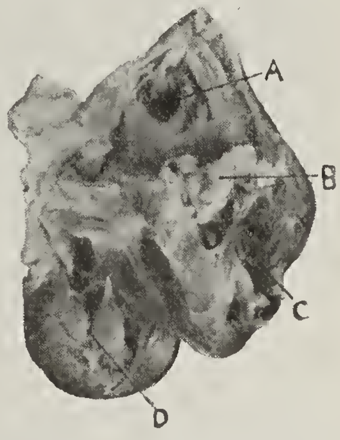

Fig. 9 (R. 665).—*A*, right auricle; *B*, vegetations on valve cusps; *C*, right ventricle; *D*, left ventricle.

The focal areas in the heart muscle generally surround a small blood vessel which is completely occluded by a bacterial embolus. There is a necrosis of the muscle fibers, and a round cell infiltration composed of both polymorphonuclear leukocytes and lymphocytes.

CONCLUSION

Let us venture to suggest that we have established three important points:

1. The *Streptococcus viridans*, isolated from the blood in cases of chronic infectious endocarditis, is of

very low virulence, probably lower than any hitherto reported as being recovered from a similar source.

2. These streptococci are capable of producing lesions in animals identical to those found in the patients from whose blood the organisms were obtained.

3. The strains of *Streptococcus viridans* isolated from the mouth of normal individuals are similar to those isolated from the blood of patients suffering from chronic endocarditis, and are equally capable of producing heart lesions in the rabbit.

AN APPARATUS DESIGNED FOR THE USE OF PARTIAL VACUUM IN DIAGNOSIS AND TREATMENT *

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Many of the old time appliances used in methods of diagnosis and treatment based on the principle of suction are very unsatisfactory. This is especially true of those methods in which suction is obtained by means of rubber bulbs, such, for example, as the Boas and Ewald methods for aspirating stomach contents, Bier's hyperemia and the breast pump. Among the most striking objections may be mentioned the lack of durability, the inconstancy of suction force and the inability to measure the degree of suction employed.

Similar objections prevail when the various aspirating pumps or syringes are used. In the Potain apparatus, no provision is made for estimating the degree of vacuum, and there is always the danger of inadvertently forcing air into the pleural cavity, as I have seen happen. Moreover, there seems to be no other apparatus quite as prone to get out of commission as the aspirating pump. It was, therefore, a matter of expediency which led me to employ the principle of suction in the form of a simple, inexpensive vacuum apparatus (Fig. 1).

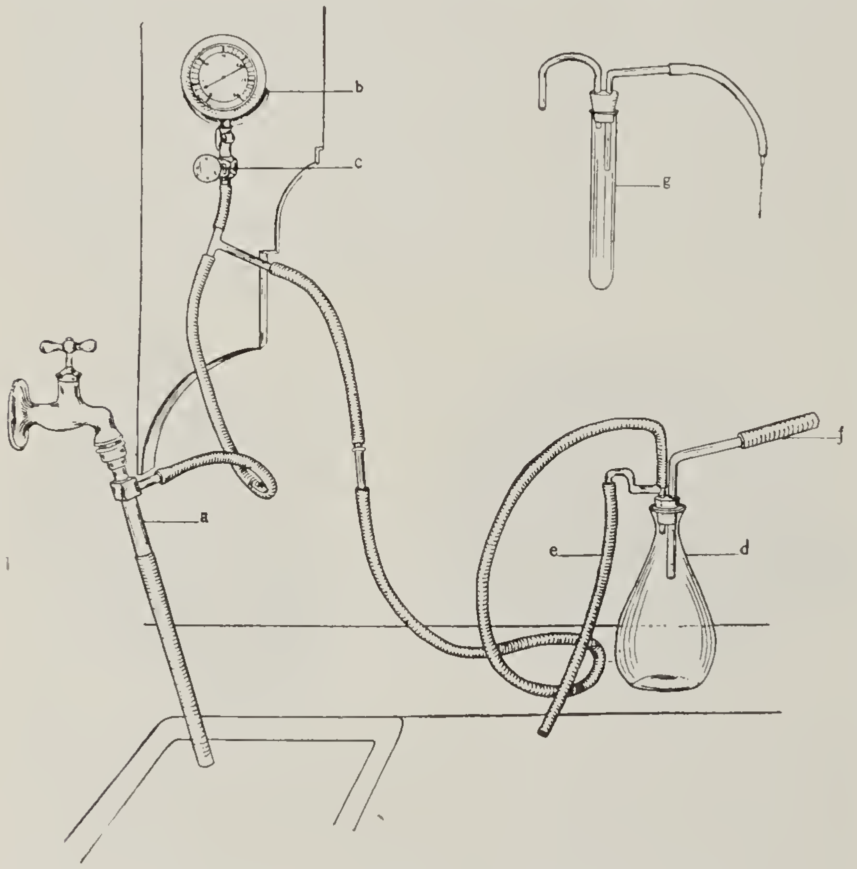

Fig. 1.—Partial vacuum apparatus: *a*, filter pump; *b*, vacuum gage; *c*, vacuum regulator; *d*, wash bottle for collecting stomach contents; *e*, connecting tube with which to cut off the air and release the vacuum by means of the foot; *f*, stomach tube; *g*, attachment for withdrawing blood for Wassermann test.

This consists of a filter pump connected by means of heavy rubber tubing with an ordinary vacuum gage which is provided with an adjustment for regulating the degree of vacuum. Any degree of constant suction as expressed in inches of mercury may thus be obtained, or, by the use of a release valve or cut-off, the suction can be interrupted. The steady constant suction is employed in aspirating stomach contents, pleural effusions, bloodletting, etc., and the interrupted in Bier's hyperemic cupping, breast pumping, etc.

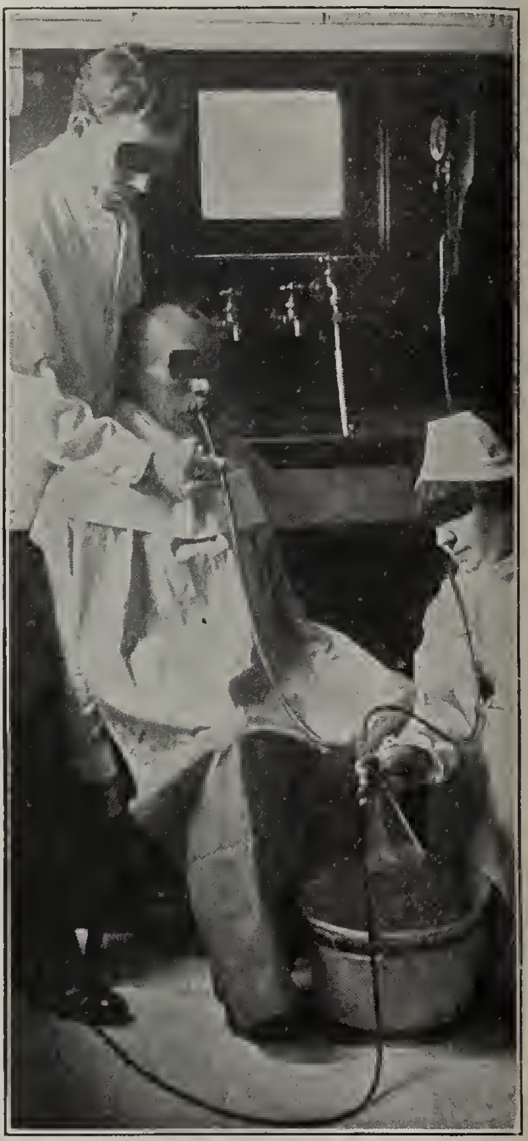

Fig. 2.—Method of aspirating test meals.

APPLICATION OF METHOD

Aspirating Stomach Contents.—For this purpose an ordinary wash bottle (500 c.c. Erlenmeyer flask) is attached to the apparatus, which is adjusted for a vacuum of 5 inches of mercury. A large stomach tube is connected with the wash bottle and also a long piece of rubber tubing, one end of which rests on the floor. Suction is started by compressing the tubing on the floor with the foot, and released by removing the foot. Both hands are thus free to manipulate the stomach tube (Fig. 2).

Several hundred test meals have been extracted in this manner and many fasting stomachs aspirated for hypersecretion and residual contents.

It has been conclusively demonstrated by routine lavage following aspiration that the Mayo test meal, which consists of six arrowroot biscuits, one glass of hot water and one glass of cold water, can be completely removed by this method. This is also true of the secretions in a fasting stomach. These features are of tremendous value in ascertaining the actual motor and secretory functions of the stomach—data of extreme clinical importance.

As a therapeutic measure it has a great advantage over lavage by siphoning, especially in those cases in which large amounts of mucus are present. After the usual method some mucus remains in the stomach, even after repeated washing, but this can readily be removed by the partial vacuum apparatus with the use of a large tube and wash bottle.

In fractional gastric analysis with the Rehfuss tube the partial vacuum method is particularly applicable as rauma is not likely to occur, for the reason that very ittle manipulation of the tube is required and suction an be reduced to a minimum. Furthermore, the stomach can finally be completely emptied of its ontents.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Duodenal Aspiration.—With the use of the Einhorn tube the duodenum can be readily aspirated. In this examination, continuous suction is of special value. The patient can be comfortably seated while suction of 3 or 4 inches of mercury is applied. Enough material for purposes of examination can be aspirated in from five to ten minutes. Since Einhorn advocated the study of the macroscopic changes of bile because of their significance of inflammatory disturbances in the gallbladder, there has been a demand for a simple adequate method in order to facilitate this test (Fig. 3).

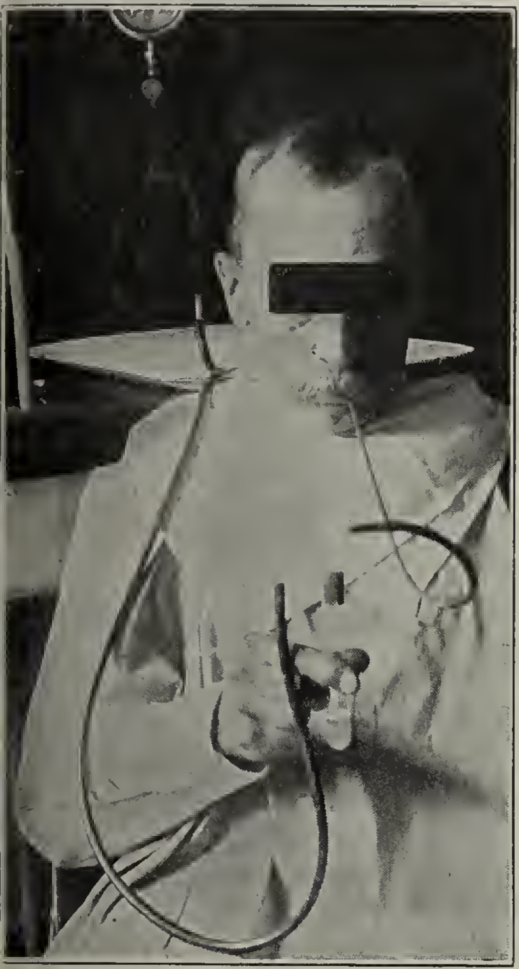

Fig. 3.—Aspiration of duodenal contents.

Withdrawing Blood for Chemical and Biologic Examination.—An ordinary test tube supplied with rubber tubing and needle, suitable for venous puncture, is used in place of the flask mentioned above. The technic is essentially the same as in the use of the Keidel tube. The vacuum gage is adjusted for 2 or 3 inches of mercury. With this degree of vacuum a small caliber needle suffices; consequently less difficulty is encountered in puncturing the vein, and besides it is less annoying to the patient (Fig. 4).

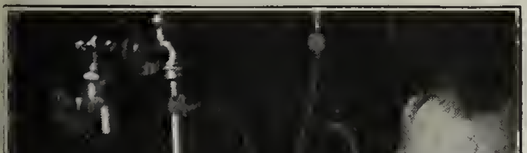

Fig. 4.—Method of withdrawing blood from vein for Wassermann tests, etc.

Blackfan's method, in vogue at the Harriet Lane Hospital, adapts itself advantageously to the partial vacuum method. In this method, which is especially designed for children, the skin is punctured and a hyperemic cup is used with an attachment for a small test tube in which the blood is collected. Blackfan produces suction and hyperemia by means of a small hand pump. However, the flow of blood from a puncture wound is much facilitated by partial vacuum suction with frequent interruptions, such as can be readily obtained by using a cut-off (Fig. 5).

Bloodletting.—There is no more reason for the routine practice of venesection in bloodletting than there would be for venesection and the introduction of a cannula for intravenous medication. One seems no less absurd than the other. The method here adopted is extremely simple and practical and can be performed in a few minutes in the office or home. The application is as follows: A half gallon bottle fitted with Potain stopper and connections is attached to the partial vacuum apparatus, the exploratory needle is inserted directly into the vein and continuous suction of from 3 to 5 inches of mercury created. This will cause a steady stream of blood to flow from the vein, and does away with much unnecessary technic and what is to the patient a rather formidable procedure.

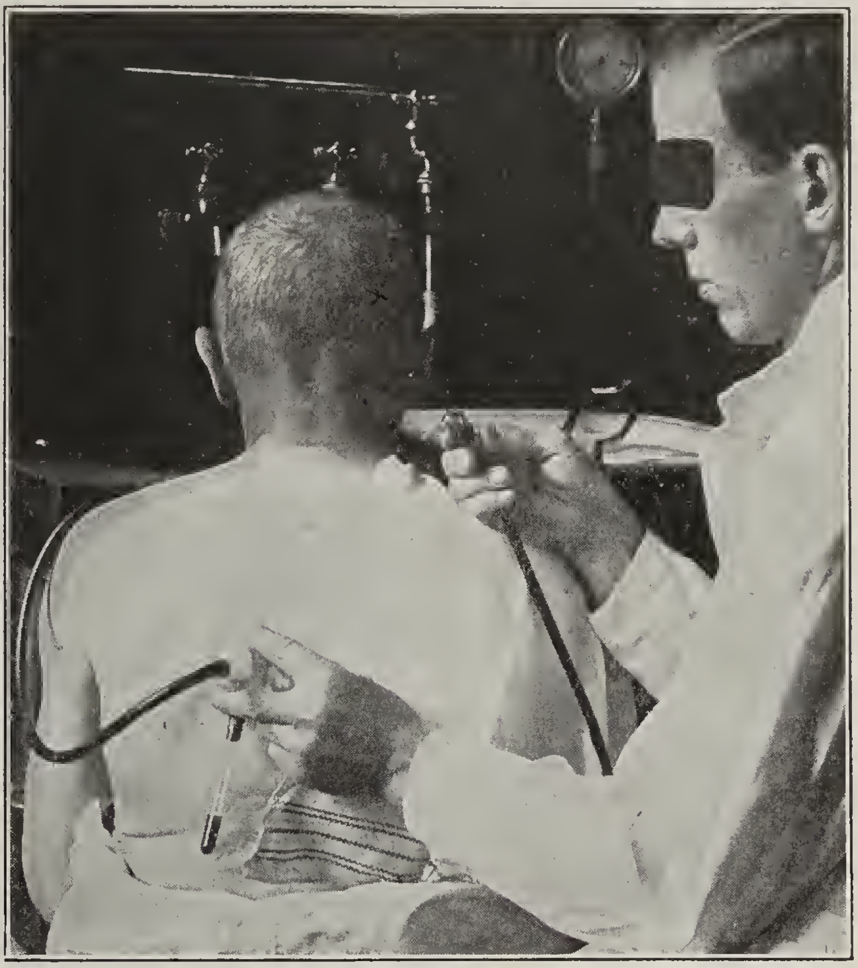

Fig. 5.—Use of Blackfan's cup for withdrawing blood after puncturing skin for purpose of examination.

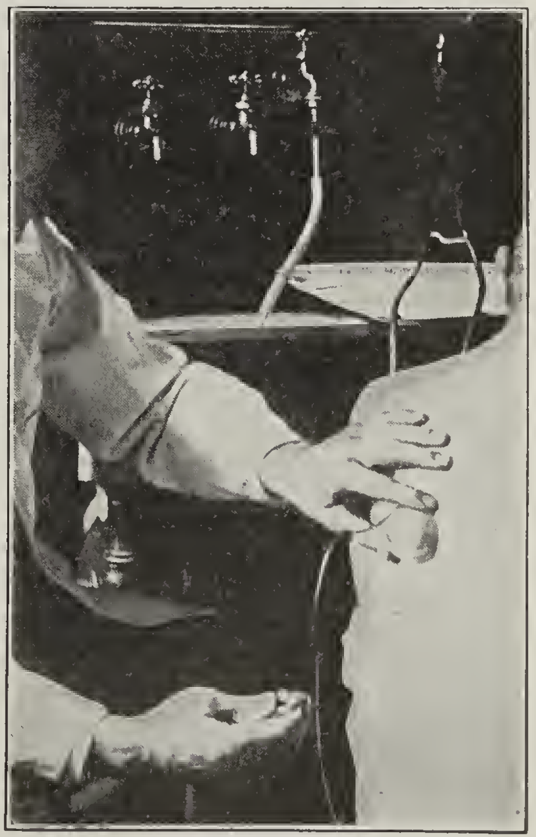

Fig. 6.—Bier's hyperemic cupping.

In bloodletting outside of the office or laboratory the bottle (which must be a strong one) is exhausted by means of the partial vacuum apparatus to 15 or 20 inches of mercury. This bottle may be carried to the house of the patient. Suction is then regulated by means of one of the small petcocks attached to the rubber stopper (Fig. 6).

Exploratory Puncture and Aspirating Fluids from Cavities.—This method affords a quick and simple means of direct diagnosis by use of the exploratory needle for the study of aspirated fluids chemically and microscopically.

For therapeutic measures in pleurisy with effusion, etc., the same application is made as in bloodletting either with the Potain apparatus or an ordinary bottle or flask equipped with rubber stopper, tubing and needle suitable for this purpose.

Hyperemic Cupping.—By means of a Y shaped glass tube, two pieces of tubing are connected to the apparatus. To one of these tubes is attached a Bier's cup or a glass funnel which serves as a cup, and to the other a cut-off. An intermittent vacuum of 5 to 10 inches of mercury is required. The cut-off serves to apply or reduce suction as needed. For carbuncles, boils, abscesses, etc., where continuous suction is desired, a lower degree of vacuum suffices (Fig. 7).

The principle of suction has recently been adopted in operative nose and throat work for keeping the field clean and dry, as well as for draining infected sinuses. In general surgery it has also been employed for draining, especially in abdominal surgery.

The ingenious method introduced by Dr. Davis of the Brady Urological Clinic, Johns Hopkins Hospital, promises to revolutionize the entire technic of urinary drainage.

With the more general use of partial vacuum suction it may safely be predicted that many similar results will follow in the technic of diagnosis and mechanical therapeutics.

20 East Preston Street.

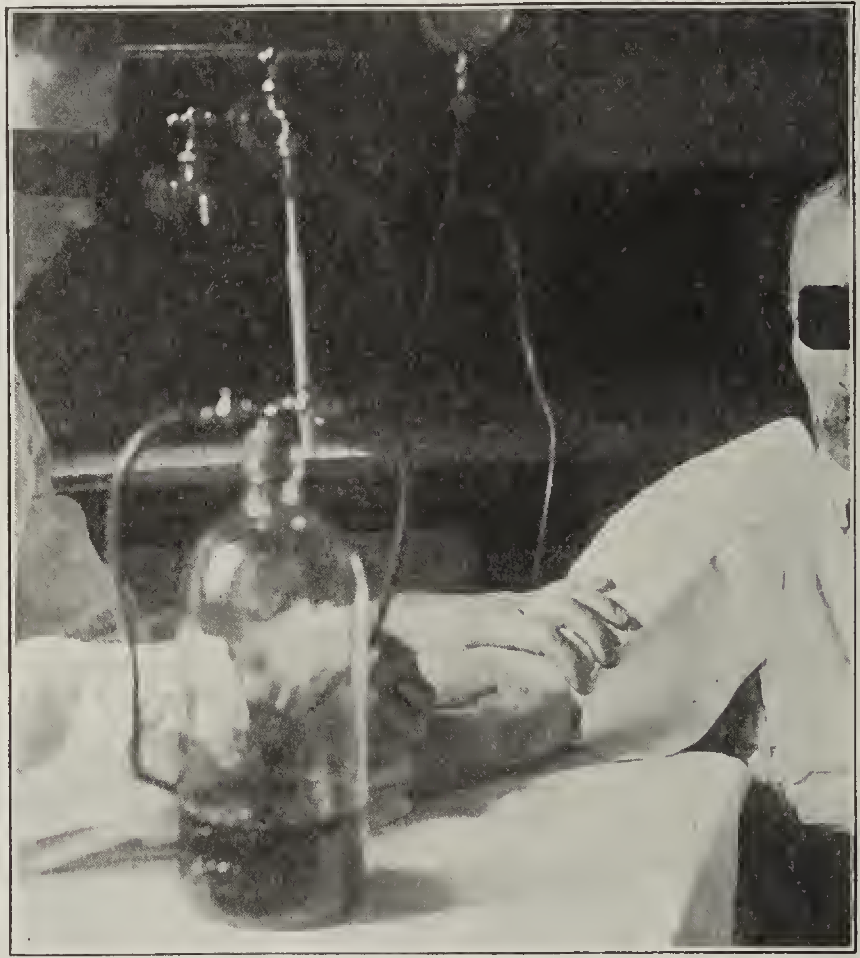

Fig. 7.—Partial vacuum method of bloodletting by means of Potain apparatus.

Pharmacopeia or National Formulary Names Not Conforming to Standard.—The federal Food and Drugs Act of June 30, 1916, provides that a drug sold under a name recognized in the United States Pharmacopeia or National Formulary shall be deemed to be adulterated if it differs from the standard of strength, quality or purity as determined by the test laid down therein as official. It provides, however, that no such drug shall be deemed to be adulterated if the standard of strength, quality, or purity be plainly stated on the bottle, box or other container, nothwithstanding that such so-called standard differs from the official standard laid down in the Pharmacopeia or National Formulary. In a recently published opinion of the bureau of chemistry, the label in any such case should bear either a statement to the effect that the drug is not a U. S. P. or N. F. article, together with a statement showing its own actual strength, quality or purity, or else a clear and exact statement of the nature and extent of the deviation from the standard set out for the article in the pharmacopeia or formulary.

TUBERCULOSIS OF THE MAMMARY GLAND *

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Since the classical description of the microscopic pathology of mammary tuberculosis by Dubar in 1881, about 180 undoubted cases have been reported. In 1913, Deaver collected 144 cases, including sixty-five which Anspach had found prior to 1904. Durante, in 1914, was able to collect 150 cases, and to this number he added two from his own experience. In 1916, Durante and MacCarty reported from the Mayo Clinic ten cases, or 0.51 per cent. of pathologic breast conditions observed in the last eleven years. If the frequency of the disease can be judged by the number of reported cases, one must necessarily be impressed by its relative rarity when compared with the incidence of tuberculosis in general.

Since Dubar's classification, very little has been added to the pathology of tuberculosis of the breast. He described two types under the terms nodular or discrete, and confluent. The nodular type has been subdivided into the solitary and the disseminated forms. Very often these are but different stages of the same pathologic process, as, for instance, the disseminated nodules may become confluent with the formation of large areas of caseation. As von Eberts has stated, the pathology does not differ essentially from tuberculosis in other organs.

Grossly, there may be a single nodule of firm consistency, giving the impression of an adenofibroma. Revel has reported an adenofibroma with cystic degeneration which proved to be tuberculous, but this is exceedingly uncommon. In the discrete variety, as a rule, the breast is not increased in size. The skin remains unbroken. On section of such a gland, one or many firm nodules are found. These usually do not grit as in carcinoma, although calcification has been reported by Barbet. Such nodules consist of zones of gray or bluish-gray tissue surrounding yellowish or wax-colored centers. If multiple nodules are present, the separate foci are scattered through normal gland tissue. Scott has described a type in which the predominating feature is a sclerosis. This usually occurs in old women and is grossly mistaken for carcinoma. A definite diagnosis in a case of this kind cannot be made without the aid of the microscope. The sclerotic type may best be compared to ibroid phthisis with the absence of cavity formation. Most of the cases of tuberculosis of the breast thus far reported have broken down, giving a fluctuation varying with the extent of the involvement and the amount of liquefaction present, or have gone farther to abscess formation with multiple sinuses. This is the confluent variety. The breast in this type is usually asymmetrically enlarged. It may be twice the size of the opposite organ. The gland may be felt as one firm mass, or more or less distinct nodules may be present. The sinuses lead to one or several abscess cavities, which are lined with a soft, grayish membrane, representing tuberculous débris and covering numerous secondary tubercles, varying from a millimeter to a centimeter in diameter. The gland tissue surrounding the cavities is pale gray and fibrous for 2 or 3 cm. The sinuses themselves are lined with chronic granulation tissue, and discharge typical thick, odorless pus. Retraction of the nipple is nearly always present, as it occurs early in the disease. It is not of much diagnostic value, however, as retraction occurs in many other diseases with connective tissue involvement of the breast. Unilateral involvement is the rule, even though the axillary gland involvement be bilateral. The lymph nodes on the corresponding side are enlarged in from 60 to 75 per cent. of all cases.

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* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

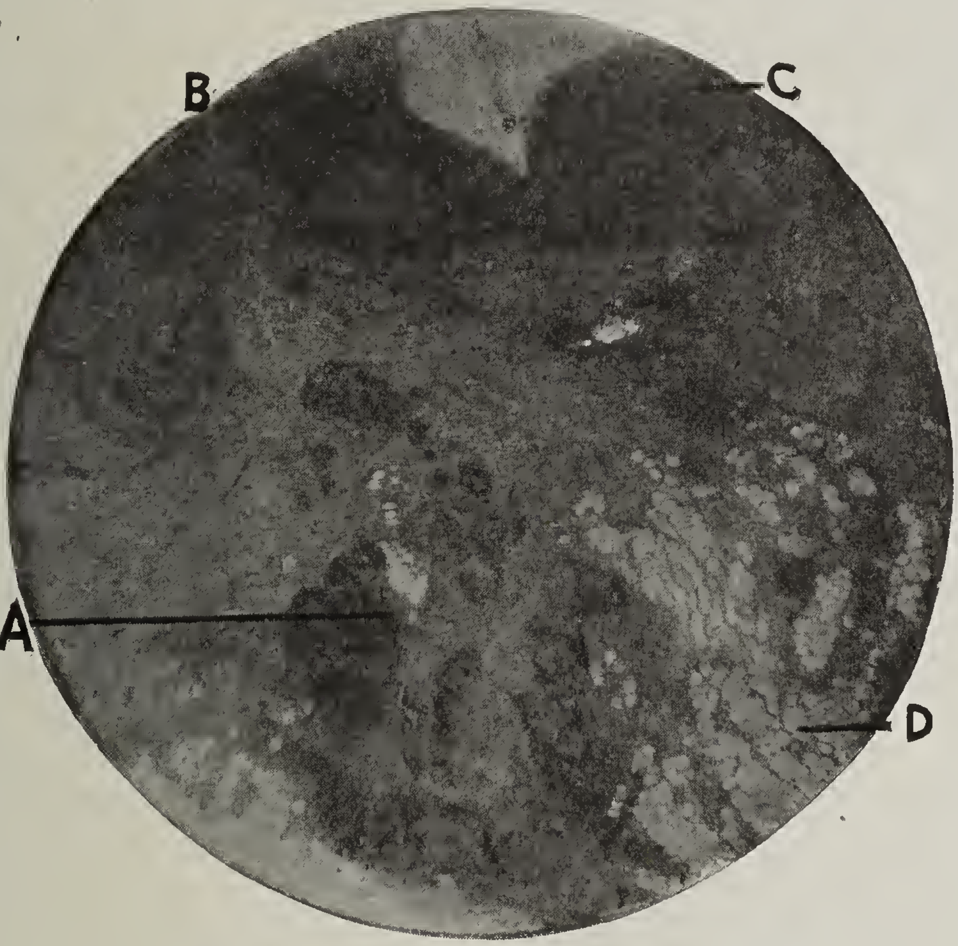

Fig. 1 (Case 4).—Photomicrograph, × 50, showing edge of abscess cavity with tubercle formation and giant cells: *A*, gland tissue; *B*, tubercle; *C*, wall of abscess; *D*, fat.

About 60 per cent. of the cases of mammary tuberculosis in the literature have been reported as *primary*. This seems to me to be an unfortunate misnomer, as most of them were undoubtedly secondary to a primary focus elsewhere in the body, whether the result of direct extension, hematogenous invasion, or retrograde lymphatic processes. While men like Klebs and Rippert have denied the occurrence of primary tuberculosis of the breast, there are probably a few cases in which the breast was primarily infected, such as the one reported by Deaver in which a nurse fell on an infected instrument. However, as there is no record of a patient coming to necropsy with tuberculosis confined to the breast, absolute proof of a single case of primary tuberculosis arising in the mammary gland is still lacking. Geissler has suggested the term "solitary tuberculosis of the breast" to cover those cases in which the breast is the only organ giving clinical evidence of the disease. It would seem that those cases, like tuberculosis of the kidney, might be said to be *deuteropathic,* in the sense that the lesion is secondary to some unrecognized focus elsewhere, in contradistinction to the exceptional case, which may really be primary, or *protopathic*. Halstead and LeCount believe that the process is retrogressive from the axillary lymph nodes in a large percentage of cases.

The majority of observers have been inclined to consider the hematogenous route as the chief means of breast infection with the tubercle bacillus; some have regarded the lactiferous ducts as the chief pathway of entrance for the bacilli. Rodman argued that one would expect the ducts to be the point of greatest activity of the process if the latter were the case. This does not necessarily follow, as tuberculosis of the tongue is very rare, and the process when present begins in the muscular septa, in spite of the fact that the glands and mucosa of the tongue are as frequently exposed as any other part of the body. Mesenteric gland involvement in children, without any evidence of a bowel lesion, is by no means rare. I have been able to find no record of a case in which the process was so early that it was still confined to a tubercle about an embolus, so that absolute proof of the hematogenous method of infection is wanting.

Although Austrian and Hamman were unable to demonstrate the presence of tubercle bacilli in the blood in a single instance of pulmonary tuberculosis, and blood from patients in all stages of the disease was carefully examined, still this does not preclude the possibility of an occasional shower of the bacilli in the blood, and the probability of an occasional hematogenous infection. By analogy, it seems likely that in some cases, just as in tuberculosis of the hip, blood-borne bacilli may lodge in the stroma of the gland and an interacinous tubercle formation follow. Contrary to the statements of many textbooks, the majority of cases of tuberculous mastitis have been reported as occurring in robust women, in whom a tubercle bacillemia is almost out of the question. Some of the cases are unquestionably the result of direct extension from a tuberculous rib, although Deaver believes this is rare. In view of the relative frequency of tuberculous adenitis, when compared with tuberculosis of the breast, it is probable that the majority of cases are due to a retrograde lymphatic involvement, either from the axilla, or from the primary focus in the thorax by way of Grossman's path and Rotter's lymph nodes.

The gross picture of the confluent type is rarely confused with anything except actinomycosis or tertiary syphilis, each of which is even more rare, although chronic suppurative mastitis may occasionally resemble tuberculosis so closely that the history and microscopic examination are required to make the diagnosis. Unless gummas suppurate, the axillary glands are not more affected than lymphatic glands in other parts of the body. Diffuse syphilitic mastitis is the usual manifestation of syphilis of the breast. The axillary glands in actinomycosis of the breast are rarely involved, and a careful examination of the pus will usually reveal the nature of the infection without the aid of the microscope, although a definite diagnosis should never be made from the gross specimen.

Microscopically, tuberculosis of the breast resembles tuberculosis of other similar tissues. The extent of the involvement and the amount of inflammation vary greatly, but there is always the peripheral infiltration with lymphoid and plasma cells and more centrally epithelioid and giant cell formation, with a central zone of necrosis showing defective chromatic staining and actual caseation. Some fibrosis occurs in almost every case, but it is much more marked in the type described by Scott, in which no abscess formation occurs. In this variety, the presence of the bacilli is most difficult to demonstrate, although the difficulty in finding bacilli in the tissues in cases of tuberculous mastitis is a matter of frequent comment. Piskacek was able to find only a few bacilli in 400 preparations, and of the seventy-nine cases collected by Deaver, the bacilli were found in the stained sections only seven times, and in preparations of the pus but four times. In the event of cavity formation, small secondary tubercles in the various stages of degeneration present the usual picture, so that certain diagnosis can be made without demonstration of bacilli, although a careful attempt to find them should be made in every instance, and animal inoculation, a method rarely used in the cases reported, should always be done. The pus in the cavities may contain polymorphonuclear leukocytes in addition to the cell detritus and tuberculous débris. Bacilli seem to be more easily demonstrated in the pus than in the tissues.

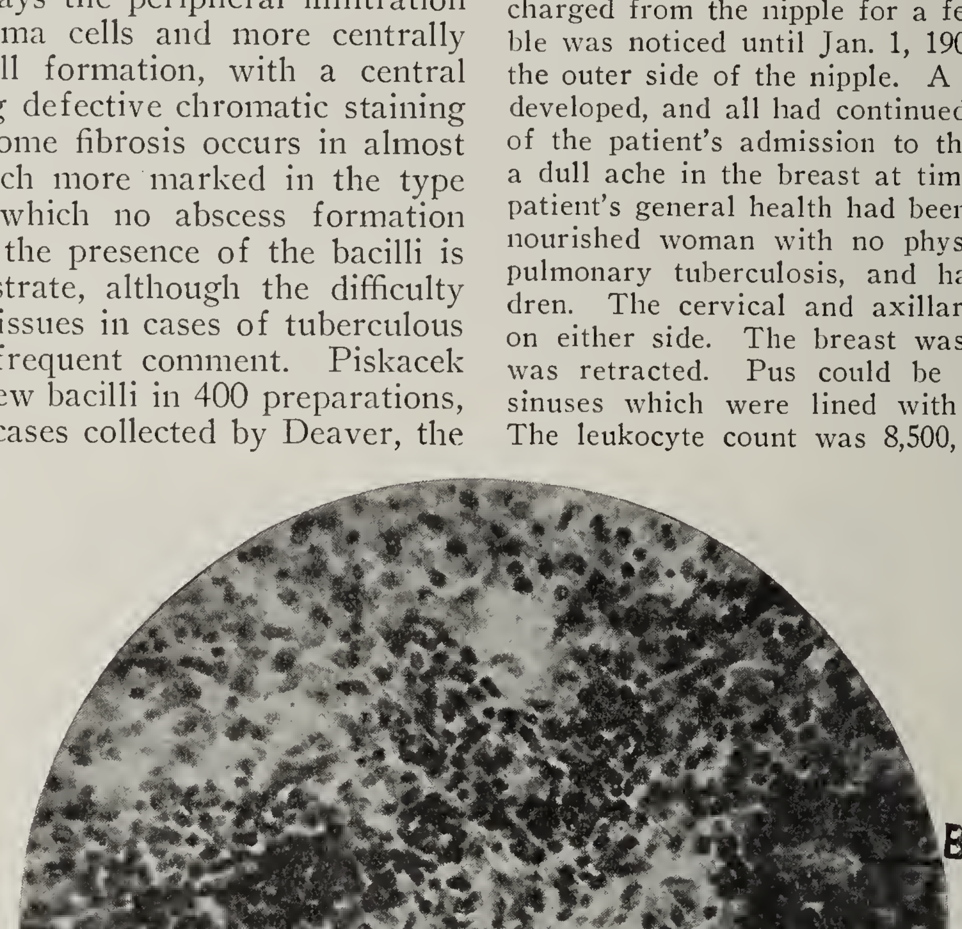

Fig. 2 (Case 4).—Photomicrograph, × 200, showing a giant cell (*A*) and a degenerated acinus resembling a giant cell (*B*).

The following cases of mammary tuberculosis have been observed in the Presbyterian Hospital, Chicago, in the past ten years, and represent 1.04 per cent. of all breast cases in which operation was performed during that period. All of these cases belong to the confluent type. Two of them undoubtedly are secondary, while the others are probably deuteropathic, though no primary focus could be found.

REPORT OF CASES

CASE 1.—M. R., a housewife, aged 36, born in America, entered the hospital, Jan. 29, 1907. Four years previously, the patient had noticed a hard nodule in the upper inner quadrant of her right breast. This nodule appeared six weeks before the birth of her youngest child. It was hard and tender, but gave rise to only slight pain. When first noticed, it was about 2 cm. in diameter, but gradually increased in size until one month after the birth of her child, when it softened and opened spontaneously. Several sinuses discharged greenish yellow pus for two months, when a second swelling appeared in the upper outer quadrant of the breast. The sinuses from the first abscess closed with the development of the second swelling, and the first nodule disappeared. The mass in the upper outer quadrant attained "almost the size of a baseball," and remained somewhat tender for eight or nine months, finally disappearing without sinus formation, except that during menstruation the breast would become tender and would swell slightly. Five months before entering the hospital, a small amount of pus discharged from the nipple for a few days, but no further trouble was noticed until Jan. 1, 1907, when a sinus appeared to the outer side of the nipple. A little later two other sinuses developed, and all had continued to discharge up to the time of the patient's admission to the hospital. There had been a dull ache in the breast at times, but no severe pain. The patient's general health had been excellent. She was a well-nourished woman with no physical signs of syphilis or of pulmonary tuberculosis, and had five living healthy children. The cervical and axillary glands were not palpable on either side. The breast was of normal size; the nipple was retracted. Pus could be expressed from any of the sinuses which were lined with chronic granulation tissue. The leukocyte count was 8,500, and at no time during her stay in the hospital was her temperature above normal. The abscesses and sinuses were dissected out and primary closure obtained. Many sections have been carefully searched for tubercle bacilli, but none have been found.

CASE 2.—M. C., a single woman, aged 26, born in Illinois, entered the hospital, March 11, 1909. She had first noticed a nodule about 3 cm. in diameter in the right breast in August, 1908. It had never been painful. This mass had gradually grown larger and softer until February, 1909, when it broke down without any pain, leaving two sinuses from which there had been a continual discharge of thick yellowish material. Aside from the usual diseases of childhood, the patient had been well until she contracted typhoid in 1903. Following this, she developed pulmonary tuberculosis for which she was carefully treated for nine months. At the time of her admission to the hospital, she was well nourished and had no signs of active pulmonary tuberculosis, although there was dulness of both apexes, and breath sounds were harsh over these areas. Following the removal of the breast lesion, the patient was reported as cured; but in January, 1912, she returned to the hospital with a small abscess of the same breast. This focus was removed and primary union obtained. At no time during either stay in the hospital was her temperature above 99 F. Sections made in 1909 showed the usual tubercle formation in the wall of the abscess cavity. Tubercle bacilli were obtained from the pus of the abscess in 1912, so that there remained no question as to the diagnosis.

CASE 3.—B. C., a housewife, aged 37, born in Poland, entered the hospital, Dec. 6, 1912. The patient stated that eighteen years before she had fallen on her right breast. Three weeks later, a swelling appeared, and this was incised at the left of the nipple. The resulting sinus closed after a time. During her pregnancies, hard masses appeared in the breast, but had always disappeared, although sinus formation with healing had occurred three times. She had been married twenty-one years and was the mother of six healthy children, the youngest of which was 6 weeks old. Her general health had always been good, and she had had no miscarriages. None of her children had nursed from the right breast. There had been some pain in the breast, especially during menstruation. The patient was well nourished with no evidence of pulmonary tuberculosis. The cervical lymph nodes on the left side were palpable, but were not large. The left breast was large and soft, milk being readily expressed from the nipple. The right breast was much smaller than the left. It was flabby except for several hard masses, the largest of which was about 4 cm. in diameter. It was situated just below the nipple. The skin over it was reddened, and pus could be expressed by pressure. There were three old scars below and one to the left of the nipple. The axillary glands on the right side were enlarged. The entire breast was removed, together with the axillary glands. Primary healing was obtained. Examination of the glands after removal showed caseation and periadenitis. On cut section, the breast contained numerous abscess cavities, the walls of which were irregular and were covered with a grayish yellow lining. There was an increase in the connective tissue, especially about the abscesses. Microscopic examination revealed typical tubercles in both the breast tissues and the axillary glands.

Case 4.—H. R., housewife, aged 46, born in Germany, entered the hospital, Jan. 26, 1916. The patient had had a small lump in the left breast for an indefinite period. The entire gland had become "hard as a stone," and of a bluish red color. After two weeks' medical management, the breast was incised and a large quantity of pus allowed to escape. Later the sinus closed, but during the next five or six weeks, isolated hard swellings appeared and the breast was incised three times. The wounds continued to discharge intermittently for a day or two at a time. For several weeks, a hard mass in the upper inner quadrant gradually enlarged. At times this mass was painful. The patient had been married for twenty-three years, and had six living children with no miscarriages. She had always been in good health, and there was no physical evidence of pulmonary tuberculosis. In the inner upper quadrant of the left breast was a hard tumor mass, about 6 cm. in diameter. This mass was not fixed to the chest wall. It was moderately painful on pressure. There were several old retracted scars on the surface of the breast. Axillary glands were palpable on the left side only. The entire breast was removed, but the axillary glands were not deemed sufficiently involved to warrant their removal. Throughout the breast were numerous abscesses varying from 1 to 4 cm. in diameter. These abscesses were well encapsulated, irregular and firm. Some of them contained grayish white centers, while others contained a yellow purulent material. Microscopic examination showed many well encapsulated tubercles, as well as others with caseation and necrosis. Typical giant cells were seen in many of the tubercles, as well as some atrophic acini which closely resemble the giant cells. A few bacilli were found after a prolonged search.

Case 5.—R. D., an Italian stone mason, aged 44, entered the hospital, Sept. 8, 1906. A nodule had been removed from the right breast three years before, but no history was obtained concerning the nature of this lesion. During the year preceding his entrance to the hospital he had lost about 20 pounds, and had had some night sweats and fever. In April, 1906, he had been operated on for left cervical and axillary lymph node tuberculosis. He had made a good recovery from the operation, when he noticed a swelling of the left breast which had gradually increased in size. There were no signs of active pulmonary tuberculosis, and the patient's physical condition was good. There were palpable glands in the right cervical region and old scars over the right breast, over the left cervical region, and in the left axilla, but no sinuses. The outer portion of the left breast was removed, and chronic granulation tissue extending to the ribs was curetted away. The microscopic examination showed secondary tuberculosis of the breast with typical giant cells and caseating tubercles.

Presbyterian Hospital.

EXTERNAL NASAL DEFORMITIES

CORRECTION BY SUBCUTANEOUS METHOD *

LEE COHEN, M.D.
BALTIMORE

In 1914 my work along these lines was described,[1] and photographs of patients before and after operation were shown. In this paper credit was given to those workers whose results had been a stimulus to me, and a detailed bibliography was appended. Originality was claimed only for such modifications as seemed best in the attainment of results.

I beg, therefore, to offer the following as but a supplementary report, and have selected four cases in which are embodied some observations made since the previous publication. I would also ask your indulgence should a too detailed description of the work be given. The desire is to spare those beginning this work the great difficulties encountered by me, failing to find the minute but very important details in the literature at my disposal.

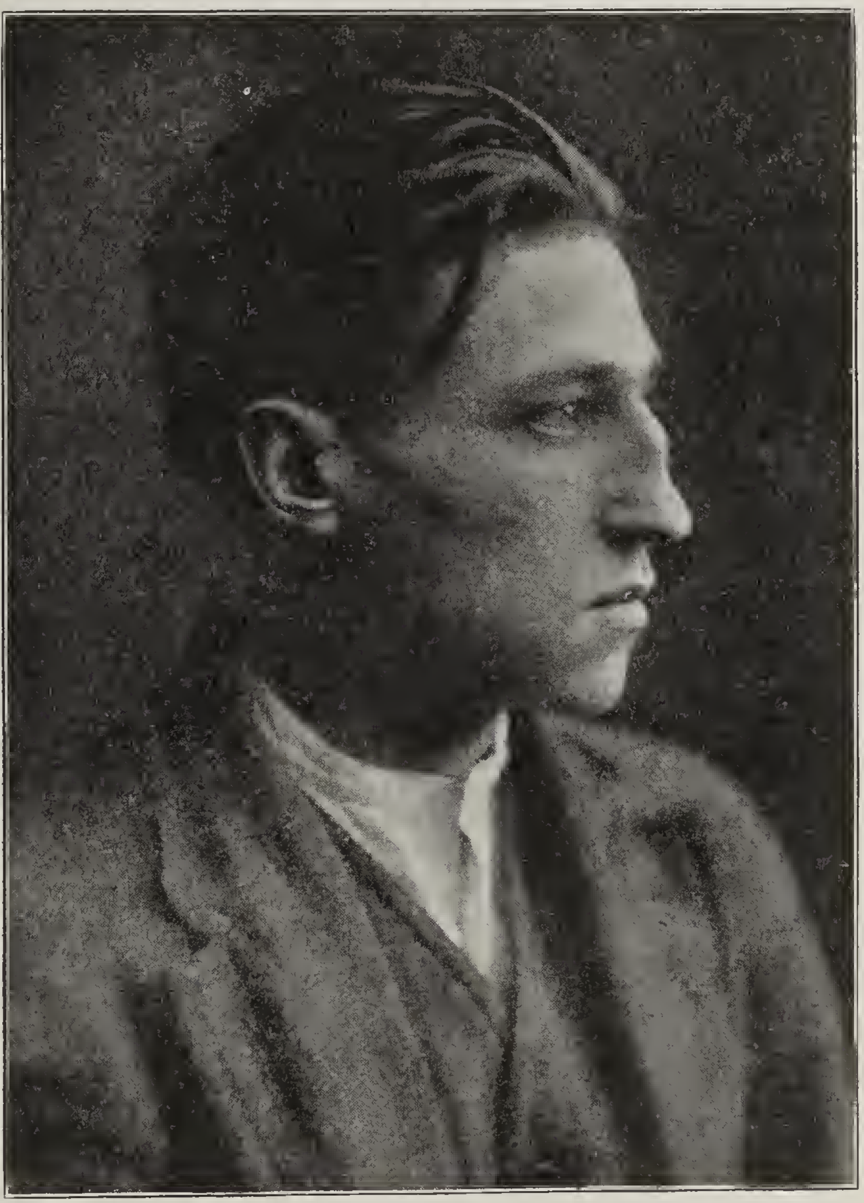
Fig. 9 (Case 4).—Before operation.

Although in my report at that time, in twenty-two cases no infection had taken place, soon thereafter I received quite a jolt when two cases of infection followed operation in quick succession. In one instance I felt certain that the cause might be ascribed to the tincture of iodin, which was used for the first time

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Cohen, Lee: Corrective Rhinoplasty, Laryngoscope, June, 1914.

instead of the routine cleansing of the vestibule employed in former operations, and I would, therefore, discourage the use of iodin for this purpose. Relief in this instance was obtained by drainage from within the interior of the nose, and the result was not materially affected.

If we would obviate infection of the wound, too great a stress cannot be laid on proper technic in preparing the field of operation. The vestibule of the nose should first be prepared by careful removal of all hairs, using a small barber scissors for the purpose. The nose should then be thoroughly douched with sterile normal salt solution, after which soap, water, ether and alcohol are used to complete the process in the vestibule. The entire face is also cleansed in the same surgical manner, and is afterward so draped with sterile towels that only the nose and mouth remain exposed. Several layers of handkerchief gauze are now used to cover the mouth, the patient being thus enabled to breathe freely. In each instance the entire nose, with the exception of the vestibule, is packed with sterile gauze, and over this a pledget of cotton saturated with alcohol is placed. In case a general anesthetic is employed, a posterior nasal tampon is made use of to prevent the blood from reaching the pharynx and larynx.

To diminish further the likelihood of infection, I have made it a rule in undermining the skin, and in all subsequent steps of the operation, to reintroduce as seldom as possible the same instrument after its withdrawal from the wound. I deem it imperative, of course, that rubber gloves be used by the operator and his assistants.

In the second case of infection, transplantation of bone was attempted, and the error of placing two pieces of thin bone, one on the other, was made, instead of utilizing a single and thicker piece of bone so that the transplant would receive nourishment from both upper and lower surfaces, as was later done in a case to be described in this paper. In this infected case it was necessary to remove the transplanted bone; consequently the desired results were not obtained, and another attempt will shortly be made to effect a successful correction.

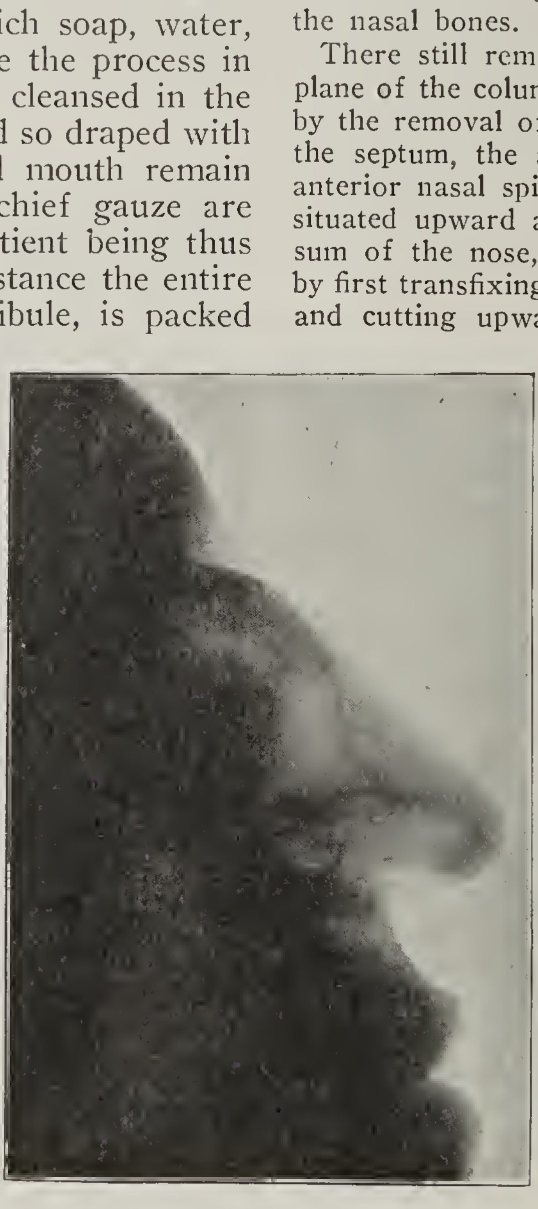

Fig. 10 (Case 4).—Roentgenogram taken ten days after transplantation of bone in septum.

Case 1.—Woman, aged 37. Somewhat oversized nose, with convex vertical deformity involving the bony and cartilaginous dorsum from the frontal notch to the tip. The tip drooped and the columna nasi extended about one-fourth inch below the planes of the edges of the alae. The deformity had caused the patient much unhappiness since early womanhood.

Oct. 15, 1915, under local anesthesia, the skin over the entire nose was undermined through the usual incisions, one on each side, made from the interior of the vestibule, parallel with and just below the edges of the nasal bones and nasal processes of the superior maxillae.

This being accomplished, the entire bony dorsum was sawed through (about one-fourth inch below the summit of its most convex portion), from the frontal notch down to the beginning of the cartilaginous portion. Before sawing through the bone, however, the periosteum was cut through along the same line with the sharp edge of a small periosteal elevator, to avoid the ragged edges which would necessarily have been made with the saw. The saw was introduced first into the left side, the left nasal bone was severed, and the septum, close to the summit of the nose, sawed through A fresh saw was then introduced into the right side and the same thing accomplished. But slight lateral pressure wa then needed completely to mobilize the bone thus separated Pressure on the lower end of this segment removed every appearance of a hump nose. Where the convexity of the bony dorsum is a gradual one, without irregularities, it is not always necessary to remove any portion of the bone to secure a straight profile, for in such case the hump is the result of an exaggerated prominence of the lower ends o the nasal bones.

There still remained the elongated tip and the rather low plane of the columna to be corrected. This was accomplished by the removal of a triangular piece of the lower portion o the septum, the apex of the triangle being situated at th anterior nasal spine, the base (about 7 mm. in width) being situated upward and forward beneath the cartilaginous dorsum of the nose, just above the fleshy tip. This was don by first transfixing the membranous septum with a small knife and cutting upward and forward to the dorsum nasi; th incision thus made formed the lowe arm of the triangle. A similar diverging incision was made above, throug the lower part of the quadrilateral cartilage, forming the upper arm of th triangle.

The piece removed consisted, there fore, partly of the membranous an partly of the cartilaginous septum. Thi step is well illustrated by the diagram of Joseph. The edges of the woun thus made were brought together b four superficial sutures of black silk o each side of the septum, after whic two deep mattress sutures were introduced through the cartilaginous septum above and the columna nasi below, s that should the superficial ones pull out a sagging of the tip would be prevented These deep sutures also obviate an sagging that might result from th stretching of the skin and mucou membrane.

The vestibule was packed with iodoform gauze, and a copper splint, mad for this case, applied in the manne described in my former monograph. I might be added that I am now lining all splints with surgeon's lint, which greatly diminishes pressure on the skin and adds much to the comfort of the patient.

The first dressing was allowed to remain four days, afte which it was renewed every forty-eight hours. All suture were removed on the eighth day. The patient remained in the hospital one week, after which time she came to the office to be dressed for a period of five weeks. She returned home six weeks after the operation, with the result shown in Figure 2.

Case 2.—Man, aged 26. While at first glance this deformity bears some resemblance to the one just described, on closer observation the following differences may be noted The hump is higher up and sharper cut, there being a distinct space between it and the lower ends of the nasal bones The surface of this convexity is not regular, there being a sharp ridge on each side of the hump, the result of fracture due to a blow received at the age of 14.

The method of correction in this case, with the exception of the undermining of the skin, was quite different from that employed in Case 1. The entire hump was sawed through, slightly below a line drawn from the frontal notch above to the plane of the cartilaginous nose below, in order to include the ridge on each side. The segment thus mobilized was taken out through the wound, care being exercised that it did not touch in any way the skin of the interior of the vestibule, thus avoiding possible infection from this source. To accomplish this a modified Killian speculum, such as he used in rhinoscopia media, was introduced into the wound and opened somewhat as it was pushed forward, so that the separated segment, held by the finger over the dorsum nasi, was forced between the blades of the speculum. When thus engaged the speculum was withdrawn containing the piece of bone, which was immediately immersed in warm saline solution. The nasal dorsum now presented a somewhat dished out appearance. With a pair of Freer bone forceps, most of the bone making up the removed segment was cut away, leaving a strip of tissue consisting of the periosteum and soft parts. This strip was again laid between the blades of the speculum, reintroduced into the wound, and, when placed on the dorsum, completely filled the depression caused by its removal. The dorsum then presented an even, symmetrical appearance.

No stitches whatever were used in this case, the vestibule being simply packed with iodoform tape and the copper splint applied. The result, after primary healing, shown in the picture taken five weeks later (Fig. 4), illustrates the extent to which we may venture in these operations if only the strictest asepsis is observed.

Case 3.—Man, aged 40, presented a grossly oversized nose, the hump involving not only the bony but also the cartilaginous portion down to the very tip. The anterior edge of the triangular cartilage could be distinctly felt through the skin, above the level of the lateral walls of the nose. The columna at its posterior end extended downward to within three-sixteenths inch of the vermilion border of the lip, and the tip drooped considerably. The shortness of the upper lip, along with this nasal deformity, gave to the patient an unusually displeasing appearance.

After undermining in the usual way, the bony portion was sawed through at a much lower level than in either of the foregoing cases. The saw edge, instead of being placed at right angles to the bone, was turned somewhat upward, giving to the edges of the wound a beveled effect. Thus, after complete mobilization, the edges of the displaced fragment were made to overlap the lower edges of the sawed wound, lowering considerably the plane of the dorsum. This accomplished, a sharp knife introduced through the original incision was used to prune down the convexity of the cartilaginous septum, a small strip of which was taken away. There still remained the tip and the columna to be dealt with. These defects were remedied by the removal of a wedge shaped piece of the septum about one-third inch wide at its base, in much the same manner employed in Case 1.

In addition to this, for the purpose of shortening the lateral walls of the cartilaginous nose, a small wedge shaped piece was removed from the interior of each side wall, the apex of the wedge being located just above the bulge of each ala, while the bases (about 7 mm. in width) met over the septum. By approximating the edges of the three wounds so made with black silk sutures, a shortening of the entire nose was accomplished, making the upper lip considerably longer and changing the entire facial expression.

Case 4.—Man, aged 20, came to me in the dispensary of the Hebrew hospital, with the pathetic story that owing to his deformity he could not obtain a position. His father, being under the impression that the boy did not desire work, made things rather uncomfortable for him. It will be seen from Figure 9 that this nose bore some resemblance to the back of a Bactrian camel, and gave to the face a hideous, almost criminal expression.

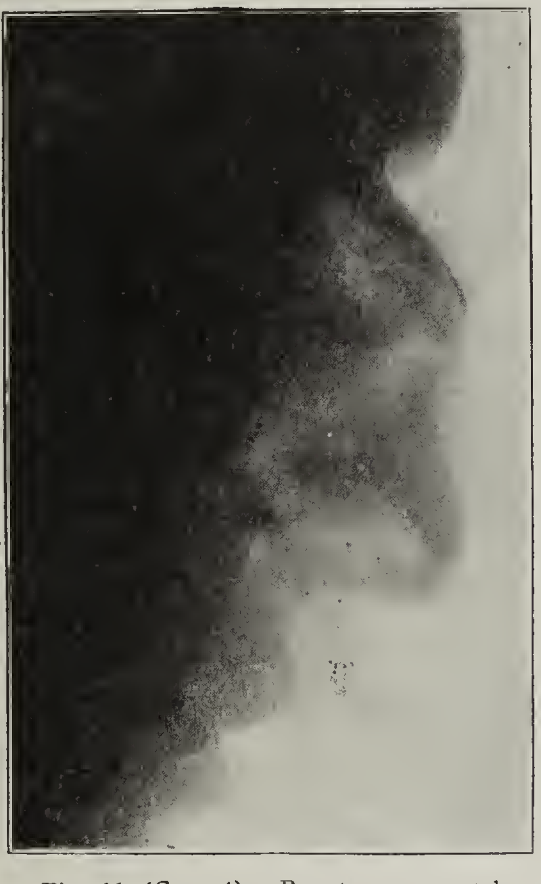
Fig. 11 (Case 4).—Roentgenogram taken sixteen months after transplantation of bone in septum.

In 1904 the patient was struck on the nose with a piece of lumber which fractured both nasal bones, the upper large hump resulting. In November, 1914, he received a blow on the nose with a whip handle, causing a septal abscess for which he sought treatment only after the entire cartilaginous septum was destroyed. The contracture following this abscess caused the depression seen on the lower part of the nose. The skin over the bony hump was red, very sensitive, and, in the absence of the cartilaginous septum, afforded the only support for the tip of the nose. Evidently more than one operation would be necessary in this case, and it was found best to divide the operative work into three stages.

Jan. 5, 1915, an attempt was made to furnish some substantial support for the tip of the nose. Under local anesthesia, after separating the two layers of the septal mucous membrane (as is done in the usual submucous resection), two thirds of the right lower turbinate bone was removed with the Struychen scissors. The bone was completely stripped of the mucoperiosteum, straightened out and cut to the desired shape. This piece of bone was then planted between the layers of the septal mucous membrane, one end being placed against the anterior nasal spine, the other beneath the nasal dorsum, just above the fleshy tip. The septal incision was then sawed, and a Roe spring clamp introduced into the anterior nares to relieve undue pressure on the transplanted bone until it had well taken hold. The nose was packed with iodoform tape in the usual way. Healing took place by first intention.

A roentgenogram taken ten days later (Fig. 10) showed the transplanted turbinate bone to be in splendid position, and supplying in every way the support for which it had been intended. Another roentgenogram taken sixteen months later (Fig. 11) shows the bone still in position, though somewhat smaller in size than when introduced.

In addition to this, the latter picture shows a substantial line of ossification extending upward from the original transplant below to the bony septum behind the nasal bones. As previously stated, the mucoperiosteum was entirely removed from the bone before it was placed between the two layers of the septal mucous membrane. It must be inferred, therefore, that nourishment for the transplanted bone was furnished by the mucoperichondrium of the septum, and that it is not always essential that bone so transplanted should be covered by the periosteum to insure its life and further ossification.

Three weeks later a second operation was performed on this nose. Under local anesthesia, after undermining the skin, the large bony hump was sawed off and moved downward to fill in the depression over the cartilaginous portion. In applying the copper splint here care was exercised lest the pressure be so great as to interfere with the nourishment of the bone in its new position. Healing was uneventful, but there still remained a slight indentation over the cartilaginous portion of the nose.

So satisfied was the patient with the result thus far obtained that seven months now elapsed before his consent could be gained for the third and final step in the correction of the deformity. Sept. 30, 1915, under ether anesthesia, after again undermining the skin and preparing the dorsum nasi for its reception, a longitudinal section was removed from the fourth right sternocostal cartilage and placed on the nasal dorsum, to fill in the depressed portion. This section, with perichondrium attached to its outer surface, was about 1¼ inches in length and included only the outer half of the entire thickness of the costal cartilage, the inner half being left in situ, so that the thorax wall need not be too greatly weakened.

The strip of cartilage so removed curved markedly toward its perichondrial surface, and this curve made it necessary to place it transversely, with its perichondrium downward against the cartilaginous framework of the nose. Owing to the curvature, however, it conformed nicely with the convexity of the dorsum.

The vestibule was packed as before with iodoform gauze, and the copper splint applied in the usual way. Healing took place without a mishap, with the excellent result shown in the photograph taken six months afterward (Fig. 12).

The psychologic effect on the patient, after the change wrought in his appearance by this work, is most interesting. While before this, as shown in the first picture, he gave no heed whatever to his attire, afterward he dressed with the greatest care before having his photograph taken.

1820 Eutaw Place.

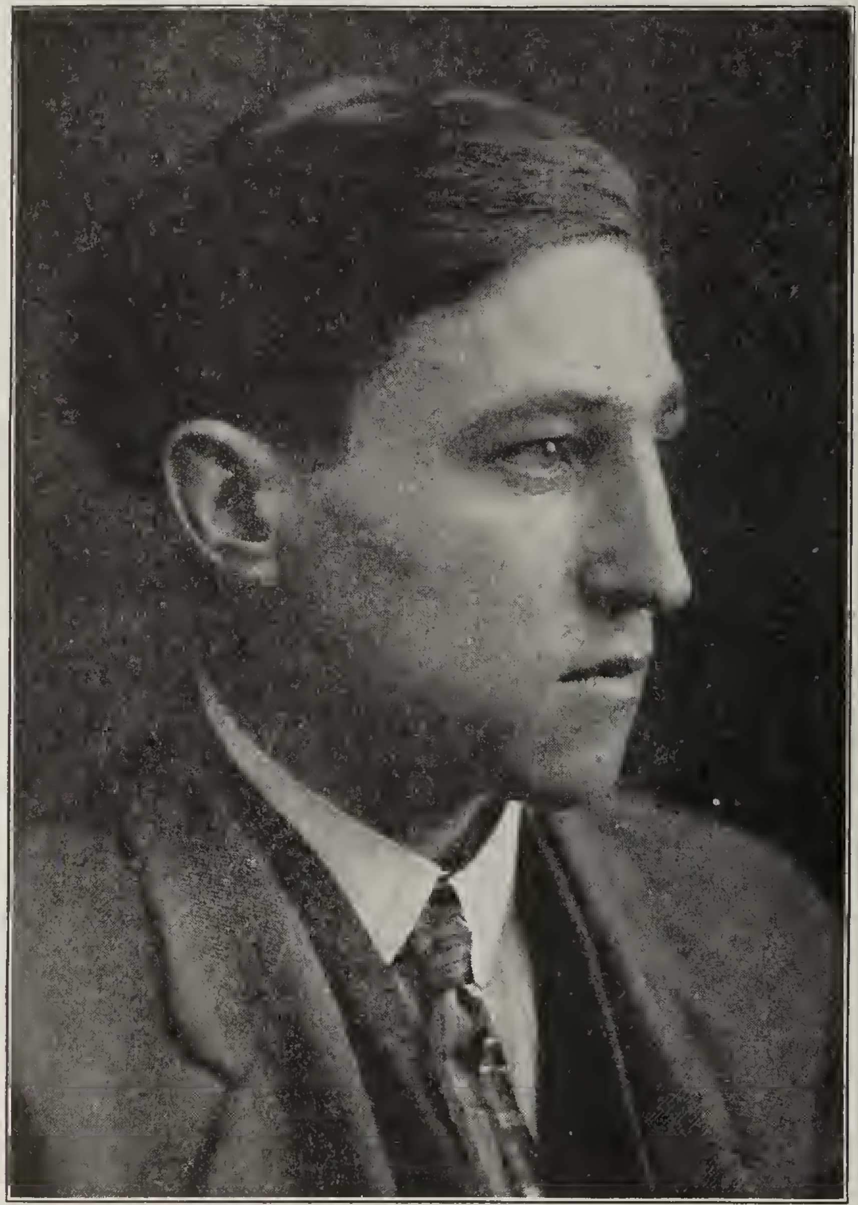

Fig. 12 (Case 4).—After operation.

ABSTRACT OF DISCUSSION

Dr. William Wesley Carter, New York: There are points in Dr. Cohen's paper with which I do not altogether agree. With reference to the use of tincture of iodin as an antiseptic I feel that this drug has assisted me greatly in this work. It is very important in rhinoplastic surgery to have strict asepsis. My method of preparing the patient is to cleanse the entire face and nose with green soap and water. This is followed by alcohol, and this by tincture of iodin. In preparing the nose itself, the vibrissae are removed and the nasal cavities are cleansed with Dobell's solution. I then pack the nose beyond the point where I expect to make my incision with nonabsorbent cotton. I then paint the inside of the nose with tincture of iodin. The incision is made in all my work from within the nasal cavity in the interval between the upper and lower lateral cartilages. This point is very clearly recognized by one who is accustomed to do this work and is shown by a slight fold of mucous membrane. I use a small knife especially made for this purpose.

I believe in completing the elevation of the tissues as nearly as possible through the one incision, by means of the instrument that is introduced at the beginning of the operation. In nearly every instance I make my incision on only one side, that is, through the left nasal cavity. The elevation of the tissues is carried on deeply, as near the bone as possible, under the periosteum over the nasal bones, if possible. Dr. Cohen said that he made a mistake in transplanting two strips of bone instead of one large piece. He transplanted the bone right, but he got infection; that is what caused the trouble. Osteogenesis is relatively far greater in the small fragments of bone than in the large fragments. That portion of bone that is farthest removed from the blood supply has a tendency to absorb, even if these small, thin strips of bone are used, and for that reason I think it far better to use a number of small strips which are more easily nourished rather than a large strip which will begin at once to be absorbed from the center. In these shortening operations I do not, as a rule, use the copper splints for retaining the nose in position, after taking out a wedge of bone and cartilage. The apex of my wedge is at the nasal spine, which is removed, the base of the wedge reaching out to the dorsum of the nose. The mucous membrane is elevated for a short distance from the cartilaginous septum that remains in order that we may close the perforation with sutures after the tip is raised. A strip of adhesive plaster is run from the inner canthus of one eye around the tip to a corresponding position on the other side of the nose. This holds the tip in its elevated position and relieves all tension. The nasal cavity is then packed with petrolatum gauze, which is prepared by placing in a test tube a narrow strip of gauze, about three fourths of the tube being filled with gauze and the remainder with petrolatum, a piece of cotton inserted and the tube placed in a sterilizer for a half hour. The petrolatum percolates through the gauze and you have an excellent intranasal dressing. I first advised this dressing ten years ago and used it in my submucous operations before I did this work. The copper splints I use are tinned on one surface and are padded with a thin layer of cotton. In removing humps from the nose I have used the method described—removing the hump and transplanting it to some other portion of the nose, but as a rule I remove humps by means of a special rasp, the teeth of which converge toward the center. This detritus is removed by means of a small spoon or curet. Many of my cases are of several years' standing and they show that the transplants are alive and that the deformities are permanently corrected.

Dr. E. L. Kenyon, Chicago: A man of 30, an aviator, fell about 150 feet. He was strapped to the machine, and fortunately it fell under him, but he fell forward, with the result that he was struck very hard; the cheek bones on the left side were injured, and the nasal cartilages were crushed in, producing marked depressive deformity of the front of the nose; and the nasal septum was broken, perforated, and crushed to one side. There is no question that he is going to be operated on by somebody, and I shall try to see that he gets into good hands.

Dr. Lee Cohen, Baltimore: I felt certain that infection in my case was not due to any slip in technic, but rather because neither of the bone strips received nourishment from both sides. This belief was strengthened, when on removing the transplanted bone, after infection had occurred, the upper strip had become firmly adherent to the skin from which it had received sufficient blood, and looked quite healthy; whereas the lower strip, which depended entirely on the less vascular cartilaginous framework of the nose for its nutrition, was bathed in pus, and free from attachment of any sort. The class of cases presented by Dr. Carter are quite different from those shown by me, and in them the attainment of ideal cosmetic results is not so easy.

p to the appearance of Dr. Carter's last monograph on is subject, he had been introducing the strip of bone rough an external incision made between the eyebrows. am glad to note in his discussion, that he now makes his cision within the nose, thus avoiding the scars which followed in his former operations.

SYPHILIS OF THE STOMACH

A CASE OF HOUR-GLASS CONTRACTION

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While hour-glass stomach is not a very rare condi- on, this case has some peculiar features which illus- ate with what perfection syphilis may masquerade ; some other disease.

History.—J. M., aged 44, newspaper man, married, wife rfectly well, one healthy child, no miscarriages, had an important history until 1898, when he enlisted for the Span- 1 War. He contracted a sore that year which was cured local treatment in a few days. He says he had no secondaries of any kind and no sickness at all referable to his itial lesion until 1908, exactly ten years later, when he had "lump" appear on his shin following slight traumatism. This imor was pronounced syphilis, and was treated as such for ie month. After this gumma disappeared no more specific eatment was taken and no other evidence of infection opeared until seven years later, when a severe iritis arose hich resulted in a bad central corneal scar. He had about iree months' treatment with mercury during the eye trouble, id shortly after recovery from this he began to have "stom- ch trouble." This consisted of indigestion, attacks of vomit- ig, and pain and tenderness in the epigastrium. Being a aveling man at this time, he was treated by various physi- ans with little or no relief. Several physicians pronounced is case one of gastric ulcer. Finally his condition became ich that he was compelled to give up his position, being able take only liquid food and always being in pain. He was nt to the Army and Navy General Hospital at Hot Springs, rk., by a physician who believed his trouble to be gastric or uodenal ulcer.

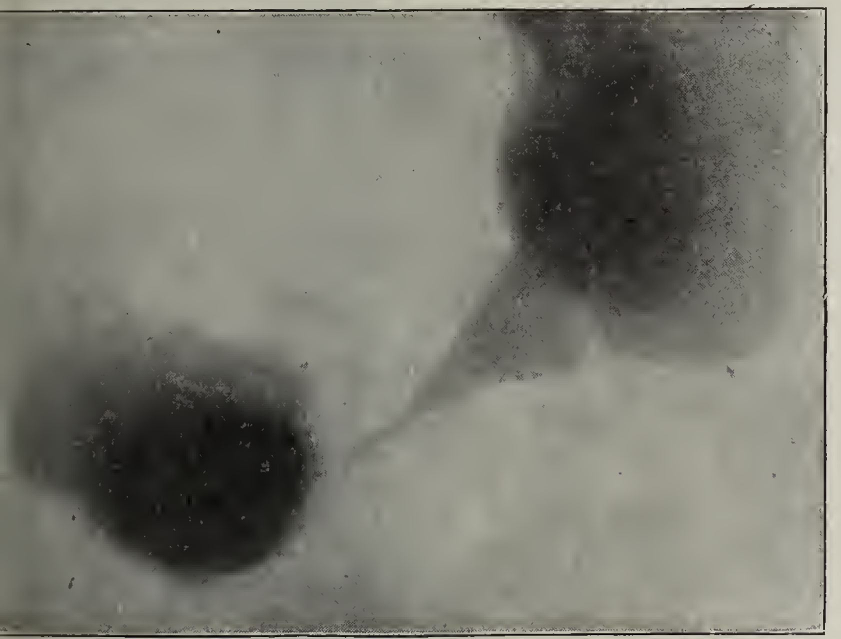

Fig. 1.—Six hour roentgenogram after bismuth meal, showing narrow hmus.

On admission the patient was pale, emaciated and weak. here was constant pain in the epigastrium, and vomiting ccurred an hour or two after taking any food whatsoever. here was no blood in the vomitus. Examination of stomach ontents was not significant except that the capacity of the omach was very small. Roentgen examination after bismuth meal showed a double reservoir. The cardiac pouch failed to empty in twenty-four hours. Figure 1 shows a six hour picture with narrow isthmus of contracted area. The Wassermann reaction was double plus. A diagnosis of hour-glass contracture of stomach due to syphilitic ulceration was made.

Treatment.—Mercurial inunctions were pushed to the physiologic limit. Four doses of neosalvarsan, 900 mg., were given at about five day intervals. In about ten days, pain and tenderness had entirely disappeared; on the other hand, regurgitation of food became more prompt than ever until finally only small quantities of raw egg albumin and beef juice could be retained at all. While the man's general condition, therefore, was improved, and he felt well, yet he was ravenous for food which he could not retain, and was gradually succumbing to starvation. Operation was decided on, therefore, especially since he had by this time been so thoroughly treated with antisyphilitics as to show a minus Wassermann.

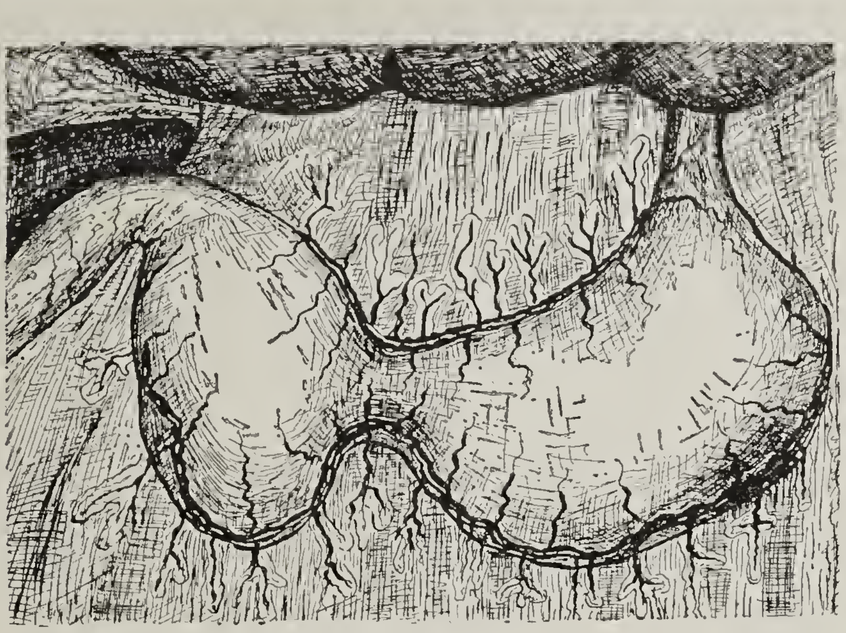

Fig. 2.—Appearance of stomach in situ.

Operation.—Laparotomy, right rectus incision, revealed the stomach contracted in the manner illustrated in Figure 2. The total size of the stomach was markedly reduced. All vessels were very turgid. There was a prepyloric hour-glass contraction, very hard and dense. There was fibrous infiltration of the greater curvature of the cardiac pouch. The stomach wall of the pyloric pouch was normal in appearance and consistency. A posterior gastro-enterostomy was attempted, but I quickly abandoned this procedure on account of the great thickening and friability of the greater curvature posteriorly, for in attempting to apply the Roosevelt clamps, I found no normal area large enough to permit a safe anasto-

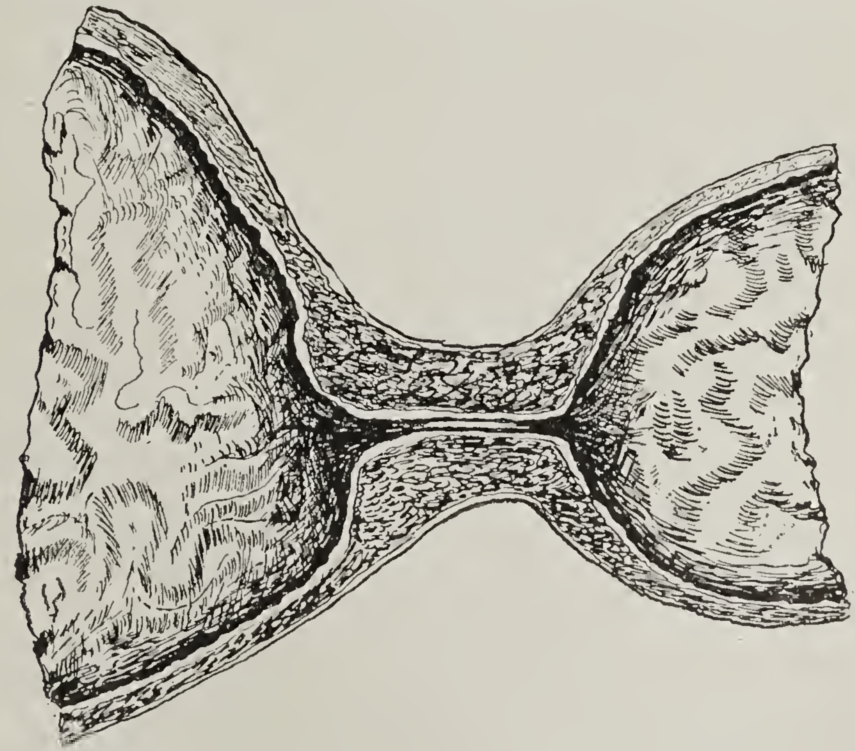

Fig. 3.—Longitudinal section of excised portion of stomach.

mosis. The tear in the mesocolon was closed, and I then proceeded to partial gastrectomy, which consisted in clamping off and excising that portion of the stomach containing the stricture and making an end-to-end anastomosis by the method recommended by Moynihan. This anastomosis was difficult on account of the fibrous infiltration and friability of the cardiac portion of the stomach, since the excision on this side could not be made through the normal stomach wall. The abdomen was closed without drainage.

After-Treatment.—The patient took liquid food in thirty hours, and solid food in ten days. Recovery was interrupted only by the patient's tendency to overeat after he was up and about, since it was difficult for him to accommodate his voracious appetite to the reduction in the size and distensibility of the stomach.

Figure 3 shows a longitudinal section of the excised portion of the stomach, exposing the dense fibrous stricture which, after removal, would hardly permit the passage of a grooved director. There was no ulceration in the excised portion, but the mucous membrane was glazed and thin, indicating recent healing. In this case, the nearer the patient approached a cure of his specific trouble, the nearer he came to death by starvation, because the healing of this great annular ulcer made the resulting fibrous ring almost an absolute obstruction to the passage of food through the stomach.

ANGIOMA SERPIGINOSUM

WITH REPORT OF A CASE

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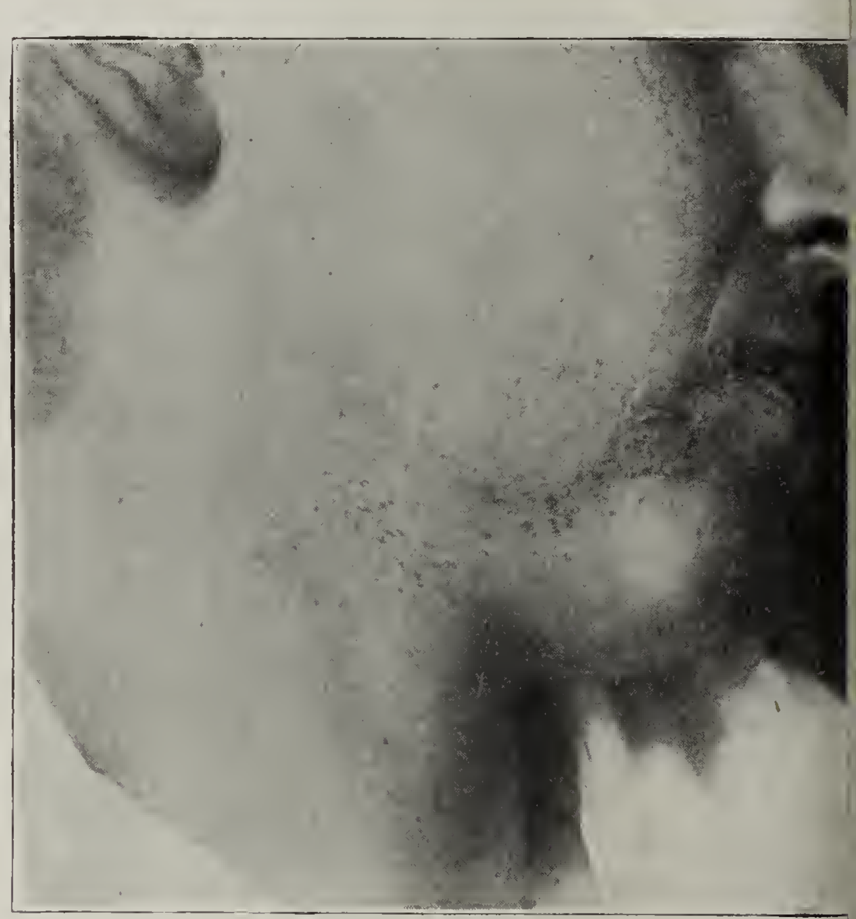
Mrs. K. D., Polish, aged 28, came to my clinic at the Lincoln Dispensary in June, 1915, complaining of a blemish which she had first noticed in July, 1913, as a round group of bright red points on the right side of the neck just below the site of the present patch. Since then it had been slowly but continuously spreading, unaffected by treatment. The only subjective symptom was a slight itching of the area when she perspired. She had always been well except for frequent headaches, which were worse at the menstrual periods. She had been married eight years, had three healthy children, and had had no miscarriages.

On the right side of the neck just below the jaw was an irregularly oval group of bright red macules, in size from a pin point to a pin head, and very slightly elevated soft papules, interspersed with short wavy telangiectases, also bright red. The patch measured about ¾ by 1 inch. Another group extended in a curved line to join a round patch below the right corner of the mouth below the scar to be described later. Back of these almost to the angle of the jaw were many more scattered lesions poorly shown in the accompanying illustration. At the posterior part of this area on the cheek two small distinctly round groups of lesions were seen, the skin between the lesions showing a diffuse pink flush. This flush, as well as the lesions themselves, disappeared on pressure, though some of the larger punctate lesions required quite a firm pressure to cause their disappearance. The skin of the anterior part of the involved area on the cheek had a faint bluish tinge. Below the angle of the mouth was a round depressed scar about one-quarter inch in diameter. Several smaller round pale areas, probably very superficial atrophic scars, were noted in and near the neck lesion and near the posterior border of the involved part of the cheek. At the site of the original lesion very few telangiectases were seen; but one of the pale areas was noted.

General examination showed no abnormality except a lacerated cervix and a moderate subinvolution of the uterus, and a relative and absolute lymphocytosis. The white bloo cells numbered 14,100, of which 47 per cent. were polymorphonuclear neutrophils, 35 per cent. small mononuclears 13 per cent. large mononuclears, 5 per cent. eosinophils, an no basophils. The hemoglobin showed 90 per cent. (Sahli and the red cells were 4,980,000. No abnormal reds wer seen. The Wassermann reaction was frankly negative. Th urine showed no abnormality.

Angioma serpiginosum was first described as " peculiar form of serpiginous and infective nevoid dis ease" by Jonathan Hutchinson[1] in 1890. His use o the term "infective" had none of its present meaning but was applied simply because the disease spread b the formation of satellite lesions at the border. Late Crocker[2] proposed the name now accepted. Since th five cases first reported by Hutchinson, only twenty one others have been described. One of the first fiv described was a case of Lassar's, of which Hutchinso saw a moulage in Berlin. All the other cases hav been reported from England or the United State Of the six reported by American dermatologists, th first was described by J. C. White,[3] and the othe by Hyde and Montgomery,[4] Wallhauser,[5] Engman and Mook,[6] and three by Wise.[7] The latter revie the literature thoroughly and gives full consideratio to the subject. Since its publication only one ca has been reported.[8] It is thus one of the rarest of di eases; but there is no doubt that there would be man more opportunities of studying it if it were possible t arouse general interest in it.



Appearance of lesions in angioma serpiginosum.

The characteristic lesion is a punctate telangiect sis, from a size just visible up to that of a pin hea

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1. Hutchinson, Jonathan: A Peculiar Form of Serpiginous and Inf tive Nevoid Disease, Arch. Surg., 1889-1890, i, 289.
2. Crocker: Diseases of the Skin, Ed. 2, 1913, footnote to p. 646.
3. White, J. C.: A Case of So-Called Angioma Serpiginosum, Jo Cutan. Dis., 1894, xii, 505.
4. Hyde and Montgomery: Diseases of the Skin, Ed. 8, 1909, p. 57
5. Wallhauser: Jour. Cutan. Dis., 1909, xxvii, 353.
6. Engmann and Mook: Angioma Serpiginosum, Jour. Cutan. Di 1913, xxxi, 335.
7. Wise, Fred: Angioma Serpiginosum (Infective Angioma of Hut inson), with a Report of a Very Extensive Case, Jour. Cutan. Dis., 191 xxxi, 725.
8. Pernet: Report of the Dermatological Section, Royal Society Medicine, Brit. Jour. Dermat., 1914, xxvi, 154.

These are level with the surface or very slightly elevated, velvety to the touch and bright red, and are described as "resembling grains of Cayenne pepper." They occur in round, oval or linear groups which progress in serpiginous manner by the formation of new lesions, "satellites," on or just beyond their borders, and by coalescing form gyrate figures. Mixed with the punctate lesions are many linear telangiectases, and the skin between the lesions is often covered by a diffuse pink flush. The bright red lesions fade on pressure; but the deeper ones, darker in color, do not. In some cases very thin atrophic scars have been described, the results of the spontaneous regression of the lesions.

Occurring at any age from infancy to the sixtieth year, the disease may spread slowly or rapidly, or its progress may vary from one to the other extreme. Sensory symptoms are of no importance, never exceeding slight itching or hypersensitiveness of the affected skin. Chilblains of the extremities have been noted in several cases.

Twenty of the twenty-seven cases (including Pernet's and mine) were in females, a percentage of 80, as in two of the cases the sex was not mentioned.

By far the largest number of cases have begun on the extremities, and many have remained limited to a single extremity. Only four cases have begun on the face, two on the neck and two on the trunk. All parts of the body have been affected except the scalp.

No cause has been discovered. Wise[7] suggests that disturbances of the internal secretion may be responsible, and that some of the cases may be of toxic origin. The first American case was thoroughly studied and shown to be an angioma-sarcoma, though its subsequent course was wholly benign. Five of the cases were reported as beginning in a "port wine mark."

The diagnosis is easy. No other disease presents such brilliant lesions on a normal or only slightly flushed skin, with groups of lesions spreading at one border and healing behind. Telangiectases due to Roentgen or radium injuries occur on a wrinkled, atrophic skin and lack the punctate lesions, the gyrate figures and the history of spontaneous occurrence and gradual progress.

Telangiectases secondary to other skin diseases, as rosacea, lupus erythematosus or the granulomas, always show enough of the underlying pathologic condition to explain them and never show the punctate lesions, the typical grouping and the serpiginous spreading of angioma serpiginosum. Only two other rare dermatoses show these three characteristics, purpura annularis telangiectodes of Majocchi[9] and Schamberg's progressive pigmentary dermatosis.[10] Both of these are distinguished by the presence of hemorrhagic and pigmentary lesions which do not occur in angioma serpiginosum. It is possible that there is a relation between these two diseases and some of the toxic cases of angioma serpiginosum.

Telangiectases from general disturbances, syphilis,[11] lead poisoning, hyperthyroidism, hemophilia, arthritis, cardiovascular disease or diarrhea and edema in children[12] lack the localization and grouping of angioma serpiginosum. The same may be said of the hereditary disease in which cutaneous telangiectasis is associated with lesions of the mucous membranes, hemorrhages and abnormalities of growth.[13]

The prognosis of angioma serpiginosum would seem to be very bad as to cure, judging from the few case reports in which any mention of treatment has been made; but with modern methods so successful in the treatment of vascular nevi, it seems reasonable to hold out a fair prospect of cure. The quartz lamp pressed on the lesion, to produce as deep an effect as possible, deserves the first mention. Radium and the Roentgen ray cautiously applied to the production of a very slight reaction, followed by a long interval of rest from treatment, are also productive of excellent results in nevi. The cautious use of carbon dioxid snow, either alone or in combination with roentgenotherapy, ought to be of value.

The fact that so many of the cases have been reported from England and so few from America means that the disease is diagnosed and reported just in proportion to the degree to which it is brought to the attention of the profession. On the continent no attention has been paid to it; but with the increasing interest in Majocchi's disease it is hardly probable that angioma serpiginosum can be long overlooked.

30 North Michigan Avenue.

THE QUANTITATIVE EFFECT OF SALVARSAN ON THE WASSERMANN REACTION OF THE BLOOD *

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BALTIMORE

It has become generally accepted that in certain cases of syphilis an intravenous injection of salvarsan may produce a positive Wassermann reaction where it has previously been negative. This phenomenon has been called the "provocative" Wassermann test. So widely has this idea been assumed, that one finds conscientious syphilologists who refuse to regard a patient as free from the disease when the routine Wassermann test becomes negative, but insist on a provocative test with negative result at a later date. In some of our large hospitals, patients who show clinical signs of syphilis, but have a negative reaction, are given a dose of salvarsan in an attempt to provoke a positive Wassermann test. An examination of the literature, however, shows that there is a striking lack of exact information on the subject and that very few cases have been reported.

Gennerich[1] first called attention to the circumstance that Wassermann reactions may be positive following an injection of salvarsan, which previously had been negative. He reports twelve cases. In nearly all, only one negative test was done previous to the giving of salvarsan, and the appearance of the "provocative" positive reaction varied from twenty-four hours to fifteen days after the injection, most being observed within the first three days. In five cases, the provoked test is unequivocally called "+," in the other seven it is "+ weak," or "+ very weak."

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[9] MacKee, G. M.: Purpura Annularis Telangiectodes, Jour. Cutan. Dis., 1915, xxxiii, 129.

[10] Schamberg: Diseases of the Skin and the Eruptive Fevers, Ed. 2, 1913, p. 116.

[11] Stokes, J. H.: Generalized Telangiectasia in Association with Syphilis, Am. Jour. Med. Sc., 1915, cxlix, 669.

[12] Fearnsides, E. G.: Brit. Jour. Dermat., 1912, xxiv, 35.

[13] Osler: On Telangiectasis Circumscripta Universalis, Johns Hopkins Hosp. Bull., 1907, xviii, 401.

* From the Medical Clinic of the Johns Hopkins Hospital.

* On account of lack of space this article is abbreviated by omission of a table. The complete article appears in the author's reprints.

[1] Gennerich: Berl. klin. Wchnschr., 1910, xlvii, 1735.

Pease[2] has collected reports of twenty-four cases from many sources. Of this number, eight were in the primary stage, with initial lesions from three to sixteen weeks previously. Half of these eight cases showed a positive test after a previous negative test; the other half showed a positive, after a weak positive test. In eleven other cases a negative test became positive; in five, a weak positive became positive. This makes a total of fifteen cases in which a negative test became positive following salvarsan.

The opinions of men with large clinical and laboratory experience regarding the provocative test are varied. Some report cases which they consider authentic instances of provoked tests; others, with equally large experience, are not certain that they have ever encountered a case. In any event, the impression is given that the test is not on an established basis.

Whether there have been few or many cases of provoked Wassermann tests, there are certain valid objections to accepting any of them as proved, for all observations on the effect of antisyphilitic treatment on the Wassermann reaction have been based on tests done at different times. Boas[3] has shown that the same blood serum, examined with the same reagents and the same technic, at different times gave different results. He proved his point in the following manner: First, he took ten cases with positive Wassermann reactions and did ten successive tests on the same serums with the same reagents. The average variation in the percentage of fixation in the different tests was 22 per cent., the maximum variation in testing a single serum ten times being 100 per cent. In other words, a borderline case, for instance, one having a theoretical complement-fixing power of 50 per cent., might vary between a 100 per cent. positive test and a negative test. Then he tested serums giving a positive reaction with seven different amboceptors in the same test; the average limit of variation was about the same as that above, and the extreme variation was less. Similarly, he tested serums against ten different antigens in one series, against corpuscles from four different sheep in another, and against eight different complements in another. He concludes that the variation resulting from using different amboceptors and different antigens in the same test was no greater than that resulting from repetition of a test with the same reagents, and that the variation from using corpuscles of different sheep and different complements was even less.

Craig[4] titrated the strength of the Wassermann reaction in the blood of untreated syphilitics, and obtained wide variations in his results in the scope of two weeks, although he used the same reagents. Craig attributed the fluctuations in complement fixation to changes in the actual amount of complement-binding substance in the blood. But here again the question arises whether or not such variations may be due to slight variations in the delicately balanced test from time to time. Such, indeed, seems to be the case, for work by Haller,[5] which appeared while this paper was being written, furnishes good evidence that the factor in the blood which produces a positive Wassermann test is a practically constant element. This author collected specimens of blood on seven successive days from patients with known positive Wassermann tests, the patients receiving no treatment. The serums were then all tested with the same hemolytic system. He showed that the variation from day to day in the strength of the Wassermann reaction in a given individual is inappreciable; that the variations from month to month are slight, and that variations encountered in daily titration of the fixing unit are due to variation in the hemolytic system, provided the antigen is the same. Such results show that the fluctuations observed by Craig were probably due to variations in the test itself from day to day, and not to any fluctuation of the complement-binding substance in the blood.

To avoid this error, all the results reported here were obtained from titrations done at the same time, and under identical conditions. Since one cannot calculate the titer of a serum which gives a negative test, it was decided to select patients with known positive Wassermann reactions and to determine the strength of the fixing power before and at various times after the giving of salvarsan.

METHOD

The series includes patients with each of the ordinary syphilitic manifestations—hereditary, primary, secondary and tertiary syphilis, and also with syphilis of the central nervous system and of the aorta, tabes dorsalis and paresis. In some, the test was done before the administration of salvarsan, four, eighteen, twenty-four and forty-eight hours after the injection. The time interval varied in all cases, to allow for the patient's rest. Most of the cases, however, were followed over five days, specimens being taken before treatment, four, twenty-four, forty-eight hours and five days later. Some cases were followed for several weeks.

In most cases, the blood specimens were obtained in a capillary tube. After it had been cleaned with alcohol and dried, the lobe of the ear was punctured with a stilet. The filled tubes were sealed promptly at both ends. A few specimens were obtained by venipuncture, and kept in a closed sterile test tube. All bloods were put immediately into the same receiver in the same ice box. After a full series of specimens from any case was obtained, they were all tested at the same time. In some instances blood was preserved several weeks on ice and titrated in the same tests with specimens obtained after weeks of treatment.

The test was made as follows: The patient's serum was diluted with 4 parts of 0.85 per cent. sterile salt solution, and inactivated in a water bath at 56 C. for twenty minutes. The serum was then distributed as follows: Into the first tube was put 0.25 c.c. of the serum of the first dilution, having a concentration of 1 : 5. Successive tubes contained 0.25 c.c. of diluted serum in concentration of 1 : 10, 1 : 20, 1 : 40, 1 : 80 and 1 : 160, and, in some cases, 1 : 320 and 1 : 640. The actual amount of serum in the tubes, therefore, was 0.05 c.c., 0.025 c.c., 0.0125 c.c., 0.00625 c.c., 0.003125 c.c., 0.0015625 c.c., and sometimes less. Alcoholic extract of beef heart was used as antigen in most of the tests; this contained 0.2 per cent. cholesterin; in a few tests at first, extract with 0.4 per cent. cholesterin was used. Guinea-pig complement and the rabbit-sheep hemolytic system were employed, 0.25 c.c. quantities of each reagent being used. The usual controls were carried out. Both the preliminary and final incubation periods were one-half hour each. The results were read after sedimentation was complete, usually after one to two hours. The percentage of fixation in each tube was read as nearly as possible, 100 per cent. representing an absolutely nonhemolyzed tube. Therefore, by reading down the column of figures under any given date, one finds the percentage of complement fixation in tubes containing diminishing quantities of serum.

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[2] Pease, M. C., Jr.: Med. Rec., New York, 1914, lxxxv, 982.

[3] Boas, Harald: Die Wassermannsche Reaktion, 1913.

[4] Craig, C. F.: Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections, The Journal A. M. A., April 18, 1914, p. 1232.

[5] Haller, D. A.: Variations in the Strength of Positive Wassermann Reactions in Cases of Untreated Syphilis, The Journal A. M. A., March 18, 1916, p. 882.

COMMENT

Titrations were carried out in sixteen different cases of syphilis, and before and after twenty administrations of salvarsan. In some cases the observations were made over a period of two days, in more cases for five days after administration. There was one case each of primary and secondary syphilis, four of gummas, one of tabes dorsalis, one of general paresis, two of hereditary syphilis, two of vascular and two of meningeal syphilis, including one of syphilis of the central nervous system, and two cases diagnosed only by the Wassermann reaction. Thirteen doses of salvarsan were followed by no more fluctuation of the titer than is explainable by the inherent limit of error of the test; in five, the end titration showed a weakening; in one case there was an increase in titer, followed by a return to the original strength. One case is included in which the end point was not reached. The effect of treatment on the strength of the Wassermann reaction in these cases was strikingly slight, except in the case of primary syphilis. Although this patient had already received two injections of salvarsan, his blood still showed a strong reaction, which became much weaker after this treatment. In this case, the initial lesion had completely healed before the titrations were begun, and there were no secondary manifestations; yet, though the Wassermann titer was stronger than in many of the cases in other stages, it became more rapidly weaker than it did in any other case.

In Cases 1 and 15 (Footnote 15), fluctuations in titer were noted, not in any one test, but in different series. In Case 1, the titer was constant for five days, the specimens being titrated in the same test. Two days later, the collection of a second group of specimens was begun and carried out for five days; this group differed from the first group, but the titer within the group was constant; a third group, begun two days later, showed constant titer in itself, but differed from the second group by being like the first.

In Case 15, the first group of specimens showed constant titer; a second group begun three days later gave no fixation throughout; one blood specimen of the second group, however, titrated with blood collected thirteen days later, gave the same amount of fixation as the last specimen (25 per cent.), in spite of intervening therapy. Therefore, it seems that fluctuations in titer do occur when titrations are done at different times, in spite of the fact that there are no essential fluctuations in the actual complement-fixing power of the blood. Such must be interpreted as being due mainly to changes in the delicacy of the test rather than to fluctuations in the condition of the blood. Most of the cases here presented show practically no change in the strength of the Wassermann reaction from day to day, in spite of treatment. This supports the work of Haller referred to above.

In only one case in this series was there any increase in titer of the reaction following an injection of salvarsan, although many of the cases were of the types commonly said to develop a provocative test. In this one test, the result is not easy to interpret, as the rise in titer came one hour after salvarsan, the titer being the same the next day and weaker on the second day, which is said to be the optimum time for demonstration of the provocative reaction. Nor can we assume that, had this patient previously had a negative Wassermann reaction, this would be a case of true provocation, for the increase in titer was so slight that the resulting point might still have been below the threshold of positivity.

In view of such results, nothing is found definitely to support the assumption that provocative Wassermann reactions do occur; yet it would be presumptuous to assert that an increase in titer may not occasionally occur. The series does not contain a case of so-called Herxheimer reaction, and it is conceivable that such a phenomenon might be associated with a provocative test. The results do suggest, however, that the complement-binding substance in syphilitic serum is a relatively constant factor—at least not readily increased by salvarsan injections. Therefore, it is probable that most, if not all, of the salvarsan given in the hope of calling forth a positive after a negative Wassermann test is wasted.

How, then, can the results reported in the literature of the provocative reaction and its common acceptance be accounted for? When one examines the reports of Gennerich, it is found that the reactions which were compared were done at different times. This brings in the error which Boas found resulted from pure repetition of the test, as well as the fluctuation which Craig found from day to day, when he titrated serums at different times. The fluctuations which Gennerich observed after salvarsan are not more striking than those observed by Boas and by Craig in untreated cases. Therefore, it seems that, to prove that the provocative Wassermann reaction is a fact, it is imperative that the blood specimens before and after salvarsan be examined in the same test.

CONCLUSIONS

1. In most cases little change occurs in the strength of the Wassermann reaction during the first five days following the administration of salvarsan. In this series of twenty treatments, only one case, in the primary stage, showed a marked weakening of the test.
2. Some previously untreated cases may be given prolonged salvarsan therapy with very little weakening of the Wassermann reaction. Such cases may, however, show striking improvement symptomatically.
3. In this series, only one insignificant temporary increase (provocative reaction) in the complement-binding substance could be demonstrated, following the administration of salvarsan.
4. It is improbable that, over short periods of time, there occurs any marked spontaneous fluctuation in the amount of complement-fixing substance in the blood of syphilitics.
5. Definite proof of the existence of the provocative Wassermann reaction following salvarsan is not at hand at the present time.

As Barnum Said.—"When 'Beauty Specialist,' in one of those faked 'Health Hints' or 'Beauty Hints,' and other 'Madames' or 'Mademoiselles,' whose contributions are generally signed 'Adv.,' suggest to 'Marie' or 'Discouraged' that a little 'kardene,' 'parnotis,' or 'almazoin,' will reduce those enlarged pores, some one is about to be taken in, the stuff with the funny name being the joker in the disguised advertisement."—William Brady.

DEVELOPMENT OF HERPES ZOSTER IN A CASE OF CHOREA TREATED WITH AUTOGENOUS VACCINE

Horace Greeley, M.D., Brooklyn

In view of the recent contributions regarding chorea and herpes zoster as due to streptococci, I have thought that a report of the following case might be of interest:

N. H., boy, aged 8 years, in the practice of the late Dr. A. T. Birdsall, in otherwise good general health, had been suffering with choreic twitching of the muscles of the right side of the face for four years. He had had the usual hygienic and tonic treatment with iron, etc.

As is usual in such cases, the twitching was almost absent occasionally, as in the morning, and grew worse as the fatigue of the day accumulated; on some days it was almost incessant. Knowing that chorea was closely identified with rheumatism, and that rheumatism, both acute and chronic, had been demonstrated to be due to streptococci, and that, more than most conditions, the beginning chronic form was amenable to vaccine treatment, I determined to try the effect of an autogenous streptococcus vaccine. Accordingly, a vaccine from a tonsillar streptococcus was prepared and given according to the accompanying table, in which the effects of each dose are chronicled.

DOSAGE AND EFFECTS

Date	Dose, Millions	Reaction, Next Day		Constitutional (Fever and Malaise)
		Local (Areola), Inches	Focal (as Indicated by Increase of Twitching)	
Dec. 27	200	¼	0	0
Jan. 3	200	3	Marked	Slight*
Jan. 10	200	2	0	0
Jan. 17	300	0	0	0
Jan. 24	500	2	0	0
Jan. 31	700	4	Slight	Slight
Feb. 7	700	4	Slight	0
Feb. 14	700	5	Slight	0
Feb. 21	900	1	0	0

* Herpetic eruption occurred.

At the end of the period recorded treatment was stopped, since it did not seem to be of sufficient value, as administered, to justify continuance, although the parents were of the opinion that decided improvement had been effected. The chief interest in reporting the case was the occurrence of the herpes zoster, which appeared on the day following an injection of vaccine. The eruption comprised fifteen distinct vesicles, which developed on the skin over and below the extremities of the three lower ribs on the right side. The eruption showed the usual symptoms, followed the usual course, and was accompanied by a distinct exacerbation of the chorea lasting for three days.

Since chorea is probably due to a low grade streptococcus infection of the connective tissue sheaths of motor nerves, or of some area sufficiently contiguous to them, or to their origin in the central nervous system, to influence their normal functioning, it is easily understood that a focal reaction, following a dose of specific vaccine, would cause exacerbation of symptoms, and I am inclined to believe that this is what occurred in this case.

In the case of other than motor nerves, slight central irritation could not be supposed to give rise, ordinarily, to very noticeable manifestations, and it seems probable that such existed in this case, affecting the vasomotor nerves distributed to the herpetic area; and further, that the occurrence of the herpetic eruption involving the terminations of these nerves is best explained as being the result of a specific focal reaction at the points along the nerves presumed to have been the seat of "rheumatic" inflammation.

Deaths from Snakes in India.—In the twenty-five years from 1887 to 1911, inclusive, there were 543,991 persons killed by snakes in India, or an average of 21,700 a year.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1601)

TESTS OF KIDNEY FUNCTION AND EFFICIENCY

Geraghty and Rowntree[1] first presented the phenolsulphonephthalein test of renal function in 1910. Since that time, this and other tests for renal excretion have been perfected and described, and now a more or less accurate determination of the deviations from the normal of kidney excretion is easily made. The importance of determining the functional ability of the other kidney in questions of surgical interference with one of them, and of determining the functional ability of both for prognosis and for treatment in chronic nephritis, must be generally recognized. In ordinary disease one or more of the simpler tests should always be made.

The possibilities of elaborate tests and determinations have been noted by Rowntree.[2] The most commonly used tests are the phenolsulphonephthalein, potassium iodid, lactose, and diastase excretion tests, and urea and sodium chlorid retention tests. Other tests for color excretion besides the phenolsulphonephthalein are used, but are not so valuable. In patients under observation, the phenolsulphonephthalein test, as well as tests for retention of chlorids, iodid and perhaps lactose, should be repeated at intervals to indicate the progress of the disease and also the rate of improvement. Kidney excreting tissue can regenerate, a local lesion or passive obstruction may be removed, and the tests will indicate that this has occurred. Rowntree says that failure to detect diastase in the urine by the customary technic shows more or less serious renal injury.

As tests of urinary excretion are more frequently made, there will be fewer unforetold uremic deaths. Kidneys which cannot well excrete phenolsulphonephthalein or lactose show insufficiency and the future probability of uremia. On the other hand, Rowntree cautions that occasionally the excretion of phenolsulphonephthalein may be normal, even with a positive nephritis. In combined heart and kidney insufficiency, these tests may decide how much the kidneys are at fault. In passive kidney congestion, though the excretion of lactose, iodid and salt may be delayed, Rowntree finds that the phenolsulphonephthalein excretion may be normal. Long continued passive kidney congestion from a defective heart must sooner or later, of course, lead to a chronic nephritis. If in combined heart and kidney disturbance the phenolsulphonephthalein test shows a greatly diminished secretion, even after the treatment has improved the heart, the prognosis of the kidney condition is bad.

Uremia may be present with a fair renal function, and recovery take place; on the other hand, even when the symptoms are mild, tests of excretion and of the blood may give a very grave prognosis, and the outcome will be fatal.

For general use for diagnosis and prognosis, Rowntree believes, and other observers agree, that the phenolsulphonephthalein test is the best. When this test is combined with a blood test for nonprotein nitrogen retention, the results are of great service. Iodid and salicylate tests are not of great prognostic value. Lactose is unreliable, according to Rowntree, because it is at times suppressed in moderate lesions, though in chronic nephritis its suppression is serious. If it is suppressed and the phenolsulphonephthalein output much diminished, uremia is impending.

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[1] Geraghty, J. T., and Rowntree, L. G.: Jour. Pharmacol. and Exper. Therap., July, 1910, p. 579.

[2] Rowntree, L. G.: Am. Jour. Med. Sc., March, 1914, p. 352.

A suppression of sodium chlorid indicates the necessity for a salt-free diet. The diastase test is often of interest, but is not reliable in determining the actual condition of the kidneys.

The foregoing tests are essential because one or two estimates of the urea excretion in the twenty-four hour urine (as previously relied on) may show a good amount of excretion even with serious kidney disease, though a persistently low urea excretion (found in a series of examinations) is a serious omen. Hence a single twenty-four hour specimen of urine, in operations without emergency, should not be relied on by surgeons as determining the ability of the kidneys to withstand the ether, operative shock and postoperative disturbances. Functional tests alone are not of absolute significance when the kidneys are suffering from some condition other than nephritis, as such disturbance may greatly impair their excretion at a given period, but may allow more or less recovery in a shorter or longer time. Whenever the excretion of phenolsulphonephthalein is decreased, the amount of nonprotein nitrogen of the blood should be ascertained.

Christian[3] calls attention to the fact that a patient may properly excrete nitrogen, but have sodium chlorid retention on the least provocation. Such a condition should not be termed nephritis, but a disturbed salt elimination. However, these patients may later show also a lowered nitrogen excretion and develop nephritis.

It should be recognized that as yet it is impossible to decide from functional tests during life the exact pathologic condition of the kidneys which will be found on necropsy. As pointed out by Christian, even with a good output of phenolsulphonephthalein and a normal blood nitrogen, incipient chronic nephritis should be diagnosed when the following symptoms are present: slow excretion of sodium chlorid; a tendency to fixation of the specific gravity of the urine; periods of lessened urinary excretion and periods of polyuria; unexplainable attacks of fatigue; even a slight albuminuria, and cylindroids in the urine or an occasional hyaline cast. With the beginning of the disease thus determined, the physiologic tests of excretion will show the progress and the prognosis from month to month. A patient should not be worried by too frequent tests, though his diet should from time to time be arranged to conform to his ability to excrete the various elements of food and drink. This is especially true of the salt and water ratios of intake to excretion. Even without edema, water may irritate the kidneys, or, on the other hand, it may be of benefit in promoting the excretion of salts, especially when the urine shows a more or less fixed low specific gravity.

As long urged by some clinicians, a low protein diet may be needed by the patient, but many a nephritic has been weakened and injured by protein privation.

Christian does not believe that the dyspnea of nephritics is generally an acidosis, and administration of large amounts of alkalies does not often remove the dyspnea. However, Palmer and Henderson[4] believe that severe injury to the glomeruli results in reduced ammonia excretion and at times causes an acidosis.

After several years of experience, Thayer[5] states that when the phenolsulphonephthalein test has been carefully made and the phenolsulphonephthalein is found not well excreted, postmortem examinations of the kidneys have always shown nephritis. He also states that in gradually developing uremia, the output of phenolsulphonephthalein generally diminishes to the vanishing point during the last days of the patient's life.

On the other hand, when a kidney is in such a condition that it must be surgically removed, the other kidney, owing to reflex disturbance, may not perfectly excrete the phenolsulphonephthalein, and yet after the offending kidney has been removed the remaining kidney may greatly improve and even normally excrete phenolsulphonephthalein. Less than 20 per cent. of phenolsulphonephthalein output in the first two hours is a danger signal, but even a much larger output must not be considered as evidence of operative safety, unless there is no nitrogen retention in the blood, and other signs of uremia are absent.[6] It should be emphasized that considerable irritation in either one or both kidneys, even from a simple pelvic calculus, may prevent proper excretion of phenolsulphonephthalein, even without nephritis. The same is true in hydronephrosis, tuberculosis of the kidney, or other tumor of the kidney. Not only is the output of the affected kidney impaired, but that of the other may also be diminished.

It is self-evident how essential it is in all cases of possible operative interference in patients with impaired kidney function to obtain specimens of urine from each kidney, and also, if possible, separate specimens after the phenolsulphonephthalein injection. G. M. Smith[7] suggests that after ureter catheters are in place the patient be given an intravenous injection of 0.006 gm. of phenolsulphonephthalein in solution. Each normal kidney should begin to excrete it in three minutes, and in fifteen minutes should excrete 15 per cent. of it. If the well kidney secretes more than 15 per cent. in that length of time, he believes it shows that it has assumed part of the work of the diseased kidney.

Besides the usual estimation of urea excretion in twenty-four hours and the phenolsulphonephthalein test, Stevens[8] suggests a rapid phlorizin test of each kidney. His technic is described in his article.

In acute arsenic or mercuric chlorid poisoning, the phenolsulphonephthalein test will give an early indication of involvement of the kidneys.

(To be continued)

The Teacher.—A teacher's work does not die with him. It lives long after, and may give great results. Voltaire says of Virgil that he was Homer's greatest achievement; Dante was Virgil's. In science, and in the teaching of science, we find the same. Medicine teems with instances. Boerhaave inspired Haller; Hunter, Jenner; Cullen, Rush; Bretonneau, Trousseau. Through his pupils a teacher lives; the man passes away, the teacher remains in his pupils and becomes part of them.—Da Costa.

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[3] Christian: Am. Jour. Med. Sc., May, 1916, p. 625.

[4] Palmer, W. W., and Henderson, L. J.: A Study of the Several Factors of Acid Excretion in Nephritis, Arch. Int. Med., July, 1915, p. 109.

[5] Thayer: Am. Jour. Med. Sc., December, 1914, p. 781.

[6] Braasch, W. F., and Thomas, G. J.: The Practical Value of Chemical Tests of Renal Function in Surgical Conditions of the Urinary Tract, Journal A. M. A., Jan. 9, 1915, p. 104.

[7] Smith, G. M.: Separate Renal Function, The Journal A. M. A., Jan. 16, 1915, p. 223.

[8] Stevens, W. E.: The Comparative Value of Modern Functional Kidney Tests, The Journal A. M. A., May 16, 1914, p. 1544.

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SATURDAY, DECEMBER 2, 1916

THE VALUE OF BOILED MILK

A recent paper on the use of boiled milk in infant feeding and elsewhere, which appeared in The Journal,[1] will serve to focus attention anew to the anomalous situation relating to the place of heated milk in the dietary. The obvious menace from micro-organisms which attends the use of raw milk led to the introduction of some mode of heating to avert the dangers of bacterial infection which even rigorous inspection cannot always discover. Heating milk to 60 C. (140 F.) and holding it at that temperature for from twenty to thirty minutes will destroy the viruses of tuberculosis, typhoid fever, scarlet fever, diphtheria, malta fever, dysentery, foot and mouth disease; and it will also destroy streptococci, staphylococci, and practically all the non-spore-bearing micro-organisms pathogenic for man. To provide a factor of safety a somewhat higher temperature and longer period of heating are often adopted in the usual routine of pasteurizing milk. The product treated in this way does not exhibit any obvious alteration in taste or digestibility.

The actual boiling of milk or heating to the temperature of boiling water is even more effective as a means of sterilization, and was early employed. Boiled milk has been used widely, particularly in certain European countries, to replace raw milk in infant feeding; but in America a widespread prejudice has arisen against it. We are told that the more vigorous heating effects certain decompositions in the product: the proteins are somewhat altered; the sugar is liable to become slightly oxidized; the normal emulsion of the fat globules is changed; the digestibility varies from that of raw milk. Boiled milk has been charged with being exceptionally constipating to infants. For these and related reasons there has been a tendency to prefer prolonged pasteurization at lower temperatures to the simpler expedient of boiling.

More recently both boiled and pasteurized milks have been assailed as undesirable in that certain ill defined biologic properties — enzymes, immune substances, etc.—are lost by the heating processes. Most specific is the charge that the prolonged exclusive use of even pasteurized milk leads to the manifestation of scurvy. This disease in children can readily be averted by the use of orange juice and other antiscorbutics. In debating the value of pasteurization it has accordingly become necessary to balance the acquired safety from bacterial infection against the alleged loss of the antiscorbutic virtues of raw milk. As an outcome of all this, the most varied contentions are put forth. One group of enthusiasts insists on the ideal of a pure, clean milk supply certified so as to do away with a need of safeguards in the nature of heat; another demands pasteurization as an indispensable adjunct to inspection; and now we are asked to consider anew the advantages of boiled milk. Thus, as Brennemann remarks:

> There has naturally grown up in this country a strange transitional medley of ideas of different men who follow these changes with an unequal pace, much to the amusement and often unconcealed disgust of the nonpediatric physician, who sees in our progress only a change from one idea to another. Our textbooks nearly all favor raw milk, if pure. The literature is increasingly more favorable toward boiled milk. The newspaper and magazine writers, who have become a tremendous factor in popular education, get their inspiration from standard textbooks and dwell on the evils of boiled milk and the dangers of raw milk, and advocate pasteurized milk as a popular measure. Boards of health, city councils and philanthropists keep the same pace, and the poor mother who reads the popular treatises on the baby and the newspaper and magazine articles that seem so authoritative is amazed at the physician who tells her to boil the baby's milk, and especially so if she has already provided herself with certified milk!

The foremost objection thus far raised to heated milk concerns the alleged appearance of scurvy attending its use. A. F. Hess in particular has contended vigorously for the seriousness of this danger, and has studied various antiscorbutic expedients which may be employed to prevent nutritive disaster from the use of pasteurized milk. The recent enthusiasm for the vitamin doctrine has made it easy to ascribe harm to the destructive action of heat on some as yet unidentified vitamin in milk. Not all vitamins appear to be so sensitive to heat, however. Even a superficial study of the literature on scorbutus serves to awaken an appreciation of the paucity of dependable knowledge on the subject.

The guinea-pig has served as the classic experimental animal for the investigation of scurvy. By extremely one-sided diets of certain cereal grains, Holst and his co-workers were able to produce the typical symptoms and to prevent them by the use of certain antiscorbutics. Some of the subsequent attempts to apply this method to the solution of the milk problem have been disappointing. How unjustifiable sweeping conclusions based on the guinea-pig experiments may be is indicated by the recent studies of Jackson and Moore.[2] Experimental scurvy was produced by them in guinea-pigs on diets of paseurized, raw, boiled, skimmed and condensed milk, milk and green vegetables, thyroid extract and milk, and many other dietary combinations. The onset of symptoms with these milk diets of various kinds was quite early. They were even produced by feeding whole milk, oats, and hay water.

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[1] Brennemann, Joseph: The Use of Boiled Milk in Infant Feeding and Elsewhere, The Journal A. M. A., Nov. 11, 1916, p. 1413.

[2] Jackson, Leila, and Moore, J. J.: Studies on Experimental Scurvy in Guinea-Pigs, Jour. Infect. Dis., 1916, xix, 478.

To these uncertainties respecting the rôle of milk in the production of scurvy may be added the conclusions of a recent reviewer of the evidence on the subject. In a report published under the direction of the Medical Research Committee in Great Britain, Dr. Lane-Claypon says:

> Cases of Barlow's disease[3] have always attracted, and will probably continue to attract, very considerable attention on the part of the medical profession. The acute symptoms, followed by their rapid subsidence under adequate treatment, compel attention, although the disease cannot be regarded as in any sense one of common occurrence. It has been stated to be due to the use of heated milk, but the degree of heat and the method of heating employed have not in every case received that attention which they deserve, before the statement was made. Most physicians appear now to have relinquished the general idea that this disease is produced by the heating of milk, but it cannot be said that an adequate explanation of its etiology has been reached. . . . There is no evidence to show that the use of heated milk is productive of rickets in young children.[4]

Pasteurization has many almost insurmountable technical difficulties. Boiled milk has obvious bacteriologic advantages in the established freedom from dangerous micro-organisms. According to Brennemann,[1] the heating which it demands does not impair the nutritive properties in comparison with those of milk merely heated to pasteurization temperatures. The digestibility is claimed to be decidedly enhanced. Brennemann's defense of boiled milk therefore deserves a careful consideration without prejudice from any current doctrine. There is occasion here to exhibit the "open mind."

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[3] Barlow's disease (infantile scurvy), after Sir Thomas Barlow, London, 1845.

[4] Lane-Claypon, Janet E.: Milk and Its Hygienic Relations, London, 1916, p. 216.

THE RAPID GROWTH OF CERTAIN NEOPLASMS

Living things are distinguished from the non-living above all by the properties of protoplasm designated as growth and activity. Sometimes we think of an organized being merely as a machine for the transformation of the potential energy of food into kinetic energy represented by the warmth and movements of the body, as well as by other physical changes involved in the vital processes. An adequate conception of life must, however, also involve the idea of a constantly recurring cycle of processes which have as their chief end not only the repair but also the building up or steady increase in the mass of the organism, an increase which is familiarly spoken of as growth. Indeed, this latter phenomenon is sometimes, though not usually, taken as the criterion of the existence of life.

If it were possible to analyze and explain the essential features of the process of growth, a tremendous advance would have been made. Obviously the control of growth — the promotion of delayed growth and the repression of abnormal manifestations — might come within the grasp of man. To say that growth of any part occurs at the expense of surrounding nonliving material is to express a substantial truth; but it furnishes little insight into the process. The same is true of other descriptive explanations of growth as well as the purely morphologic interpretations of the process. Something more is desired by any ambitious student of the subject.

So long as it is not possible to offer a satisfactory detailed hypothesis as to how and why a cell grows, some progress might be made by inquiring why some cells grow more quickly than others living under the same nutritional conditions. This question will be recognized as one of the fundamental inquiries in the modern problem of cancer. Several years ago Cramer and Pringle[1] observed that with equal amounts of nitrogen a neoplasm may build up a larger mass of protoplasm than the host. This was confirmed by an analysis of the protein content of the fresh tissues of the neoplasm and in the host. Weight for weight the former contained less protein than the latter, while the amount of nitrogenous metabolites was as great or slightly greater in the case of the tumor cells. In other words, the rapidly growing cells of a neoplasm build up living protoplasm more economically with reference to protein than the more slowly growing cells of the host. This does not mean that the protein found in rapidly growing neoplasms is of some defective sort poorer in nitrogen than are the proteins of corresponding normal tissues. The analyses of proteins isolated from transplantable tumors also show that no such gross chemical differences exist.[2]

In the laboratories of the Imperial Cancer Research Fund, London, Cramer[3] has investigated the water content of a number of different strains of transplantable neoplasms showing great differences in their rate of growth and has compared the results with the water content of different normal tissues and organs. He found that the water content of different tissues, both normal and cancerous, varies with their rate of growth. It is highest in rapidly growing tissues, lowest in slowly growing tissues. This means that rapidly growing cells have the property of building up protoplasm with relatively less of the complex organic substances such as proteins, lipoids, etc., and relatively more water. Cramer concludes that this property is in itself an explanation of the biochemical mechanism of growth.

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[1] Cramer and Pringle: Proc. Roy. Soc. B., 1910, lxxxii, 315.

[2] Abderhalden, E., and Medigreceanu, F.: Beitrag zur Kenntnis der Bausteine der Zellen von Tumoren, Ztschr. f. physiol. Chem., 1910, lxix, 66.

[3] Cramer, W.: On the Biochemical Mechanism of Growth, Jour. Physiol., 1916, l, 322.

The factors which determine the water content of the cell are, so far as is known, the osmotic force exerted chiefly by the inorganic salts, and the force of imbibition of the colloid constituents of protoplasm. The differences in the water content of the various tissues which have been observed may therefore be due to changes in these two factors acting either separately or conjointly. If there were primarily an increase in the salt content of protoplasm it might lead to an inflow of water into the cell. If the facts described were explicable on this basis one would expect to find a relatively high salt content in the dried material obtained from rapidly growing cells and one should be able to establish a parallelism between the salt content of dried tissues and their rate of growth. Cramer found no indication of a parallelism between the inorganic salt content of the tissue and the rate of growth. He concludes that variations in water content of cells differing in rate of growth are not due entirely, if at all, to a primary concentration of inorganic salts within the cells, but more probably to other causes of differences in the imbibition of water.

The London investigator points to the interesting fact that the cells which are most susceptible to the action of Roentgen rays and radium are those that are richest in water. This is especially striking when one considers the normal tissues and the exceptional position of the spleen and testis with regard to their susceptibility to the influence of these agents. This correlation suggests that the sensitiveness of a cell to these rays is dependent on the water content of its protoplasm, and since water is known to be a good absorbent for Roentgen rays and radium rays it is easy to see why that should be so. From this point of view a systematic investigation of the absorbent power of the various tissues would be of interest.

SANITARY SWIMMING POOLS AND THEIR CONTROL

While the rapid increase in the number of swimming pools augurs well for the promotion of health by providing an enjoyable exercise in cool water with the concomitant stimulating reaction, at the same time hygienic standards for the safety of the swimmers must not be overlooked. The swimming pool when in use is always infected, and, unless proper care is taken, may be a source of disease and even of epidemics. Lewis[1] has classified these infections as chiefly gastro-intestinal, respiratory and venereal. It is an established fact that intestinal infections have resulted from bathing in contaminated water.[2] Mannheimer[3] recently demonstrated that the water of two first class pools, after one day's use, contained from 75,000 to 600,000 bacteria per cubic centimeter, and of these, colon bacilli varied from one to 100 per cubic centimeter. In addition, the possibility of dangers from typhoid carriers must be considered. The respiratory affections, such as mild epidemics of "sore throats and colds," are quite common; ear complaints were frequent among the bathers at the Chicago lake beaches during the past summer. Hastings[4] states that these infections "are far more dangerous than some other conditions for which strict health regulations are enforced. .. . . Many mastoids, and some deaths occur that should be and can be prevented by keeping people with 'colds' from swimming." Although Skutsch[5] reported 236 cases of gonorrheal vulvovaginitis from exposure in one pool, yet the gonococcus seldom seems to be a serious menace.

Lewis considers the means of safeguarding the pool under the headings of: (1) construction and equipment, (2) disinfection, (3) suits, (4) the preliminary shower, (5) inspection and exclusion, (6) bacteriologic control, and (7) sanitary education.

The pool, free from all obstructions, should be located where a maximum amount of air, light and ventilation may be obtained; a raised broad flat ledge around the pool is essential in order to protect it from floor drainage. It is preferable to rotate the same water for several weeks, employing a continuous filter and adjunct sedimentation basin, rather than to refill the tank weekly or biweekly with fresh water. No system, however, is safe without daily sterilization. As the ultraviolet ray probably is a most efficient form of sterilization, proposed swimming pools should be constructed so as to provide for this newer method of disinfection by means of the energetic "short wave lengths."

Experiments were made by Lewis on various pools in or about Evanston, Ill., as to the best chemicals and method for disinfection. As to calcium hypochlorite, which the author regards as good, if not better than other chemicals, he says:

> As a rough criterion, a tank of 60,000 to 70,000 gallons' capacity needs 1 pound [of calcium hypochlorite] per day. . . . The system of adding in solution by means of a synchronous pump, working with the circulative pump in the continuous filtration system, has the advantage of mechanical control and uniformity of feed. I am yet to be convinced, however, of its advantage over the simple expedient of adding the chemical by hand at the end of the day's usage. When added gradually during refiltration, the concentration is never so high as when the whole amount is put in at once. The germicidal action is, therefore, not so great. Moreover, when added continuously, the swimmers are in contact with the fresh solution and may complain of odor and tastes. If added at night it has fully reacted and by morning is fully dissipated, leaving a sterile, wholesome water with which to start the day. An effective and simple method of adding hypochlorite is to transfer the chemical to a thoroughly perforated can and drag it by means of a wire and a pole over the surface of the pool until it has gone into solution.

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[1] Lewis, W. L.: Some Features of Swimming Pool Control, Jour. Indust. and Engin. Chem., 1916, viii, 914.

[2] Jäger: Ztschr. f. Hyg. u. Infektionskrankh., 1892, xii, 525. Pfuhl: Deutsch. militärärztl. Wchnschr., 1888, xvii, No. 9. Schäfer: Ibid., 1888, xvii, No. 5. Lenhartz: München. med. Wchnschr., 1892, xxi, 898. Klein and Schütz: Wien. med. Wchnschr., 1898, vi, 238. Drescher: Sanitätsberichte über die königliche preussische Armee, 1898-1899, Part 1, C. I. Gruppe 10 Unterabt.

[3] Mannheimer, W. A.: Studies on the Sanitation of Swimming Pools, Jour. Infect. Dis., 1914, xv, 159.

[4] Hastings, Hill: Acute Purulent Infections of the Nose, Throat and Ear, The Journal A. M. A., this issue, p. 1637.

[5] Skutsch: Centralbl. f. Bakteriol., 1892, xii, 309.

Of importance is the cleanliness of the suit, which ould be as nearly sterile as possible. The use of ap in taking the preliminary shower should be rictly enforced, irrespective of whether the bathers e men or women. The contamination from lack of odily cleanliness, together with the dirt of the floor icked up by the feet, leads to wanton pollution. However carefully the water in the pool is renewed d purified, the good work is wholly undone if care omitted in the prevention of water contamination."[6]

A rigid inspection of the users is necessary in order exclude all showing signs of infection from venereal d skin diseases, coughs, colds and tonsillitis. Expecrating, and blowing the nose by nearly every swimer makes these infections dangerous to all.

Scientifically a pool cannot be controlled unless adeuate bacteriologic tests are made. By this means its ondition can be ascertained before the pollution has ssumed such alarming proportions as to manifest itself the form of an epidemic. The sanitation of the wimming pool is a matter of common sense; those ho do not respect the privileges of the pool should be eprived of its use. Not until every user of the pool as an intelligent understanding of the conditions volved, and is willing to encourage the enforcement f sanitary regulations, can we hope to have really safe ools.

PHILIP MILLS JONES — MARTIN I. WILBERT

In its campaign for the advancement of scientific edicine, for truth in medical advertising, for honest nd trustworthy medicinal preparations, the American ledical Association has been twice blessed — in its nemies and in its friends. At times, when certain of hese enemies have passed to their reward, the loss as been felt because frequently they, themselves, were n argument for the Association's work.

The last week has taken from the ranks two of the est friends and ablest proponents of scientific and onest medicine that the medical profession had: Philip Mills Jones, a trustee of the Association since 908, and Martin I. Wilbert, a member of the Council n Pharmacy and Chemistry since its establishment in 905 and the secretary of the Section on Pharmacology nd Therapeutics since 1911. The work of these two nen has been far reaching in its scope.

For eight years Dr. Philip Mills Jones was a memer of the board of trustees, in which position he orked faithfully, and was fearless in his stand for hat he believed to be right and just. He was secetary of the Medical Society of the State of Califoria and editor of its journal for fifteen years, and it as in these offices that his most effective work was done. Through his efforts the California profession developed one of the best organizations of any state — one that is doing splendid work — professionally, socially and scientifically. He made the *California State Journal of Medicine* a publication of influence not only within its own territory, but also in other parts of the country. As editor of this journal Dr. Jones was especially fearless in his attacks on fraud and quackery, whether it concerned the proprietary medicine evils or quackery as it related to the medical profession.

Mr. M. I. Wilbert, of the U. S. Public Health Service, was one of the first men to become active in the organization of the Council on Pharmacy and Chemistry. He was interested in this body from its formation, and after it was established he continued to be one of its most tireless workers. Few know the sacrifices of time and efforts Mr. Wilbert made in connection with the Council work. His very life seemed to be wrapped up in bringing about better conditions both in pharmacy and in medicine. He was one of the few men who serve as connecting links between the two professions. He spent his life in trying to stem the tide of commercialism in both, and the full measure of his influence at Washington in behalf of the public health will never be fully known.

American medicine has felt the influence of these two men, and for the success gained in the campaign for truth, they must be awarded more than a small share of the credit. They gave freely of their time and their energy, knowing that it would bring them neither profit nor personal fame — indeed, knowing that it would make for them powerful and often unscrupulous enemies. They were nevertheless unwavering in their assistance, ever ready to do more than was asked in the work in which they took part. The loss is not merely the medical profession's; it is also the public's.

IS URIC ACID DESTROYED IN HUMAN TISSUES?

There was a period, not long ago, when the pathologic factor in gout, in its chemical aspects at least, was referred to an inability of the tissues to decompose and destroy uric acid. This view, supported by Schittenhelm and Brugsch, assumed that in health the elimination of uric acid from the blood was accomplished to a considerable extent not only by renal excretion but likewise through destruction by oxidation. A perverted metabolism in gout was believed to lead to a failure of destruction with the resultant familiar accumulation of uric acid in the gouty organism.

Schittenhelm and Wiener[1] attempted to substantiate this view by the analysis of the tissues of a man who died after six days' complete suppression of urine, the result of bilateral thrombotic occlusion of the renal arteries. Only minute quantities of uric acid were isolated. They argued from this that uric acid must ordinarily be destroyed in the human organism; other-

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6. Von Hiddesen, Lucie: Forecast, New York, July, 1916.

1. Schittenhelm, A., and Wiener, K.: Ztschr. f. exper. Med., 1914, iii, 397.

wise one would surely expect an appreciable retention of the substance after a prolonged period of anuria.

Latterly and largely as a result of Wiechowski's researches, uric acid has come to be looked on as an end-product, not an intermediate stage, in the metabolism of purin substances in man. If this is a true conclusion, the basis of gout cannot be referred to a reduction in the ability of the body to decompose uric acid by oxidation, because this process cannot be considered physiologically important in the human organism.

This deadlock of opinion has been in part broken by Fine's[2] recent analyses of human tissues for uric acid. They indicated the presence of from 1.2 to 5 mg. of uric acid per hundred gm. of various tissues, either normal or from persons dying of disease not associated with nephritis. In nephritis, when the kidneys are even partly out of function, there does occur a noteworthy retention of uric acid in the blood and tissues.

Further evidence of the untenability of the claim of the German investigators has now been furnished by H. G. Wells[3] of the Department of Pathology at the University of Chicago. He found that after practically complete suppression of urine for a period of nine days, despite a practically purin-free diet and approximate fasting during that period, the tissues contained relatively large amounts of uric acid which could readily be isolated pure in quantities sufficient for analysis. In four other bodies of persons dying with either approximately normal or but slightly impaired renal function, little or no uric acid could be recovered by the same methods. It is certain, therefore, that after complete suppression of urine there may occur an accumulation of uric acid in the tissues not observed in the bodies of persons whose kidneys are functioning. Wells remarks that such an observation is not in favor of the hypothesis that the human body has the power of destroying uric acid, although it is by no means conclusive evidence to the contrary. It does, however, controvert the evidence advanced by Schittenhelm and Wiener that such retention of uric acid does not result from suppression of renal excretion. The high uric acid content of the blood in gout is admitted. If it is true that in gout we are not dealing with a reduction in the destruction of uric acid, there remains one plausible explanation, namely, that in some way and from some cause the excretion of uric acid itself is at fault.

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[2] Fine, M. S.: The Non-Destructibility of Uric Acid in the Human Organism, Jour. Biol. Chem., 1915, xxiii, 471.

[3] Wells, H. G.: The Accumulation of Uric Acid in the Tissues During Suppression of Urine, Jour. Biol. Chem., 1916, xxvi, 319.

"Superstition and the Doctor."—When the doctor writes his prescription at our bedside, do not some of us suspect a special virtue in his hieroglyphs? And do not we half nebulously imagine that if he would bestir himself and employ all the knowledge which hides behind his impenetrable eye, he could work real special miracles in our behalf? The power to imbue us with this mystic confidence is what we term today a good bedside manner.—Owen Wister.

Current Comment

THE RESPIRATORY MECHANISM IN PNEUMONIA

Careful clinical observations on patients, together with studies of experimental pneumonia in the laboratory, have served to dispel some of the traditional beliefs in respect to the disease. We may take it as conclusively established, thanks in particular to the investigations of Porter, Newburgh, Means and Minot, that the blood pressure and the vasoreflex mechanism are not as a rule seriously impaired in pneumonia.[1] Nor is the heart musculature greatly damaged; for the hearts of animals dead of this disease may be made to contract normally when supplied with normal blood.[2] Experimentally it has been observed that the respiration may fail long before the circulation is so seriously impaired. It now appears that the lung ventilation of pneumonic animals is greatly impaired, so that the respiratory mechanism fails to respond as effectively as is normal to increased concentrations of carbon dioxid.[3] The failure of the respiratory mechanism in pneumonia is not necessarily due to the encroachment on the respiratory space in the lung, for the area of consolidation may remain unchanged while the impairment of the respiratory mechanism increases progressively. The respiratory distress increases while the percussion dulness does not extend. Not only is the reaction of the respiratory mechanism to carbon dioxid, its normal stimulus, greatly diminished in pneumonia, but also there is a progressive loss of reaction as the disease becomes more severe, until finally it may be entirely abolished. These observations, verified both for the pneumonic disease induced by the bacillus of Friedländer and that due to the ordinary pneumococcus, direct attention to the respiratory mechanism rather than the circulatory apparatus as a problem for immediate consideration in pneumonia.

SOME RECENT RESULTS FROM ANTIRABIC TREATMENT

The great benefits which the fruits of Pasteur's labors have brought to mankind are daily exemplified in various walks of life. Just at present the European battlefields are focusing attention on the marvels of modern military surgery and the almost unhoped for prevention of the spread of certain infectious disorders — nearly all the outcome of the application of Pasteur's germ theory of disease. In our enthusiasm for the more evident contributions we must not forget that when the chemist Pasteur "had recreated pathology, and had accomplished more for doctors than whole ages of their work could accomplish," he was led to his last appointed discovery, the preventive treatment against rabies. Year after year the modest reports of the antirabic inoculations at the Paris Institute serve as a reminder of what this produre is accomplishing. The latest record[1] brings e story of 654 persons treated during the year 1915 ith a single death. Among nearly 6,000 persons eated in the past ten years at the parent Pasteur stitute there have been only eleven fatalities, instead nearly a thousand, which the experiences before e year 1886, memorable for the initiation of Pasteur's tirabic treatment, would lead one to anticipate. The cord of mortality from rabies, brought almost to e vanishing point, deserves to be heralded again and ain.

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[1] The Blood Pressure in Pneumonia, editorial, The Journal A. M. A., Oct. 14, 1916, p. 1168.

[2] Newburgh, L. H., and Porter, W. T.: Jour. Exper. Med., 1915, xxii, 123.

[3] Newburgh, L. H.; Means, J. H. and Porter, W. T.: The Respiratory Mechanism in Pneumonia, Jour. Exper. Med., Nov. 1, 1916, xxiv, 583.

HUMAN INSTABILITY

When, as evolutionists would have us believe, e human being ceased progressing on all fours and gan to "locomote" on two legs, thereby shifting his nter of gravity, he lost greatly in stability. As a sult, the number of deaths from falls ranks fourth or th in the number of deaths becoming the object of gal investigation, that is, reaching the coroner's office. cidentally, it has the same high place in the tables causes of accidental injuries compiled by various cident insurance companies. According to the mortality statistics for 1914 issued by the Bureau of Cens, there were 9,904 deaths from this cause in that ar, a rate of 15 per 100,000 population. It is interestg to compare this with the number of deaths from phoid fever in the same period — 10,185, or a rate of .4, or the number of deaths from scarlet fever, 4,340, rate of 6.6 per 100,000. However, loss of equirium is not in itself the chief cause of accidents and aths from falls. According to the records of the roner's office of Chicago and Cook County for 1915,[2] ere occurred 318 deaths from falls. Of these 28 ere due to loss of balance, 58 to some obstruction in e line of pedestrian travel, 50 to intoxication, 36 to seases, 29 were of babies, who, left alone, had fatal lls, 22 were of the aged and feeble, 19 were due to pping on ice, banana peels and other slippery objects, d the remainder were scattered among a long list causes.

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[1] Viala, J.: Les vaccinations antirabiques a l'Institut Pasteur en 5, Ann. de l'Inst. Pasteur, August, 1916, xxx, 422.

[2] Conservation of Life, Special Bulletin, May, 1916, Public Safety nmission of Cook County.

Suppression of Quack Advertisements in Bavaria.—L. oeflmayr comments with rejoicing on the effects of the ohibition by the military authorities of the advertising by egular practitioners of medicine. He says, "When we ysicians used to apply to the editors of publications carryg quack ads, we were always blandly informed that the itorial department had no control over the advertising partment. But when we called the editors' attention to s order by the military commander-in-chief, the editors und they could and they did control the advertising department, and the pernicious ads disappeared at once. None the papers reproduced the official decree. The commanderchief was urged to this step by the medical associations the country, and he realized at once the importance of eping soldiers out of the hands of the unqualified. One of e quacks had been advertising that he cured war neuroses. o physician should hesitate to inform the authorities of y infringements of the regulation of which he may learn. we are too bashful or too high-toned to do this, then we e the fools, and no one will have any sympathy for us." oeflmayr's communication appeared in the *Deutsche medi-ische Wochenschrift.*

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Pellagra and Other Diseases.—The report of the state board of health for September shows that the number of cases of pellagra, tuberculosis, malaria and typhoid fever have decreased in the state during the past year. In September, 1915, there were 1,015 cases of pellagra reported, while in 1916 there were 455. The result is attributed to the better understanding of the disease and the better feeding following the experiment with the convicts in the state penitentiary, in which it was indicated that lack of proper nourishment was one of the principal causes of the disease.

Personal.—Dr. Joseph M. Thueringer, formerly of Harvard University, has been appointed head of the Department of Anatomy of the School of Medicine of the University of Alabama as full-time professor.——Dr. Claude W. Mitchell has been appointed head of the Department of Physiology and Pharmacology of the University of Alabama Medical Department as full-time professor.——Dr. John D. Eiland, Chilton County, has been appointed superintendent of the Federal Soldiers' Home, Mountain Creek.——Dr. Cecil D. Gaston has resigned as health officer of Birmingham.

Hospital Notes.—The new unit for the Birmingham Infirmary is being constructed at a cost of $50,000. The building will be fireproof, three stories in height, 107 feet by 75 feet, of brick, and will accommodate forty-five patients.——A new hospital is being planned for Bessemer, and a committee of physicians has been appointed to consider the details.——The contagious ward for children in the Children's Hospital, was formally opened, October 19. The ward is isolated from the main building and is built in accordance with the most approved designs. Its equipment is thoroughly up to date.

ILLINOIS

Addition to Hospital.—St. John's Hospital, Springfield, has just completed, at an expense of $10,000, a new free dispensary which contains ten rooms for minor surgical, medical, genito-urinary and nose and throat work, a milk modification laboratory and a dispensing room.

Sanatorium Notes.—A thorough canvass of the vote of Rock Island County on the special proposition for the establishment of a county tuberculosis sanatorium shows that the plan is overwhelmingly defeated. The vote was 6,331 in favor of the proposition and 18,370 against it.——The council of Peoria, November 14, voted to purchase a site on the Galena Road for a municipal tuberculosis sanatorium. The cost of the land is to be $12,750.

Chicago

In Charge of Public Health Work.—Miss Harriett Fulmer, for many years head of the Visiting Nurses Association of Chicago, has taken up her new position as head of the public health work of Cook County, which includes all the territory outside of the city.

Prevention of Blindness.—At the annual meeting of the Illinois Society for the Prevention of Blindness, November 21, Mr. Charles S. Hutchinson was elected president, and Drs. Edward V. L. Brown, Frank Cary, William H. Wilder, and Thomas A. Woodruff were elected members of the executive committee.

Inquiry Into the Work of School Dentists.—The Commissioner of Health, November 4, ordered an investigation of the charge that city dentists have been doing slipshod work in the treatment of the schoolchildren of the city. Drs. Truman W. Brophy, G. C. Poundstone and Don M. Gallie were appointed members of the committee.

Free Treatment for Children's Diseases. — The Commissioner of Health of Chicago announced, on November 10, the appointment of an advisory committee of physicians and surgeons to take into consideration the free treatment of children affected with diseases of the eye, ear, nose and throat. The committee consists of Drs. P. J. H. Farrell, Martin H. Ritter, Merlin Z. Albro, Ulysses J. Grim, William L. Noble and Robert Sonnenschein.

INDIANA

Typhoid.—More than fifty cases of typhoid fever have been reported from Bluffton. Dr. Harold H. Mitchell, representative of the state board of health, believes that the disease was spread by a carrier during the street fair, or by insanitary drinking fountains.

The Harrison Law.—The Supreme Court of Indiana has rendered an important decision relating to the Harrison Narcotic Law in the case of Lorenzo D. King, Indianapolis. The court holds that it is not necessary to charge in the indictment the exact quantity of the drug sold, as the law contemplates the prohibition of the sale of a narcotic drug.

Decision Against Henry County Hospital.—Judge Sparks of Rushville, November 13, upheld the demurrer of the attorneys of Henry County and sustained the right of the county commissioners to refuse to proceed with the erection of the hospital. Several months ago a petition was circulated and the requisite number of signatures secured to obtain favorable action regarding the establishment of a county hospital. Provision was made for the necessary appropriation and hospital trustees were appointed. Later, the commissioners revoked the levy for the hospital. Local practitioners of Newcastle then brought suit against the county commissioners, claiming that their action could not be rescinded. They now propose to carry the case to the supreme court.

Personal.—Dr. Arthur M. Calvert has been appointed assistant resident physician at the Tuberculosis Hospital, Cincinnati.——Dr. Arthur E. Guedel, superintendent of the Protestant Deaconess Hospital, Indianapolis, has resigned.——Dr. Joel D. Whitaker, Indianapolis, who has been seriously ill with complications following an automobile accident, is reported to be improving.——Dr. Fletcher Hodges, Indianapolis, who was operated on recently, has recovered.——Dr. George R. Christian and family, Indianapolis, are taking an automobile trip to Florida.——Dr. John L. Larway has been appointed assistant medical director of the State Life Insurance Company, Indianapolis, succeeding Dr. Albert Seaton, resigned to become vice president of the Century Life Insurance Company, Indianapolis.——Dr. Frank C. Robinson, Martinsville, Capt. M. C., Ind. N. G., assigned to field artillery battalion, Llano Grande, Texas, is at home on a thirty-day leave.——Lieut. Ellis T. Stout, M. C., Ind. N. G., was operated on for appendicitis in the Deaconess Hospital, Indianapolis, October 27.

MARYLAND

New Municipal Hospital.—From the sale of the quarantine station to the federal government $176,000 has been secured by the city and will be used in erecting a municipal hospital.

Social Service Lectures.—Dr. Richard C. Cabot, Boston, is giving a series of lectures under the auspices of the Social Service Corporation of Baltimore, on "The Social Aspects of Public Health Work in the United States," including industrial, educational, moral and religious and governmental aspects.

New Positions in City Health Department.—Several new officers have been created in the city health department. Dr. John D. Blake, the health commissioner, has been given an additional assistant commissioner, whose salary will be $2,500 a year. The department is allowed a number of other new positions, including three nurses for the division of infectious diseases, an assistant bacteriologist, an assistant supervisor of pasteurization of milk, a sample collecter and other positions in connection with the pure milk ordinance. Increases aggregating $2,700 were given the nine nurses at the health department, and they are to be employed throughout the year instead of nine months, as heretofore.

MISSOURI

Sanitary Survey.—The sanitary survey of Clay County, made by the U. S. Public Health Service under the direction of Dr. Henry C. Yarbrough, has been completed, and it is reported that the county scored 100 per cent. The physicians representing the Public Health Service were banqueted by the Commercial Club of Excelsior Springs, November 15.

Personal.—Dr. Charles A. Bunge, Bland, coroner of Gasconade County, has been appointed sheriff of the county.——Dr. Thomas J. Downing, New London, secretary of Ralls County Medical Society, was severely injured by a fall recently. Several ribs were fractured and the clavicle dislocated. He was taken to Levering Hospital, Hannibal.——Dr. J. Ross Martin, Butler, was wounded, November 17 when a man entered his drug store and after a short altercation shot him. The bullet entered the abdomen, inflicting a serious wound.——Dr. W. A. Pusey, Chicago, was the guest of the St. Louis Medical Society, November 18, and discussed the subject "Should the Asymptomatic Individual with a Positive Wassermann be Treated"?

St. Louis

Officers Elected.—Officers of the St. Louis Medical Society for 1917 have been elected as follows: president, Albert H Hamel; vice president, Malcolm A. Bliss; councilors, Robert M. Funkhouser, Wenzel C. Gayler, Louis C. Boisliniere Charles S. Rehfeldt, and secretary, J. Albert Seabold (reelected).

Isolation Hospital Opened.—The new Isolation Hospital at St. Louis, recently thrown open to the public, consists of two buildings in V-shape construction, each two stories high Every floor can be made wholly independent of all other floors, so that cross-infection is practically impossible. Pay patients will be admitted and allowed to employ their own physicians. An attractive feature are the solariums, one on each floor, for the use of convalescents.

NEW HAMPSHIRE

Home from France.—Dr. A. Gale Straw, Manchester, who recently returned after a year of service in the field hospitals on the western front, delivered an address on his experiences November 3.

NEW YORK

Personal.—Charles A. Powers of Denver has returned after six months of service at the American Ambulance Hospital of Paris. He will resume his work there on April 1.

New York City

Bureau to Find Homes for Children.—November 21, a Children's Home Bureau was organized in the offices of Charities Commissioner John A. Kingsbury. The object of the organization is to find good homes with private families for dependent children. The project is backed by $150,000 subscribed by wealthy persons, among whom are Cleveland H. Dodge Adolph Lewisohn, V. Everitt Macy, Mrs. Helen Hartley Jenkins and Mrs. A. A. Henderson. It is planned to spend $40,000 during the coming year and the bureau guarantees that it will place 1,000 children in homes in a year. During the past month 103 children have been placed in suitable homes.

New York Hospital's Convalescent Work.—The Society o the New York Hospital has just issued a little booklet reviewing the history of the organization since 1770. This is the oldest hospital organization in this country with the exception of the Pennsylvania Hospital in Philadelphia. The object of the booklet is to outline the community work done in White Plains, where Bloomingdale Hospital was completed in 1894 for the accommodation of patients suffering from mental disease. Three years later an experimental convalescent home for male patients was established; in 1900 a building for women convalescent patients was opened, and in 1907 two cottages for children. In April of last year an elaborate group of buildings for the care of convalescent patients was opened. The description of the care of convalescents by this institution emphasizes the importance of this feature in connection with hospital work.

The City Milk Supply.—At a hearing before the Wicks legislative committee, which is conducting an investigation of the distribution of farm products, to determine whether money is wasted in handling them, Dr. Lucius P. Brown director of the bureau of food and drugs of the health department, stated that the health department would not countenance any attempt to lessen the restrictions it throws around the milk supply. He emphasized the importance of pasteurization and insisted that we must not pasteurize an impure milk supply. In support of his advocacy of pasteurization he cited statistics showing that in 1913, before the ordinance requiring pasteurization went into effect, the maximum number of cases of typhoid fever reported in one week was 340 in 1914, after pasteurization went into effect, the number fell to 130. In 1915 the largest number of cases of typhoid fever reported in one week was 145. Dr. Brown stated that they were having little trouble with the adulteration of milk by the addition of water, but that the consumers were being deceived with cream that is treated with sucrate of lime.

OHIO

Date for State Society Fixed.—The council of the Ohio State Medical Association, at its meeting in Columbus, October 23, fixed May 14, 15 and 16 as the date for the 1917 convention at Springfield.

Removal of Medical Journal.—The Ohio State Medical Journal announces that its office of publication and the executive offices of the Ohio State Medical Association have been removed from 25 Ruggery Building to the Physicians' Building, 131 East State Street, Columbus.

New Hospital.—The new homeopathic hospital on the University campus, Columbus, was ready to receive patients, November 20. The building includes four wards of eight beds each, fourteen private rooms, two children's wards, three operating rooms and a lecture room.

Personal.—Dr. Charles A. LaMont, health officer of Canton, has resigned, to take effect Jan. 1, 1917.——Dr. Ora O. Fordyce, superintendent of the State Hospital, Athens, is under treatment at Johns Hopkins Hospital, Baltimore.——Dr. William W. Sauer, Marietta, is ill with erysipelas.

Cincinnati

Premedical Club Room Opened.—Dr. Christian R. Holmes gave a dinner, November 11, to celebrate the opening of the premedical club room of the medical department of the university.

Personal.—Dr. Joseph W. Hall, assistant police and fire surgeon, has resigned.——Dr. Wilbur A. Hunt, Madisonville, has resigned.——Dr. Otto Juettner is reported to be critically ill at his home at Clifton Heights as the result of a cerebral hemorrhage.——Dr. Louis Markle has succeeded Dr. Milton Cohen as bacteriologist of the health department. Dr. Cohen has accepted the same position in Cleveland.——Dr. Wade W. Oliver, assistant superintendent of the College of Medicine, who resigned to accept a position with the International Health Commission, sailed for Rio de Janeiro, October 7. He will make investigations of tropical diseases in many of the South American countries.

Prizes Awarded Railroad Company.—The Cincinnati, New Orleans and Texas Pacific Railroad, which was constructed and is owned by the city of Cincinnati, has been awarded the grand prize of the American Extension of Safety and Sanitation Society for the two years 1914 and 1915. This includes railroad cars, shop buildings and railroad premises generally. It has also been awarded the E. H. Harriman Memorial Gold Medal by the American Association of Safety, in recognition of the direct effort made for the advancement of employees, "for the conservation of human life," and "for the best record made by an American railroad in accident prevention and industrial hygiene for the public and for its own personnel during the year 1915."

PENNSYLVANIA

Compulsory Vaccination.—Judge Orlady of the Superior Court of Pennsylvania, in the case of a resident of Philadelphia, has sustained the decision of the Court of Quarter Sessions refusing admission to the schools of the children of a resident because they had not been vaccinated. The court says that the code of school laws is the result of many years of practical experience and its beneficent provisions should be enforced. "The exceptions referred to in the school attendance act refer only to temporary or emergent conditions and cannot refer to such a condition as is urged by this appellant, to fix a permanent exception from such attendance, on account of the individual opinion of the parent in regard to the propriety of complying with a health regulation."

Philadelphia

Personal.—Dr. Henry K. Gaskill has been elected president and Dr. Edward F. Corson, Cynwyd, secretary of the Philadelphia Dermatological Society for the year 1917.——Dr. William Hamilton Jeffreys, a graduate of the Medical Department of the University of Pennsylvania and a former medical missionary in China, has been chosen superintendent of the City Mission of the Protestant Episcopal Church.

Atlee Portrait Presented.—The Philadelphia County Medical Society's Committee on Archives has just received from Dr. Thomas H. Fenton a stippled engraved portrait of the late Washington Lemuel Atlee, M.D., who graduated from Jefferson Medical College in 1829, and did more than any other American surgeon to establish ovariotomy as a legitimate operation, his first abdominal operation with this object having been performed, March 29, 1844, his three hundred and eighty-seventh on May 31, 1878. Furthermore, he was one of the founders of the following societies: Lancester City and County Medical Society; American Medical Association, 1847; Medical Society of the State of Pennsylvania, 1848; Philadelphia County Medical Society, 1849, and later, the American Gynecological Society. He was president of the Pennsylvania State Medical Society and of the Philadelphia County Medical Society in 1874; also vice president of the American Medical Association in 1875-1877. He died in 1879.

Narcotic Evil in Philadelphia and Pennsylvania.—A self-constituted committee of prominent citizens of Philadelphia, with Edward W. Bok as chairman, Dr. John H. W. Rhein as secretary and Dr. Horatio C. Wood, Jr., as a member, in 1915 formed themselves into a committee to investigate the extent of the use of narcotic drugs, opium, morphin and heroin, in Philadelphia and Pennsylvania, to ascertain what help could be given in the cure of the victims of the drug habit and to recommend needed legislation to assist the federal government in its efforts under the Harrison Narcotic Law to restrict the sale and use of narcotic drugs. In their report, printed in pamphlet form and ready for distribution, they set forth many interesting facts regarding the investigation, make some recommendations and give a draft of a proposed bill to regulate the use and sale of narcotic drugs in the state. They say the number of drug users in the state is large, but do not attempt to fix it exactly. To get definite information on certain phases of the evil a group of eighty-six persons addicted to the use of one or more narcotic drugs was investigated. Of these, fifty-eight were found to have formed the habit through association, in the tenderloin, with fellow workmen, with men met in pool rooms, saloons, etc., some through mere curiosity. Two said they had formed the habit during sickness after operations, six through physicians' prescriptions, one to ward off tuberculosis. Of the group of eighty-six it was found that sixty-four had contracted the habit between the ages of 18 and 30; the loss of time from work caused by the habit varied from six months to two years in thirty-nine cases. The drug was obtained in many instances from pedlers on the streets in the tenderloin district, in pool rooms and other places where men and boys congregate. Some obtained it by mail from distant places. It is shown how the so-called "reduction" method of treatment is used with the assistance of physicians to evade the law.

Inquiry directed to institutions throughout the state showed that the number of persons treated for drug addiction after the enactment of the Harrison Narcotic Law greatly increased. It is said that nineteen states have no provision for the treatment of drug users except in insane hospitals, but in a number, state and county hospitals care for them, as well as many private and charity general hospitals, and five states have farm colonies for inebriates which admit drug users. Two cities have municipal farms where they are cared for. Pennsylvania commits them under its "Habit Act" to the state hospitals for the insane. The committee recommends that the state make provision for adequate treatment and after-care of drug inebriates, and that the legislature by law make possible a more strict control of the manufacture and sale of opium, coca and their derivatives and cover those features of the misuse of drugs not covered by the federal law. These recommendations are embodied in the draft of the law appended to the report.

WASHINGTON

Personal.—Dr. Ivan P. Balabanoff, Tacoma, narrowly escaped death in New York, October 16, when he was caught by the legs in the door of a subway train and carried three blocks before the train could be stopped. He suffered only shock and contusions.——Dr. Jeremiah Ballard has been elected mayor of Kelso.——Dr. Arthur H. Gray, Seattle, recently visited Baltimore.

Physicians Denounce Healers.—Presidents of fourteen of the nineteen component societies of the Washington State Medical Association met in Seattle, October 7, and drafted resolutions opposing the enactment of the so-called "Drugless Healers Bill" and the Kebb "First Aid Act." They put themselves on record as approving all legislation which shall embody free choice of physician, surgeon and hospital for the injured workman, and the passage of a suitable fee bill patterned after the plan of Oregon.

Research Work in Spokane.—Articles of incorporation have been taken out for the Spokane Graduate School of

Medicine, the incorporators being Drs. Samuel E. Lambert, Arthur T. R. Cunningham, Herman P. Marshall, Anderson E. McDowell, Edwin S. Jennings, James D. Windell, Alexander R. Lundgren, John H. O'Shea, James C. Graves, Charles Eikenbary, Mathew M. Patton, and William J. Pennock. The object of the organization is the prosecution of medical research and study of anatomy of both man and beast, and experimentation with animals along purely scientific medical lines.

GENERAL

Eye and Ear Specialists to Meet.—The annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Memphis, December 11 to 13, with headquarters at the Hotel Chicsa.

Additional Gifts to Medical College.—Two additional gifts for its new medical school have been announced by the University of Chicago since our last announcement was made (General News, The Journal, Nov. 18, 1916, p. 1534). These gifts consist of $300,000 from Mr. Frederick J. Rawson and $300,000 from two other individuals whose names are withheld. The plans for the development of the undergraduate and graduate departments require for their consummation $7,300,000, and of this sum, all but $1,500,000 has now been raised.

Physician Pleads Guilty.—A letter from Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, states that "on the 15th day of December, 1914, Dr. C. W. Miller of Atlanta, Ga., ex-secretary of the Eclectic Examining Board, was indicted by the grand jury of Fulton County for forgery in two cases, to-wit: signing the names of the other four members of that board to two licenses, one issued to L. L. Lightner of Ideal, Ga., and the other issued to W. D. Branch of Baxley, Ga. Dr. Miller made a plea of guilty to a misdemeanor on Nov. 4, 1916, in the court of Judge B. H. Hill of Fulton County and was fined $100 in each case, including the cost."

Hygiene Association Meeting.—The annual meeting of the American Social Hygiene Association was held at St. Louis, November 20 and 21. At a business session, November 20, Robert S. Brookings of Washington University and Dr. Edward A. Alderman of the University of Virginia were elected vice presidents, and President David Starr Jordan of the University of California and Bishop Walter T. Sumner of Oregon, honorary vice presidents. Dr. Hermann M. Biggs, New York, and Dr. William A. Evans, Chicago, were added to the board of directors. Dr. Charles W. Eliot, president emeritus of Harvard University, and Dr. Abram W. Harris were reelected honorary president and president, respectively. All other officers were reelected. One of the direct results of the conference was the formation of a Missouri social hygiene association. It is proposed to employ a salaried executive to promote the social hygiene propaganda throughout Missouri.

Typhus Fever.—Several cases of typhus fever at the Ally Switch Section House in the southern part of Hall County, Texas, on the Santa Fe system, were placed under quarantine, November 12. All of the patients are Mexicans; one died. On hearing of the outbreak, the Santa Fe at once dispatched a special train to look after the sick and to protect against the disease. Two other Mexican employees developed the disease. The Mexicans acknowledged that they came from San Luis Potosi, Mexico.——It is learned that an American civil engineer, driven out of Mexico, died from typhus fever in El Paso, October 19. To prevent the recurrence of such cases, the United State Public Health Service has established stations at Eagle Pass, El Paso, Brownsville and San Antonio.——A special train left Ft. Madison, November 21, to tour the entire Santa Fe system. It will fumigate and disinfect every bunk car and bunk house used by the Mexican section hands.——Four cases of typhus fever are reported among Mexican employees of the Santa Fe system at Ft. Madison, with one death.

Conference on Social Insurance.—A conference on social insurance, December 5 to 9, at Washington, D. C., has been called by the International Association of Industrial Boards and Commissions, a quasi-official organization of the official bodies charged with the duties of administering compensation laws in the several states of the United States having such legislation and in the Provinces of Canada. The aim of the conference is merely to state clearly and define definitely, for the information of legislators and administrators, the problems that are to be considered, which include workmen's compensation, health insurance, invalidity and old age insurance, and social insurance applying especially to women. The program has been sent out under the imprint of the Bureau of Labor Statistics, United States Department of Labor, and the proceedings will be published as a bulletin of that bureau. All organizations, both public and private, interested in social insurance, may join the conference by paying $25 toward defraying the expenses of the convention, the fee entitling the organization to send delegates to participate in the discussions. Persons not members of official state delegations or representing organizations may register as members o the conference on payment of a membership fee of $2.

Death of Martin I. Wilbert.—The Council on Pharmacy and Chemistry of the American Medical Association lost one of its most active members in the death of Mr. Martin I Wilbert, which occurred in the German Hospital in Philadelphia, November 25. Mr. Wilbert had been a Fellow of the American Medical Association for many years. He was also an active worker in the Section on Pharmacology and Therapeutics, and for the last five years was secretary of that section. He was one of the best informed pharmacists in the United States and one of the most active workers for the general betterment of pharmacy. He was a member of the revision committee of the United States Pharmacopeia, the co-author with Dr. Motter of the Digest of Comments on the United States Pharmacopeia and National Formulary and the author of the pharmaceutical parts of several works on pharmacology and materia medica. As an actively working member in numerous scientific societies such as the American Pharmaceutical Association, in which he had been the secretary and the chairman of its scientific section and a member of its Commission on Proprietary Medicines, and of the American Chemical Society, in which he was assistant editor of one of its most important publications, Chemical Abstracts, Mr. Wilbert had accomplished much constructive work. For many years Mr. Wilbert was technical assistant in the Hygienic Laboratory of the United States Public Health Service, and this position he held at the time of his death. The passage of the antinarcotic law which has done so much to curtail the drug habit in this country, was largely due to his untiring efforts. His activities looking toward the betterment of conditions in pharmacy developed the animosity of several mercenary drug journals which frequently attacked him, but this in no way deterred him from continuing to use his energies in the attempt to eliminate fraud and sham in medicine and pharmacy. No one can fill his place in American pharmacy.

FOREIGN

Death in the Profession Abroad.—K. B. Pontoppidan, professor of nervous and mental diseases and later of forensic medicine at the University of Copenhagen, aged 63. He was one of the pioneers in the modern treatment of the insane and has been at the head of the Aarhus asylum since 1898. He has published numerous articles on nervous and menta diseases.

Medical Unit for Palestine.—The woman's Zionist organization, Hadassah, is about to send to Palestine a corps o physicians and nurses with the proper equipment of medica supplies. The organization and administration of the unit i in the hands of an advisory board consisting of L. D. Friedenwald, Baltimore; Dr. Isaac A. Abt, Chicago; Dr. Isaac Adler New York; Dr. Emanuel Libman, New York; Dr. Milton J Rosenau, Boston, and Miss Lillian D. Wald, New York.

Hookworm.—At Sao Paulo the campaign against hookworm has been begun by the Rockefeller Foundation and th government of Brazil. Dr. Lewis Wendell Hackett of Harvard University, according to a report from Sao Paulo, had arrived a short time previously with supplies of medicines etc., to take charge of the work. The expense is to be born by the Rockefeller Foundation, the government cooperating by enforcing such sanitary laws as are necessary for th success of the campaign.

Child Welfare Publications.—A request has been received by the state department from Dr. Arthur Moncorvo Filho o the Instituto de Proteccão e Assistentencia á Infancia, 2 Rue Visconde de Rio Branco, Rio de Janeiro, Brazil, for th exchange of publications relating to child welfare. The institution is said to be a humantarian organization for the protection, hygienically and socially, of poor children, by th establishment of dispensaries, hospitals, creches, kindergartens, schools, social centers, etc.

CANADA

Hospital News.—The Sacred Heart Hospital, Athabasca, ta., was destroyed by fire in October, resulting in the loss three lives. It was a frame building and contained thirty ds.

University News.—The senate of the University of Toronto s decided that the course of study for undergraduates in edicine shall comprise six college sessions instead of five, at present. This change is to come into effect in July, 18.——In the medical faculty of McGill University, Monal, the enrolment of students is about the same as last ar: first year, 68; second year, 62; third year, 63; fourth ar, 70; fifth year, 64. In the dental faculty, 34 students e registered for the session.——McGill General Hospital in ance has organized a medical society which meets once a ek. Col. Herbert S. Birkett, the officer in command, is norary president.

Prizes Given at Montreal for Attendance at Infant Welfare ations.—The Montreal central office for the *Gouttes de Lait* cently organized a competition to cover attendance for the teen weeks ending in June. Great interest was aroused the offer of small prizes, and nineteen of these institutions mpeted, each sending three infants that had been brought gularly for consultation during the weeks in question. urteen prizes, in sums ranging from $2.50 to $15, were arded by drawing lots, and seven other prizes of from .50 to $10 were awarded the infants with the highest numr out of a possible 120 points. These infant consultations ve been a large factor in the reduction of infant mortality Montreal from 246 per thousand births in 1910, to 182 in 15. This represents a saving of 1,300 infant lives out of 20,700 rths recorded in Montreal for 1915. Dr. E. Gagnon, in his port in the *Union Médicale du Canada* adds that this same duction is even more apparent in the figures for 1916 to te, nothwithstanding the excessively hot summer and the idemic of influenza last winter.

Personal.—Dr. Henry A. Beatty, Toronto, has been pointed chief surgeon and medical officer of the Canadian cific Railway in Canada. Dr. Beatty has been connected th the railway since 1902, and in 1910 was appointed chief rgeon and medical officer of the eastern lines of the system. —Lieut.-Col. Charles A. Peters, C. A. M. C., Montreal, no has been in command of No. 9 Field Ambulance, has en appointed assistant director of Canadian medical serces in England.——Lieutenant-Colonel Wilson, A. D. M. S., horncliffe, England, has been appointed deputy director, anadian Army Medical Services at London, England, in ccession to Lieut.-Col. Murray Maclaren, C. M. G.——Capt. ederick A. Aylesworth, Toronto, has been given charge of e ophthalmic department of the Harvard Base Hospital, hich is now in France.——Maj. Louis McNutt, Charlottewn, P. E. I., has been appointed officer in command of a nvalescent hospital for Canadian soldiers in London, Engnd.——Col. Roderick C. McLeod, commanding officer of the . Francis Xavier Hospital Unit, has been given the comand of the Bramshott (England) Hospital.——Capt. Fredick B. Bowman, C. A. M. C., has been placed in command No. 2 Canadian Mobile Laboratory, Folkstone, England. —Col. P. Zoel Mignault, C. A. M. C., will shortly return to anada to assume a new military command. He will be cceeded by Maj. Jean P. DeCarie, second in command of aval University Hospital.——Capt. W. H. Edgar, C. A. M. C., no sustained an injury to the hip last July, has been valided home to Canada. He was medical officer of the econd Divisional Ammunition Column.——Maj. Philip Burtt, who is on duty in France with No. 6 Field Ambulance, s had conferred on him the Distinguished Service Order.

WAR NOTES

Surgical Dressings Needed in Roumania.—The Roumanian ed Cross is said to be greatly in need of gauze bandages d dressings, absorbent cotton and rubber goods. All supies should be forwarded to the American Red Cross, Bush erminal, Brooklyn.

Rubber, Gauze and Surgical Supplies Needed.—An urgent opeal for rubber goods and surgical supplies for wounded ldiers in France has been received by the American Fund r French Wounded for medical units abroad. Up to date 34,437 has been contributed for this fund.

Soldiers and Tuberculosis.—The tuberculosis war victims' natoriums established in France work in direct connection with the French government, receiving tuberculous soldiers when they leave the government sanatoriums and caring for them until they are cured. The first hospital was opened early in October, and the first unit of 100 beds will be ready before Christmas. Donations for this purpose should be sent to Walter Berry, treasurer, 14 rue de Varenne, Paris.

PARIS LETTER

Paris, Nov. 2, 1916.

The War

NEW RULES FOR THE DISTRIBUTION OF MEDICAL OFFICERS TO THE ARMIES AND TO THE REST OF THE COUNTRY

In response to the sentiment expressed by the Chamber of Deputies in the course of a recent debate on the effective utilization of the personnel of the army, and in particular of the medical service, M. Justin Godart, undersecretary of state of the health service, has decided to adopt a new basis for the organization and distribution of medical officers. In order to make allowance for family responsibilities, for each living child the father will be placed one class earlier in the mobilization lists; for example, a physician of the class of 1898, that is, aged 39, having three living children, will be placed in the class of 1895. Physicians of the youngest classes will be the first to be called to serve in the armies, and in the future these officers will be relieved only when ill or wounded. In this event they will be replaced by medical officers of the same rank on the list for service in the interior of the country, taken in order of priority. Officers relieved from the front for these causes, when sufficiently recovered to resume service, will be relisted in alphabetical order in the mobilization class according to age and family responsibility, and will again take active part in the war, previous service at the front no longer being credited as it has hitherto been done (The Journal, Nov. 20, 1915, p. 1831; Jan. 22, 1916, p. 290).

LATE TETANUS FATAL, NOTWITHSTANDING PROPHYLACTIC SERUM INJECTION

Dr. Lefort has communicated to the Réunion médicale de la I-ère armée a case of late tetanus terminating fatally in a slightly wounded man who had been given a prophylactic antitetanic injection. Roentgenoscopy revealed that the man, aged 38, had received in the muscular mass of the calf of the left leg a metallic shell fragment as large as a hemp seed. On the same day he was given an injection of antitetanic serum. The insignificant wound healed up, the small hematoma which was present at first disappeared, and the patient, apparently cured, was on the point of quitting the hospital when he drew the attention of the treating physician to painful cramps in the right leg, from which he had been suffering for several days. The next day general tetanus became evident (cramps, trismus, stiffness of the neck, sweats, tachycardia, etc.). The foreign body was immediately extracted, and the intensive treatment of the tetanus, which had already been begun, was continued by the administration of large doses of serum, of chloral hydrate and or morphin, and by injections of phenol (carbolic acid). Nevertheless the condition continued, becoming rapidly more grave. Albumin appeared in the urine, and two days later the patient died. The shell fragment, which was smaller than a lentil, was accompanied by a minute piece of cloth, and in the neighborhood of this small projectile, the bacillus of tetanus was discovered, cultures being obtained on broth and on gelatin. This unfortunate incident argues in favor of first the systematic extraction of every fragment of foreign body in the tissues, and secondly, the repeated injection of antitetanic serum, even in the slightly wounded, in cases in which the removal of a foreign body has seemed contraindicated by its deep situation, its minuteness and the absence of any evident reaction. The most efficacious preventive is evidently removal of the foreign body; for a second injection can produce, as does the first, only a temporary, and perhaps insufficient, immunity.

THE DEATH OF DR. COURTELLEMONT

The death on the field of honor of Dr. Courtellemont, physician of the Hôtel-Dieu d'Amiens, professor of medicine at the school of medicine of the same town, is announced. He was killed by a shell.

New Regulation Concerning the Use of Poisons

The abuses in connection with the sale of narcotics and the like, particularly of opium, morphin, cocain and their derivatives, which have come to light during the last few years, have made necessary an amendment to the rules for the sale of poisonous substances. This was the reason which caused Parliament to pass the law of July 12, 1916. A decree just promulgated for the application of this law divides poisonous drugs into three categories: The first category is subjected to what may be called common law regulation; the second contains habit-forming drugs, such as opium, morphin, cocain and hashish, which are made the object of a particularly severe and reinforced regulation; the third contains poisonous substances considered as less dangerous, which are the object of mitigated treatment. Pharmacists are forbidden to renew any prescription calling for substances in the second class. The same prohibition applies to prescriptions for powders containing more than 1 per cent. of cocain, or its salts or derivatives, as well as to preparations taken by mouth containing any quantity of these substances. There is one exception—prescriptions may be renewed for preparations to be take by mouth and containing not more than 12 cg. of extract of opium, nor more than 3 cg. of morphin hydrochlorate, diacetylmorphin or cocain. Physicians are forbidden to write and pharmacists to make up prescriptions ordaining the use of these drugs for a period longer than seven days, when the composition of the prescription corresponds to the conditions cited in the preceding article. Pharmacists are permitted to sell poisonous substances to physicians, dentists and midwives resident in their commune or in a neighboring commune, if the latter has no pharmacy. The pharmacists are required to keep for a period of three years, and to present at every demand to the proper authority, the requisitions, etc., and at the end of each quarter to send a list of these to the prefect of the department.

Marriages

Edward Everett Dowdle, M.D., Silver City, N. M., to Miss Marguerite Bothelda Asmussen of Haywood, Calif., at Silver City, August 31.

Asst. Surg. Louis Harry Roddis, U. S. Navy, Canacao, P. I., to Miss Winifred Stiles of Minneapolis, at Manila, P. I., September 27.

Francis Edgerton Evans, M.D., Philadelphia, to Miss Clara Teresa Edelen, formerly of Washington, D. C., in Philadelphia, February 28.

Paul Swing Hageman, M.D., Bingham Canyon, Utah, to Miss Mary Cecilia Candler of Anadarko, Okla., November 18.

Anthony Thomas Weber, M.D., to Miss Hazel Lucile Berton, both of Chicago, at Crown Point, Ind., November 16.

Edward Herman Frederick Frisch, M.D., to Miss Mary Dorathea Bolte, both of Atlantic City, N. J., November 21.

Earle Ingram Carr, M.D., Lansing, Mich., to Miss Ruth Elisa Smith of Hubbell, Mich., at Lansing, November 8.

George Tucker Harrison, M.D., Charlottesville, Va., to Mrs. Cornelia Seymour of New York, November 21.

William Ralph Fogarty, M.D., Woodhaven, N. Y., to Miss Marion Eleanor Skelley of Brooklyn, November 4.

Charles Norman Perkins, M.D., Burlington, Vt., to Miss Florense Morgan of Colchester, Vt., November 15.

George Birch Stanwix, M.D., Yonkers, N. Y., to Miss Christine L. Alvarez of Brooklyn, November 15.

William Henry Van Tiger, M.D., to Miss Ruth Louisa Brickman, both of Eldora, Iowa, November 10.

Donald Guthrie, M.D., Sayre, Pa., to Miss Emily Franklin Baker of New York, December 2.

Herman Streett, Jr., M.D., Columbus, Ohio, to Mrs. Rose McKinley of Harrisburg, October 6.

Arthur N. Altringer, M.D., to Miss Olive Pauline Bracken, both of Kansas City, November 8.

Emil Bunta, M.D., to Miss Emily Howard, both of Chicago, at Crown Point, Ind., October 28.

John Franklin Martin, M.D., to Miss Elsie Sawtell, both of Latimer, Ohio, November 8.

William Theodore Miller, M.D., to Miss Edna Slatmyer, both of Cleveland, October 11.

Benjamin Tappan, M.D., to Miss Elise Gail, both of Baltimore, November 18.

Deaths

Philip Mills Jones, M.D., a member of the Board Trustees of the Association, secretary of the Medical Socie of the State of California, and editor of the *California Sta Journal of Medicine,* died in San Francisco, November from pneumonia.

He was born in Brooklyn, Jan. 17, 1870, and after atten ing the Polytechnic Institute of Brooklyn, from which graduated in 1886, he entered on the academic course in Ne York University and then took his course in medicine at t Long Island College Hospital, Brooklyn, and graduated 1891. After practicing in Brooklyn until 1900, he moved California and became associated with the University California in the Department of Archeology. He took prominent part in the reorganization of the Medical Socie of the State of California in 1902 and since that time has be secretary of that constituent state association and editor its official organ. In order to serve his state association mo effectively and because he had found difficulty in securi lawyers who appreciated the medical phases of legal que tions, in October, 1916, Dr. Jones passed the necessary exam nations and was admitted to the bar to practice as an atto ney and counselor at law in all the courts in the state California.

He represented his state association in the House of Del gates of the American Medical Association continuously fro the session of 1903 to the session of 1908. At this latt session, he was elected a member of the Board of Truste of the American Medical Association and served in th capacity up to the time of his death. He was a member the National Committee of One Hundred on Public Heal and a fellow of the American Academy of Medicine.

Besides possessing the ability to write in a brilliant a convincing style, Dr. Jones was an effective and force public speaker and devoted much time and energy to t propaganda for public health measures throughout Califor and the other Pacific states.

DeCou Carpenter Moulding, M.D., Chicago; Dearbo Medical College, Chicago, 1906; College of Physicians a Surgeons, Chicago, 1909; aged 46; a Fellow of the Americ Medical Association; consulting physician to the Beul Home and Hospital, and house physician at the Washingtoni Home; president of the White Cross League, and physici in charge of the Burr Oak Sanatorium, Wheaton, Ill.; di at the Augustana Hospital, Chicago, November 21, a fe hours after an operation for perforating ulcer of the stoma

Charles H. Todd, M.D., Owensboro, Ky.; Tulane Univ sity, New Orleans, 1861; aged 78; formerly a Fellow of t American Medical Association; a member of the Kentuc State Medical Association; and for several terms, chairm and secretary of the Daviess County Medical Associatio surgeon in the Confederate service throughout the Civil Wa and a member and officer of the Association of Medic Officers of the Army and Navy of the Confederacy; died su denly at his home, November 12, from heart disease.

William Williams, M.D., Pittsburg, Kan.; Missouri Me cal College, St. Louis, 1886; aged 55; a Fellow of the Ame can Medical Association; a member of the staff of the Sama tan Hospital, Pittsburg; president of the Pittsburg Dr Company; formerly a member of the common council and f three terms county physician of Crawford County; who w operated on in a hospital in Kansas City three weeks ag died at the home of his brother in Niangua, Mo., November

Walter Stanborough Sutton, M.D., Kansas City, Mo.; C lege of Physicians and Surgeons in the City of New Yo 1907; aged 39; a Fellow of the American Medical Associatio associate professor of surgery in the University of Kansa who served five months in charge of the Harry Payne Wh ney Hospital Unit, Juilly, France; died at the Christi Church Hospital, Kansas City, Kan., November 10, after operation for appendicitis.

Jessie Valeria Stauffer Smith, M.D., Winterset, Iowa; C lege of Physicians and Surgeons, Keokuk, Iowa, 1892; ag 50; formerly a Fellow of the American Medical Associatio a member of the Iowa State Medical Society, and one of t organizers of the Iowa Women's Medical Society; died Douglas Township, November 12, from an obscure disease the spinal cord.

William Francis Kenney, M.D., Providence, R. I.; Bellev Hospital Medical College, New York, 1877; aged 62; surge of the Fifth Infantry Battalion, Rhode Island Militia, 18 a member of the common council of Providence, from 1885 to 1886 and 1895 to 1896; died at the home of his sister in Providence, November 18, from cerebral hemorrhage.

Henry Selden Norris, M.D., New York; New York University, New York, 1876; aged 69; a Fellow of the American Medical Association and the New York Academy of Medicine; formerly attending physician at the City Hospital, Blackwell's Island, and consulting physician to the French Hospital; died at his home, November 19.

William Henry Streng, M.D., Richmond, Ill.; Chicago College of Medicine and Surgery, 1907; aged 38; a Fellow of the American Medical Association; was instantly killed, November 21, at a grade crossing in Waukegan, Ill., in a collision between a Chicago and Milwaukee Electric train and the automobile in which he was riding.

Edward Darrow, M.D., Aurora, Minn.; Rush Medical College, 1901; aged 42; for three terms mayor of Aurora; local surgeon of the Duluth and Iron Range Railroad; deputy coroner of St. Louis County; proprietor of the Darrow Hospital; died at his office, November 12, from myocarditis.

James Albert Breakell, M.D., New York; College of Physicians and Surgeons in the City of New York, 1873; aged 65; a member of the Medical Society of the State of New York and a fellow of the New York Academy of Medicine; died at his country home, Cross River, N. Y., November 18.

C. August W. Schwagmeyer, M.D., Clifton, Cincinnati; Medical College of Ohio, Cincinnati, 1870; aged 72; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home, November 11, from heart disease.

Clifton Maupin Faris, M.D., Sacramento, Calif.; Johns Hopkins University, Baltimore, 1905; aged 38; a Fellow of the American Medical Association; died at his home, November 16, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent.

Norman Howe Liberty, M.D., Minerville, N. Y.; Albany (N. Y.) Medical College, 1912; aged 27; a member of the Medical Society of the State of New York; was instantly killed, November 13, when he jumped from a skidding automobile in Ticonderoga, N. Y.

Alpheus Duane Finch, M.D., Bellefonte, Ark.; Vanderbilt University, Nashville, Tenn., 1885; aged 67; formerly a member of the Arkansas Medical Society; who retired from active practice, in 1908; died at the home of his son, near Bellefonte, November 7.

Adrian Mathews, M.D., Providence, R. I.; Jefferson Medical College, 1874; aged 66; a Fellow of the American Medical Association; for forty years a practitioner of Providence; a member of the Providence Board of Education; died at his home, November 19.

Jonathan Henry Woods, M.D., Brookline, Mass.; Long Island College Hospital, Brookline, 1880; College of Physicians and Surgeons in the City of New York, 1881; aged 66; a Fellow of the American Medical Association; died at his home, November 6.

Lee Walton Verdery, M.D., Augusta, Ga.; Medical College of Georgia, Augusta, 1911; aged 28; an officer of the Medical Corps of the National Guard of Georgia; died in Fort Sam Houston, San Antonio, Texas, October 28, from arteriosclerosis.

James Ferdinand Gardner, M.D., Capon Bridge, W. Va.; Bellevue Hospital Medical College, 1879; aged 73; formerly a member of the West Virginia legislature; was killed by the overturning of his automobile near Winchester, Va., November 11.

Gilbert C. Hibbard, M.D., Rome, N. Y.; Cleveland Homeopathic Medical College, 1866; aged 81; died at his home, September 17, from pneumonia.

William L. Rogers, M.D., Atlanta, Ga.; Medical College of Georgia, Augusta, 1879; aged 63; died at his home, September 15, from uremia.

John McGuffin, M.D., Hastings, Mich.; Detroit College of Medicine and Surgery, 1903; aged 42; died at his home, November 7.

Hugh R. Green, M.D., Delaplaine, Va.; University of Maryland, Baltimore, 1867; aged about 75; died at his home, about November 4.

James Richards Foster, M.D., North Attleboro, Mass.; Harvard Medical School, 1877; aged 72; died at his home, November 8.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PLANT JUICE

An Alcoholic Bitter Laxative That Sells Freely

Take a dash of bitters, add sufficient alcohol to give an effective and unmistakable "kick," put in a small quantity of laxative drugs—but not sufficient to interfere with a few extra daily doses if one feels so inclined—carefully limit the claims on the trade package and just as carefully throw conservatism to the winds in advertising the stuff in the newspapers—and there is the making of a commercially successful "patent medicine."

Such for all practical purposes is Plant Juice, put on the market by Col. Frank A. Dillingham of Cincinnati. The success—financial, not moral—that has followed the exploitation of Plant Juice may be appreciated when one reads in the daily papers that according to testimony alleged to have been given in a recent court action the business is now bringing Colonel Dillingham "a profit of $90,000 a year."

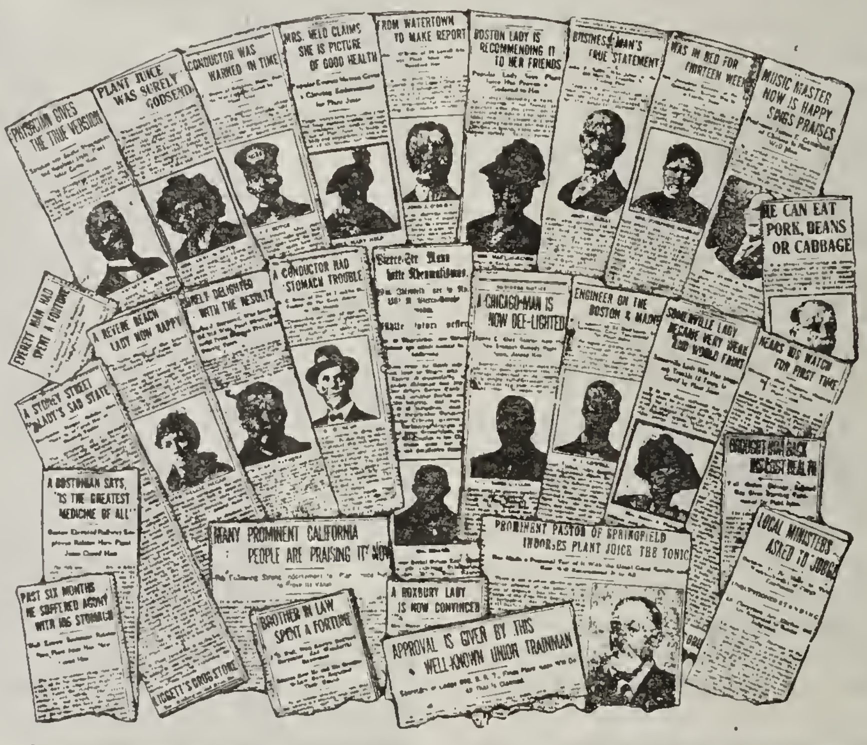
The carton in which "Plant Juice" comes, reproduced in miniature.

Plant Juice contains 20 per cent. alcohol; this, as the law demands, is admitted by the manufacturer. The dose is half an ounce three times a day or more if so inclined. "Plant Juice is the Proper Medicine" and is made from "a proper selection" of herbs, roots, barks, leaves and blossoms. It sells for a dollar a bottle; 6 bottles for $5. On the trade package little is claimed for it, and wisely; why run the risk of being haled into the federal court for false and fraudulent claims on the trade package when nobody buys a "patent medicine" on what the trade package says? There are still some newspapers in the country that will admit any nostrum advertisement that will not actually debar the publications from the mails—and the Food and Drugs Act does not apply to lying claims made in the newspapers. Here are a few of the claims that have appeared in the newspapers:

> "It represents the greatest combination of the juices of medicinal plants known to science."
>
> "It is the most marvelous reconstructive and tonic product of the age. . . ."
>
> ". . . a specific for all derangements of the stomach, kidneys, liver and blood."

SOME CLAIMS

In a booklet distributed by Plant Juice "demonstrators" the public is told: "No extravagant claims are made for Plant Juice. It will do what is claimed for it and no more." In the same booklet under the heading "Kidney Trouble" one learns that kidney disease "may take the form of a weakness in the kidneys, chronic inflammation or Bright's disease. . . ." Plant Juice is alleged to have "been used in the treatment of nearly every known form of kidney disease, and in every case it has demonstrated its marvelous curative powers." Further in the same booklet "Female Trouble" is discussed. The "most prevalent" forms listed are "painful and irregular menstruation, leucorrhea, misplacement of the womb, ulcers, tumors," etc. Those suffering from any or all of these derangements are asked to believe that "there are few remedies that can equal Plant Juice in preventing and relieving the ills of womankind." Still further we learn, under the heading "Blood Trouble," that "there are hundreds of diseases to which the blood is subject when contaminated by poisons"; among these diseases those that are "most prominent and of frequent occurrence" are said to be "syphilis, cancer and scrofula." In the next paragraph, the sufferer from syphilis or cancer is told that Plant Juice "being a natural and specific remedy" should be taken because it "eliminates the poisons from the blood and helps Nature supply the enriching elements that are lacking in weak, impoverished and diseased blood."



The testimonial advertisement has largely supplanted the direct claims that used to be characteristic of "patent medicine" advertising. Plant Juice is advertised by the "lie with circumstance" instead of by the "lie direct" method. Here are reproduced in miniature a few of many advertisements of Plant Juice in The Journal files.

THE TESTIMONIAL ADVERTISEMENTS

But the most popular, and presumably successful, method by which Plant Juice is advertised is that of the inferential-falsehood route. The exploiter instead of saying in his own words, for example, that Plant Juice will cure rheumatism publishes alleged testimonials from Henry Mickow, Mrs. John Breutigam, F. Hardaker, etc., who claim to have been "relieved" of rheumatism by taking Plant Juice. The nostrum is not frankly advertised as a "cure" for ulcer of the stomach, but George J. Manning's testimonial to the effect that he had ulcer of the stomach and was "never relieved until he took Plant Juice" may be counted on to sell just as many bottles. Have you gallstones? Mrs. Minnie Hasterok—see testimonial—had gallstones until she took Plant Juice; now she is "entirely cured." Are you deaf? Mr. Norman Weber, the "popular young bank clerk," *vide* testimonial, "Had Lost His Hearing Due to Catarrhal Affection—Has Used Plant Juice for Six Weeks and Catarrh Has Vanished!" By the same token the public is led to believe that Plant Juice has cured "canker of the stomach," "kidney trouble," "nervous debility," "gastritis," "piles," "paralysis," and various other conditions.

ANALYSIS

Plant Juice has been analyzed by the Health Department of Milwaukee. The chemist's report was to the effect that, in addition to the 20 per cent. alcohol, there was not quite 8 per cent. of total solids, of which over 2 per cent. was glucose. The chemist further declared that the principal constituents were fluidextracts of aloes and licorice with possibly slight amounts of cascara sagrada or fluidextract of senna. The chemist adds:

"It is a diluted form of vegetable cathartic, with licorice added for smoothness, and sold at an extravagant price."

The report of Health Commissioner Ruhland of Milwaukee on this nostrum is interesting and instructive. Here it is in part:

AS VIEWED BY THE MILWAUKEE HEALTH DEPARTMENT

"Most Americans are more or less constipated. This causes many of our headaches or nausea, loss of appetite and other similar ailments. Trading upon this knowledge, somebody has prepared an 'herbal system tonic,' known as Plant Juice.

"Plant Juice is advertised as 'beneficial' in anaemic conditions, nervousness, sickness and debility, headache, backache, indigestion, dyspepsia and various other ills. Its claims are substantiated by testimonials from 'a well known police officer of this city,' a 'popular employe of a large Milwaukee laundry' and other residents equally well known and popular.

"Plant Juice has been analyzed by the Health department and found to be a laxative. The well known and popular citizens, therefore, used the laxative, were relieved of headaches, indigestion, pain and nausea—all of which are symptoms of constipation—and so honestly believed themselves cured of desperate ailments. In probably 90 per cent. of the cases, a glass or two of hot water each morning, more exercise or lighter foods would have accomplished the same results. . . .

"Consider the solicitous care of the Plant Juice man: Firstly, he doesn't say Plant Juice will 'cure' anything. That might shock the tender sensibilities of the federal statutes. He says the great herbal system tonic will be 'beneficial' in anaemic conditions, nervousness, sickness and debility, headache, backache, etc.; all of which are symptoms and not causes. The cause, in most cases, is constipation. So, when Plant Juice benefits headaches and backaches and nervousness, it, in reality, does nothing but relieve constipation. And, as said before, water, exercise or proper food usually would do this quite as well as Plant Juice. . . .

THE TESTIMONIALS

"As for the testimonials from the well-known and popular citizens: The Plant Juice man himself wrote every one that the Health Department investigated. Of those traced, none had been mailed to the Plant Juice people, nor was any unsolicited. It is true that the signatures were genuine and those who allowed the use of their names actually had used Plant Juice. But they merely signed the testimonials. The Plant Juice man wrote them. This was true of all the cases investigated by the Health Department.

"The users signed these testimonials for various reasons. One 'sensational statement,' as the Plant Juice man puts it, was traced to an illiterate old lady who had no more real idea of what was in the testimonial she signed than of what was in the moon. The Health Department found her complaining of the same aches and pains that she had declared, in her testimonial, vanished under the balm of Plant Juice.

"A second testimonial was signed by 'a well-known musician' of this city who told Health Department officers that 'I didn't say one-half of what the Plant Juice agent said I did.' He also said that he hadn't liked the idea of publication and had notified the Plant Juice people to cease using his name in the future. In fact, Health Department officers gathered that this particular victim rather yielded weakly to a glib agent than willingly offered any testimony concerning the great herbal system tonic.

AN UNDERTAKER WITH AN EYE TO BUSINESS

"A truly unique offering in the testimonial line illuminated the way of the officers when they interviewed 'a well-known and popular undertaker.' This user of the herbal extract was boosting Plant Juice because it helped his business.' Or, to be precise, his good wife—who explained things in his absence—said he had permitted the use of his picture and statement because it was good advertising.

"The thinking person does not attach much importance to the testimonial. Testimonials are procured by patent medicine manufacturers on the theory that 'there is one born every minute.' On this same theory, they are able to sell their products."

The Milwaukee Health Department states the matter correctly. If, as has been alleged, Colonel Dillingham makes a profit of $90,000 a year, it is the "one born every minute" that makes it possible.

TOXINOL

Report of the Council on Pharmacy and Chemistry

Toxinol is a "syphilis remedy" marketed by the Hawes Chemical Company, Louisville, Ky. It is a shotgun mixture of the "patent medicine" type characteristic of the days when syphilis was treated with a haphazard mixture of iodids, mercury and vegetable "alteratives." The following statement of composition is given by the company:

"Each fluid ounce contains the active principles of:

Stillingia	8 gr.
Burdock	8 gr.
Poke	8 gr.
Berberis Aquefolium	8 gr.
Cascara Amarga	8 gr.
Prickly Ash Bark	2 gr.
Trifolium Pratense	16 gr.
Potassium Iodid	16 gr.
Hydrargyri Bi Chlorid	⅛ gr."

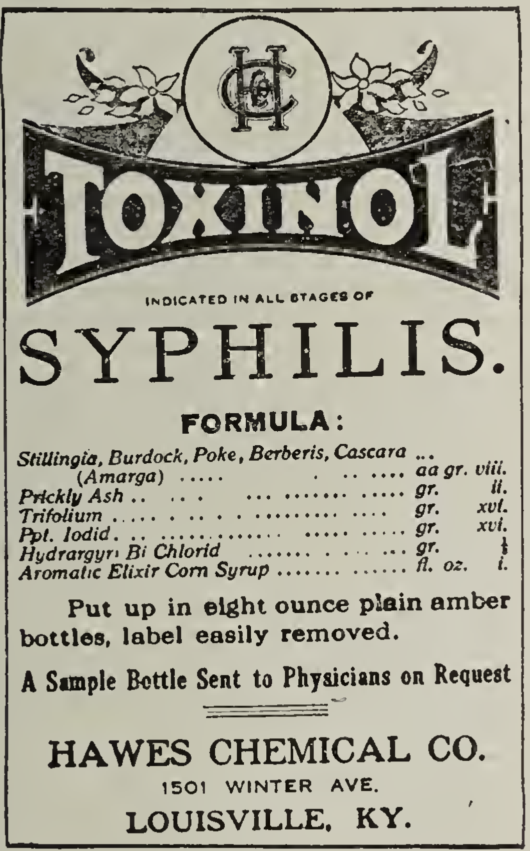
Among the many misrepresentations and unwarranted claims and assertions made for Toxinol are:

"When the iodids are given in combination with the vegetable alteratives they agree with the stomach and do not derange the secretions."

" . . . the amount of the iodid of potassium, and of the bichlorid is comparatively small. This is in accord with the spirit of modern therapeutics, which aims to give moderate amounts that are readily absorbed. It is a well-recognized fact that large doses of iodid of potassium become intolerant to the patient if taken in large dosage, but those drugs in small dosage, especially if combined with vegetable alteratives, readily produce the most satisfactory results."

"An examination of this formula and a trial of the preparation will convince you of its effectiveness in the treatment of Tertiary Syphilis in whatever form it manifests itself."

"We point out the formula as being at once a scientific blending of all the agents known as valuable in tertiary syphilis, and one that will give the desired specific as well as tonic effect."


HC
TOXINOL
INDICATED IN ALL STAGES OF
SYPHILIS.
FORMULA:
Stillingia, Burdock, Poke, Berberis, Cascara (Amarga) ... aa gr. viii.
Prickly Ash ... gr. ii.
Trifolium ... gr. xvi.
Ppt. Iodid ... gr. xvi.
Hydrargyri Bi Chlorid ... gr. ⅛
Aromatic Elixir Corn Syrup ... fl. oz. i.
Put up in eight ounce plain amber bottles, label easily removed.
A Sample Bottle Sent to Physicians on Request
HAWES CHEMICAL CO.
1501 WINTER AVE.
LOUISVILLE, KY.

Reproduction (reduced) of a card being sent to physicians by the exploiters of Toxinol.

The Council holds "Toxinol" ineligible for New and Nonofficial Remedies because it is an irrational combination of drugs marketed under a name that is nondescriptive of its composition and with unwarranted and misleading claims.

[Editorial Note.—It is strange that products of the type of Toxinol still seem to appeal to certain physicians. It might be expected that in the treatment of a disease like syphilis unscientific mixtures of the "patent medicine" type would no longer find favor among scientifically trained physicians. The fact that the manufacturers of Toxinol are spending money circularizing the profession indicates that the number of uncritical physicians is by no means negligible.]

Correspondence

Formula and Preparation of Dakin's Solution

To the Editor:—The formula for the preparation of Dakin's solution which you give in The Journal, Oct. 7, 1916, has recently been superseded by the following which I obtained from Dr. Carrel at Compiègne last May.

The unsatisfactory results sometimes obtained by the use of the original preparation, and the disfavor which it has acquired in the hands of some surgeons are probably due to imperfections in the product, such as the persistence of alkalinity. Some of the wounds which I saw in various hospitals under the treatment were brown and unnatural in appearance, while all at Compiègne were rosy and apparently entirely free of pus. The wounds were there kept constantly wet with the solution, which was introduced through tubes and poured on the surface every two hours.

It is desirable that the determination of its value should not be delayed by defects of preparation, and you may therefore think it worth while to publish this formula.

Lewis A. Stimson, M.D., New York.

PREPARATION OF HYPOCHLORITE SOLUTION (DAKIN)

1.	Chlorinated lime (bleaching powder)	200 gm.
	Sodium carbonate, dry	100 gm.
	Sodium bicarbonate	80 gm.

2. Put the chlorinated lime in a 12-liter flask with 5 liters of ordinary water, and let it stand over night.

3. Dissolve the sodium carbonate and bicarbonate in 5 liters of cold water.

4. Pour (3) into the flask containing (2), shake it vigorously for a minute, and let it stand to permit the calcium carbonate to settle.

5. After half an hour siphon off the clear liquid and filter it through paper to obtain a perfectly limpid product. This must be kept protected from the light.

The antiseptic solution is then ready for surgical use; it contains about 0.5 gm. per cent. of sodium hypochlorite with small amounts of neutral soda salts; it is practically isotonic with blood serum. It should meet the following tests:

Test.—Put about 20 c.c. of the solution in a glass and pour on its surface a few centigrams of phenolphthalein in *powder;* shake it with a circular movement, as in rinsing; the liquid should remain colorless. A more or less marked red discoloration indicates the presence of a notable quantity of free alkali, or incomplete carbonation, imputable to an error in technic.

Errors to Be Avoided.—Never heat the solution. If in an emergency it is necessary to triturate the chlorinated lime in a mortar, do so only with water, never with the solution of the soda salts.

Titration.—To 10 c.c. of the solution add 10 c.c. of distilled water, 2 gm. of potassium iodid and 2 c.c. of acetic acid. Pour into this mixture a decinormal (2.48 per cent.) solution of sodium thiosulphate (hyposulphite) until it is decolorized. The number of cubic centimeters of thiosulphate employed multiplied by 0.03725 equals the percentage of sodium hypochlorite in the solution.

[In the Current Medical Literature Department of The Journal, Dec. 9, 1916, will appear an abstract of an article by Maurice Daufresne (*Presse médicale,* Oct. 23, 1916, p. 474) confirming the formula mentioned above and the results achieved by it.—Ed.]

The Intestinal Parasites of University Foreign Students

To the Editor:—In The Journal, Nov. 4, 1916, E. J. Van Liere reports on the examination of feces of twenty foreign students in the University of Wisconsin, for the purpose of determining infestation by intestinal parasites. His results and conclusions were of special interest to me, for in 1912-1913 I made such an examination at Cornell University and obtained very similar results.

The methods used were the usual ones for microscopic examination of feces. Where the results were negative with fresh smears, the sedimentation method was used. In most instances Mr. A. F. Coutant cooperated in making the examinations, and a total of not less than a half dozen slides were used in each case.

In notes now available I find recorded sixteen of a considerably larger number of examinations of male foreign students. Of these sixteen cases, seven, or 43 per cent., were positive. Four of the seven exhibited whipworm infestation, four hookworm, two Ascaris, and two *Strongyloides stercoralis.* The most interesting case was that of a Porto Rican who was found to harbor five different species of intestinal worms. There were present eggs of the hookworm, whipworm, Ascaris, *Schistosoma masoni,* and the larvae of *Strongyloides stercoralis.* Details of this case I reported in *Science,* Oct. 18, 1912.

As bearing on the possibilities of parasite dissemination, it may be noted that one of the cases of hookworm infestation was that of a Cuban student who had been in this country for four years. For two years he attended a school in central Pennsylvania, but made his home throughout the four years in a small village in southern New York. This patient also harbored whipworms. He was given thymol treatment by a local physician, and a subsequent diligent examination failed to reveal hookworm eggs, although those of the whipworm were apparently as abundant as at first.

It is significant, also, that two of the hookworm and one of the Strongyloides carriers were in courses which required summer camp work, and so were associated with their fellow students under conditions which were favorable for transmission of parasitic infestation.

In considering percentages of infestation, there is the well known risk in having estimates on the few data available for both Mr. Van Liere's studies and mine. This may be illustrated by the fact that if I considered the first ten cases in my notes the figures show a 60 per cent. infection, while if I take the last ten cases there would seem to be only 20 per cent. The possible error in considering a total of only thirty-six cases is very great.

Moreover, it must be noted that these are picked cases, the patients having consulted the university medical officer, or local physicians, for indisposition which might have been in part referable to the presence of the parasites. From Mr. Van Liere's statement that the stools examined "were obtained from the Clinical Department of the University of Wisconsin," it would appear that the same restrictions might apply to his data.

Whatever the exact percentages, it is obvious that parasite carriers may at any time be a source of infestation of their associates. This applies not only to foreign students but also to our own students from regions infested with hookworm. However tolerant the carrier may be himself, general sanitary considerations demand that he be rid of his parasites. Such studies as are presented by Mr. Van Liere are very suggestive, and afford valuable data for determining the distribution and possible sources of introduction of intestinal parasites in the United States.

William A. Riley, Ph.D., Ithaca, N. Y.
Professor of Insect Morphology and Parasitology, Cornell University.

Ventilation of Operating Rooms

To the Editor:—With all our fresh air propaganda is it not strange that the sterilizing and operating rooms of our city seem never to have profited by it? I have assisted or operated in five Chicago hospitals and have witnessed operations in seven others, and in none of the operating rooms was there any evidence of scientific heating and ventilation such as may be found in public schools and other buildings.

Postoperative pneumonia is considered due to chilling of the patient, but I believe the vitiated atmosphere of the operating room may have a devitalizing influence on the patient. When you consider the amount of fresh air that is necessary to keep the carbon dioxid below the safety limit, it is strange that more patients do not succumb.

The operator dreads a draft of air which sends dust flying, with the chance that each particle of dust is an airplane carrying a germ as a passenger. But air can be washed, warmed and filtered, and delivered and removed from rooms without dust raising, and it should be done.

E. P. S. Miller, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE RECTAL TUBE AND HIGH INJECTIONS

To the Editor.—I have been trying to find some reference to enemas in recent numbers of The Journal. I want to find out how far a rectal [colon] tube can be inserted in giving "high injection." My understanding is that the tube does not go so far as usually supposed, but curls up in the rectum. Will you kindly give me the truth of this?

F. B. Bogardus, Eureka, Mont.

Answer.—Naunyn in 1896, Nothnagel in 1898, and Boas in 1903 disputed the contention of contemporaries, generally accepted up to that time, that the soft tube could be introduced into the colon, contending that it never passed the sigmoid. G. S. Hanes of Louisville in 1909 claimed that it could be done, but failed to demonstrate it by roentgenograms, some of his own pictures showing the tube coiled in the rectum. Soper of St. Louis, in 1909, tried to pass the tube in a series of sixty patients, in the side and knee-chest positions, using either a well oiled tube, a tube with a mixture of oil and bismuth, or a watery solution of bismuth flowing at the time of the introduction. Roentgenograms showed that the tube coiled up in the rectum in every instance except one, a case of congenital idiopathic dilatation of the colon (Hirschsprung's disease), in which the tube passed into the dilated colon. Yates of Detroit attempted to pass a variety of instruments in addition to the usual colon tubes, such as Wales bougies, large, heavy bodied, soft rubber catheters, a metallic spiral coil, the flexible stilet of a horse catheter, and different sizes, weights and lumens of both rectal and stomach tubes, but, as shown by roentgenograms, with failure in every instance. The patients were placed in the dorsal, knee-chest, ventral, Sims, and modifications of these postures. The tube always coiled in the rectum or failed to pass the sigmoid. In a discussion of Yates' paper this was confirmed by McMurtry of Louisville, and by F. Reder of St. Louis, who worked with Soper in his experiments, as well as by others. Machell in 1911, working with children, came to the same conclusion, declaring that the tube always coiled in the rectum, frequently presenting its tip at the anus. In the discussion this was confirmed by Chapin and Jacobi, the latter saying that in experiments conducted by him in children, roentgenograms had shown the tip of the tube in the region of the liver, but that it had simply carried the sigmoid, which is disproportionately long in children, to that region, and never entered the colon. Yates, Machell and others say that it is not necessary to introduce the tube into the colon, but that the short tube answers every purpose, the irrigations being carried to the colon and even to the cecum in a very short time, facilitated, perhaps, by posture. Yates accepts the view of some authors that this is due to a reversed peristalsis and is not necessarily the result of pressure in the rectum.

Naunyn: *Mitt. a. d. Grenzgeb. d. Med. u. Chir.,* 1896.
Nothnagel: Specielle Pathologie und Therapie, 1898.
Boas: *Berl. klin. Wchnschr.,* 1903.
Hanes, G. S.: *Kentucky Med. Jour.,* 1904, iv, 173.
Soper, H. W.: The Colon Tube and the High Enema, The Journal A. M. A., Aug. 7, 1909, p. 426.
Yates, H. W.: The Present Status of the Colon Tube, *Tr. Am. Assn. Gynec. and Obst.,* 1910, p. 13; abstr., The Journal A. M. A., Oct. 8, 1910, p. 1310.
Machell, H. T.: Colon Irrigation with the Long and Short Tube, *Tr. Am. Ped. Assn.,* 1911, p. 268; abstr., The Journal A. M. A., July 8, 1911, p. 153.

IODIN AND BENZIN—BLUE EYES—TELEGONY

To the Editor:—1. As a dry cleaner with iodin, which should be used, benzin (C_6H_{14}, a fractional distillate of coal oil), or benzene (C_6H_6, a destructive distillate of coal tar)?

2. If both parents have blue eyes, is it possible for the child to have brown eyes?

3. Does a first pregnancy by one husband influence in any way the offspring by a second husband, or leave an indelible stain on the mother?

Please omit my name. L. H. M.

Answer.—1. The solvent usually employed in this country is the fraction of petroleum known as benzin. Benzene (benzol, C_6H_6) can also be used.

2. The expression "blue eyes" as used colloquially has not a very sharply defined meaning. It should be reserved for such eyes as have no pigment in the iris except that of the

posterior pigmented layer, "uvea." Such eyes are scientifically called "simplex." Owing to variations in the connective tissue structures, simplex eyes may also be gray. Adopting this definition for blue eyes, the answer to the question is "no." According to A. D. Darbishire (Breeding and Mendelian Discovery, Ed. 2, London, Cassell, p. 48):

> The offspring of a man and woman both possessing blue eyes and both descended from duplex parents on both sides, in both cases will possess blue eyes as certainly as if their four grandparents all had blue eyes. The offspring of the union of two persons with simplex eyes, whatever their ancestry is, will never have brown eyes.

On this point there is no difference of opinion among authorities on genetics. (See also Davenport, Heredity and Relation to Eugenics.) The determination of the simplex or duplex pigmentary character of the iris is not easy.

3. The belief that the offspring of a mother by one sire might bear signs of the influence of a previous mate—the supposed phenomenon known as telegony—has been shown to have no foundation in fact. It was based on data of the anecdotal type supposed to be yielded by the results of stock and dog breeding. Careful analysis of the results on a large scale has failed to show the slightest support for the belief. Experimental work has led to the same conclusion. The belief is no longer held by any authority on heredity. (See Ewart J. Cossar: The Penycuik Experiments, London, A. & C. Black, 1899; Encyclopedia Britannica, article on "Telegony.")

DERMATITIS VENENATA AND ANAPHYLAXIS

To the Editor:—Will you be kind enough to inform me if there have been any recent articles written that deal with dermatitis venenata and its relation to sensitization or anaphylaxis? I am doing experimental work with primrose dermatitis and believe the varying sensibility of different patients is due to a skin anaphylaxis, or inherited or acquired sensitization. Kindly advise me if there is any literature on this; I have been informed that there is but I have been unable to locate it. C. Augustus Simpson, M.D., Washington, D. C.

Answer.—No direct references to dermatitis venenata and anaphylaxis have been found in the literature available. Von Adelung, to whose article reference is made below, in discussing rhus poisoning says: "The exact physiologic nature of the poisoning by rhus juice has never been studied. . . . The chemical problems must first be solved before the physiologist can offer any explanation of why this peculiar glucosid should cause inflammation. That there are variations in general or local susceptibility in different individuals, and in the same individual at different times, cannot be doubted. But the exact property of cells or fluids of the body that determines susceptibility to rhus is as yet a mystery."

Goodale, J. L.: Anaphylactic Skin Reactions Excited in Hay-Fever Subjects by Pollen of Various Species of Plants, *Boston Med. and Surg. Jour.*, Nov. 5, 1914; abstr., The Journal, Nov. 21, 1914, p. 1880.

Montgomery, D. W., and Colver, G. D.: Dermatitis Caused by Primula Poisoning, *California State Jour. Med.*, August, 1914.

McNair, J. B.: Pathology of Dermatitis Venenata from Rhus Diversiloba, *Jour. Infect. Dis.*, September, 1916, p. 419.

Walsh, D.: Dermatitis among Flower Pickers in the Scilly Islands: The So-Called "Lily Rash," *Brit. Med. Jour.*, Sept. 24, 1910.

Discussions and references relating to rhus poisoning, Queries and Minor Notes, The Journal, Aug. 17, 1912, p. 564; Oct. 30, 1915, p. 1512, in which latter the article by von Adelung, *Arch. Int. Med.*, February, 1913, p. 148, is referred to; Sept. 2, 1916, p. 763; Sept. 23, 1916, p. 970; Oct. 14, 1916, p. 1175.

Rhus Poisoning, editorial, The Journal, Nov. 4, 1916, p. 1375.

WHITE RATS IN CANCER RESEARCH WORK

To the Editor:—Please inform me whether the ordinary white rat is susceptible to the implantation of sarcomatous and carcinomatous tissue. Please answer through Queries and Minor Notes; also please omit name and address. C. D. K.

Answer.—White rats and mice as well as a great variety of other breeds and mixed breeds are employed in experimental cancer work and in the study of cancer heredity. Interesting papers illustrating the use of mice and rats in cancer research work are the following:

Fleisher, M. F., and Loeb, L.: Hereditary Transmission of Differences in Susceptibility to the Growth of Transplanted Tumors in Various Strains of Mice, *Jour. Cancer Research*, July, 1916, i, No. 3, p. 331.

Rohdenburg, G. L., and Bullock, F. D.: Transplantable Sarcomata of the Rat Liver Arising in the Walls of Parasitic Cysts, *Jour. Cancer Research*, January, 1916, i, No. 1, p. 87.

Slye, M.; Holmes, H. F., and Wells, H. G.: Tumors in the Lungs of Mice, *Jour. Med. Research*, July, 1914, xxx, No. 3.

Slye, M.: Incidence and Inheritability of Spontaneous Tumors in Mice, *Jour. Med. Research*, July, 1914, xxx, 281; March, 1915, xxxii, 159; Primary Spontaneous Tumors of the Liver in Mice, *Proc. Am. Assn. for Cancer Research*, 1915; abstr., The Journal, May 1, 1915, pp. 1525 and 1610.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Jan. 3. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 2. Sec., John Wix Thomas, 306 Goodrich Bldg., Phoenix.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Delaware: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka; Kentucky: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.

Maryland: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Minnesota: Minneapolis, Jan. 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

Missouri: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

New Hampshire: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, Dec. 5-7. Sec., Dr. George H. Matson, State House, Columbus.

Oregon: Portland, Jan. 2. Sec., Dr. Herbert S. Nichols, 802 Corbett Bldg., Portland.

Virginia: Richmond, Dec. 12-15. Sec., Dr. J. N. Barney, Fredericksburg.

Arkansas May Report

Dr. T. J. Stout, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 9-10, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 36, of whom 31 passed and 5 failed. Two candidates were granted a reregistration license by examination. Six candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1912) 75.6; (1916)	79, 80.5, 81.4, 82.1, 82.1 82.7, 82.7, 83.4, 85.1, 85.2, 85.4, 87.8, 88.2, 91.7
Yale University	(1911)	87.2
University of Louisville	(1888)	84.2
Kansas City Medical College	(1880)	75
Lincoln Memorial University	(1916)	80.9, 83.5
Memphis Hospital Medical College	(1904)	75
University of Nashville	(1902) 89.4; (1906)	81.6
University of Tennessee	(1916)	75.1, 81.4, 81.4, 82.2, 85.4, 87.9, 88.3
Vanderbilt University	(1913)	75

FAILED

College	Year Grad.	Per Cent.
University of Arkansas	(1916)	73.9
Meharry Medical College	(1912) 60.9; (1916)	74
Memphis Hospital Medical College	(1912)	56.8
University of Tennessee	(1916)	68.7

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1913)	Georgia
University of Nashville	(1901) Oklahoma; (1907)	Mississippi
Medical College of Virginia	(1911)	Virginia
University College of Medicine, Richmond	(1905)	Virginia
Trinity Medical College	(1876)	Michigan

Maryland June Report

Dr. J. McP. Scott, secretary of the State Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 20, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 93, of whom 66 passed and 27 failed. Thirteen candidates were licensed through reciprocity. Three candidates were licensed by special examination and one was granted a reregistration license. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1916)	84
College of Physicians and Surgeons, Baltimore	(1914)	79, 79
Johns Hopkins University	(1914) 76; (1915) 82, 86, 86, 94; (1916)	75, 77, 79, 80, 80, 81, 81, 82, 83, 83, 83, 84, 85, 85, 85, 85, 85, 86, 86, 87, 87, 87, 88, 88, 89, 90, 91
University of Maryland	(1915) 78, 81, 89; (1916)	75, 76, 76, 78, 78, 78, 79, 80, 80, 81, 81, 81, 81, 81, 82, 83, 84, 84, 85, 85, 85, 85, 88, 88, 94
Harvard University	(1915)	81
Medical College of Virginia	(1914) 81; (1915)	81

FAILED

Howard University	(1907)	61
Bennett Medical College	(1914)	*
Baltimore Medical College	(1909) 72; (1913)	71
College of Physicians and Surgeons, Baltimore	(1915)	*
Johns Hopkins University	(1914) 73; (1916)	69
Maryland Med. Coll.	(1904) 66; (1910) *; (1912) *, *; (1913)	*
University of Maryland	(1912) 65; (1914) *; (1915)	74; (1916) 66, 67, 68, 68, 69, 72, 72, 73, †, †
Temple University	(1915)	68
Medical College of Virginia	(1915)	*

LICENSED BY SPECIAL EXAMINATION

Feb. 4 to May 23, 1916

College	PASSED Year Grad.	Total No. Licensed
College of Physicians and Surgeons, Baltimore	(1911)	1
University of Innsbruck	(1912)	1
University of Heidelberg	(1914)	1

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1908)	Dist. Colum.
Howard University	(1911)	Delaware
Chicago College of Medicine and Surgery	(1913)	Illinois
College of Physicians and Surgeons, Baltimore	(1895)	W. Virginia
University of Maryland	(1910) South Carolina; (1913)	Virginia
College of Physicians and Surgeons, Boston	(1907)	Maine
Hahnemann Medical Coll. and Hosp., Philadelphia	(1904)	Penna.
Medico-Chirurgical College of Philadelphia	(1910)	Penna.
Woman's Medical College of Pennsylvania	(1908)	Penna.
Meharry Medical College	(1911) (1914)	Tennessce
University of Vermont	(1904)	Vermont

* No grade given.

† Did not complete examination.

North Carolina June Report

Dr. H. A. Royster, secretary of the Board of Medical Examiners of the State of North Carolina, reports the oral, practical and written examination held at Raleigh, June 26-30, 1916. The total number of subjects examined in was 13; total number of questions asked, 72; percentage required to pass, 80. The total number of candidates examined was 114, of whom 96 passed and 18 failed. Seventeen candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Atlanta Medical College	(1914)	80.1
Atlanta School of Medicine	(1910)	84
University of Georgia	(1916)	83.3
Bennett Medical College	(1913)	81.3
Loyola University	(1916)	81, 88.4
University of Louisville	(1914)	81.6
Tulane University of Louisiana	(1915) 85; (1916)	86.8
Johns Hopkins University	(1915) 89.5; (1916)	91.8, 93
University of Maryland	(1916)	84, 84, 85.4, 85.8, 86, 86.7, 87.7, 87.8, 88.1.
Harvard University	(1915)	86
Univ. and Bellevue Hosp. Med. Coll	(1916)	80.1, 87.1, 89.3.
Leonard Medical School	(1912)	80
North Carolina Medical College	(1912) 81.7; (1913) 80.7; (1914)	80.6, 82, 83.1, 88.3; (1916) 84.3, 87, 87, 87.6, 88, 89.1, 89.3, 89.6.
Jefferson Medical College	(1915) 86.4, 90; (1916)	84.1, 86.1, 86.7, 87.7, 88.4, 88.4, 88.6, 89.1, 89.8, 90, 90, 90, 90.8, 92.8.
Medico-Chirurgical College of Phila	(1916)	83.4
University of Pennsylvania	(1916)	85.8, 88.1, 88.1, 87, 89.1, 90.4, 91, 91.4, 92.3, 92.8.
Medical Coll. of the State of South Carolina	(1915) 89.8; (1916)	82.4, 86.7.
Lincoln Memorial University	(1916)	81.4
Meharry Medical College	(1915) 80, 80.3, 83; (1916)	80
Medical College of Virginia	(1914) 86.6; (1915) 81.1, 83.7, 84.6; (1916)	80.1, 83, 83.6, 86, 86.1, 86.6, 87.1, 87.3, 87.4, 88, 89.1, 89.3, 90.7, 92.
University of Virginia	(1915) 89.4; (1916)	87.3, 92.4

FAILED

Atlanta Medical College	(1915) 74.1; (1916)	77.3
College of Phys. and Surgs., Boston	(1911)	71.7
National Univ. of Arts and Sciences	(1916)	71.7
Leonard Medical School	(1912)	54.6, 70.6
North Carolina Medical College	(1915)	69.3, 76.1
Medical Coll. of the State of South Carolina	(1901)	69.8
Chattanooga Medical College	(1903)	70.4
Meharry Medical College	(1915) 76.1; (1916)	47.3, 72.4
University of West Tennessee	(1913) 56.4; (1915)	74
Medical College of Virginia	(1915) 76.6; (1916)	71.8, 75.3

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville	(1914)	Kentucky
Tulane University of Louisiana	(1906)	Louisiana
Johns Hopkins University	(1908)	Virginia
University of Maryland	(1889) Pennsylvania; (1913) Georgia; (1914)	Maryland.
Michigan Coll. of Med. and Surg	(1906)	Michigan
Univ. and Bellevue Hosp. Med. College	(1913)	New York
University of the City of New York	(1889)	Georgia
Jefferson Medical College	(1902) Pennsylvania; (1912)	Indiana
University of Pennsylvania	(1898)	New York
Med. Coll. of the State of South Carolina	(1906)	Georgia
College of Phys. and Surgs., Memphis	(1911)	Dist. Colum.
Medical College of Virginia	(1909) (1915)	Virginia
University Coll. of Med., Richmond	(1909)	Virginia

Book Notices

Losses of Life in Modern Wars: Austria-Hungary; France. By Gaston Bodart, LL.D. Military Selection and Race Deterioration. By Vernon Lyman Kellogg. Edited by Harald Westergaard, LL.D. Cloth. Price, $2. Pp. 207. Carnegie Endowment for International Peace, Division of Economics and History. New York: Oxford University Press, 1916.

These reports are the result of researches undertaken by the Carnegie Endowment for International Peace. Bodart considers the wars of Austria-Hungary and France. To read that the loss of the French army in killed during the last ten years of the Napoleonic wars was 370,000 does not appal those who are aware of the frightful mortality of the present European war. Bodart's articles constitute a work of reference rather than readable material, as they consist almost wholly of tabular matter. Mr. Kellogg seems to find it difficult to determine absolutely whether or not race deterioration results from the operation of military selection. There is no available evidence that destruction of men in their early prime, which is an inevitable consequence of war, leads to the production of an inferior race. A study of the effects of military life on those not killed, so far as the health of troops under modern conditions is concerned, seems to indicate that the soldiers suffer less from epidemic diseases than does the civil population. "Syphilis and the other venereal diseases," says Mr. Kellogg, "are a scourge fostered especially by militarism." But even here conditions are being ameliorated, and it is perhaps significant that the highest incidence, 167.8 per thousand, occurs in the army of the United States, the least militarized of all nations, the next in the army of the United Kingdom, 68.4 per thousand; and the least in the army of Germany, 19.8 per thousand. The incidence of syphilis among those applying for admission to the army is far less than among those in the army. On the whole, Mr. Kellogg's article indicates that military selection must ultimately result in race deterioration.

Medical Directory of New York, New Jersey and Connecticut, 1916, Volume 18. Paper. Pp. 866. Price $2.50. New York: Medical Society of State of New York, 17 W. Forty-Third Street.

The eighteenth edition of this book has been compiled under the auspices of the Medical Society of the State of New York. The book gives evidence that the same completeness and authenticity of data, which has characterized previous editions, has been maintained. In compiling the list of physicians in New York State, strict observance has been given by those who prepared this edition to the mandate of the society that "only the names of registered physicians be inserted." This new edition records 18,479 physicians in the three states—14,224 in New York, 2,753 in New Jersey, and 1,502 in Connecticut. Of the New York physicians, 7,781 are located in Greater New York City (5,374 in Manhattan and Bronx, 2,064 in Brooklyn, 268 in Queens-Nassau, and 75 in Richmond) and 6,443 in other parts of the state. The book also gives information concerning medical organizations, hospitals and dispensaries; the state hospital commission, including the psychiatric institute; the state department of health; the board of medical examiners, and the New York City department of health.

The Diagnosis and Treatment of Heart Disease. Practical Points for Students and Practitioners. By E. M. Brockbank, M.D., F.R.C.P., Clinical Lecturer on Diseases of the Heart, University of Manchester. Second Edition. Cloth. Price, $1.25 net. Pp. 120, with illustrations. New York: Paul B. Hoeber, 1916.

The object of this book is thus stated in the preface to the first edition: "In this small work I have attempted to put simply, clearly and in convenient pocket-book form for clinical reference the elements of cardiac auscultation for the use of students. I have repeated myself a good deal with the object of making an argument or explanation as complete as possible in the one place and thereby of avoiding turning backwards and forwards." This object is fairly well attained after the manner of a quiz compend. The English is often decidedly peculiar, as in the second sentence quoted above. The book is too fragmentary and incomplete to be of value to either student or practitioner.

Medicolegal

Conviction of Chiropractor Affirmed

(*State vs. Edmund (Ia.), 157 N. W. R. 729*)

The Supreme Court of Iowa says that the defendant was vhat was called a "chiropractor," and on trial to a jury was onvicted of assuming the duties of a physician and of treatng persons afflicted with disease without having a license rom the state board of medical examiners. In the brief filed or him it was claimed that the trial court erred in overruling iis motion for a directed verdict and in its instructions to he jury. The record did not show that any motion either or a directed verdict or for a new trial was ever filed, and t did not appear that any exceptions were taken to the nstructions as to the law required. A general exception ippeared to be noted to the instructions as a whole in these vords: "To all of which defendant duly excepted." Some ulings on the admission and rejection of testimony were excepted to, but none of these were challenged in the briefs. The argument proceeded on the theory that no conviction should have been had because it was not shown that any of the patients whom the defendant treated were afflicted with a disease. One instruction given the jury was complained of in argument, but, as it merely stated the substance of the medical practice act, there was no merit in the complaint, even if it had been properly excepted to. The record was not such as to present any question for review, and, had it been, the supreme court discovers no error. The judgment must therefore be, and it is, affirmed.

Conclusion by Assent of Services When Operation is Performed

(*Miller et al. vs. Blackburn et al. (Ky.), 185 S. W. R. 864*)

The Court of Appeals of Kentucky affirms a judgment in favor of the defendants, Dr. Blackburn and a Dr. Francis, who were sued by Mrs. Miller and her husband for alleged malpractice, it being claimed that in treating Mrs. Miller they broke or injured the neck or head of the femur by negligently manipulating her leg, causing it to be shortened about 3 inches and to turn outward. The court says that there was no contrariety in the evidence that Mrs. Miller, when Dr. Blackburn was called to see her, was suffering from neglected chronic sciatica; that Dr. Blackburn's diagnosis was correct; that the operation performed was the approved one indicated by Mrs. Miller's condition; that her present condition was the result of tuberculosis in the hip joint; and that, although she was in bed for fifteen months following the operation, no physician was consulted or called to see her, and there was no evidence at all as to what was the real cause of this prolonged illness, except the fact that it followed the operation, and the testimony of the expert witnesses that her present condition was due to tuberculosis of the hip joint. There was absolutely no evidence in this case, as the court reads it, that proved any negligence in either of the defendants, and certainly not on the part of Dr. Francis, because he was simply employed to administer the anesthetic, had no part in the diagnosis or operation, and was in no wise responsible for the results. And, of course, the doctrine of *res ipsa loquitur* (the matter speaks for itself) can have no place in such a case as this; as the mere failure to effect a cure does not raise the presumption of want of proper care, skill and diligence on the part of a physician. It was contended that the jury should have been instructed that, if the relationship of physician and patient had been created, it was the duty of the defendants to render such continued treatment after the operation as the necessity of the case required. But Dr. Blackburn testified that he was employed for but one trip, that after the operation he told the plaintiffs to notify him if needed, and that they did not notify him of necessity for a subsequent trip or request him to see Mrs. Miller again. This testimony was not contradicted. Dr. Blackburn explained to the plaintiffs that the operation was a simple one; that Mrs. Miller ought to recover completely from the operation in a short time, and there was nothing in the evidence to show that he ought to have anticipated the necessity for again seeing her. They did not notify him that the operation had not been entirely successful, or that there were any untoward results. It was only about 10 miles from their home to his, and there were, no doubt, telephones within easy reach. Taking into consideration the nature of the operation, Dr. Blackburn's uncontradicted testimony that he was employed for but one trip, with an agreement what his fee should be in case other visits should become necessary, that he told them to notify him if needed, and the failure on their part to notify him, although they said the hip was inflamed and Mrs. Miller had fever the next day, the court does not think this case came within the well established and humane rule that a physician may not, after accepting an employment, abandon a patient without reasonable opportunity to procure another physician. Authorities cited by the plaintiffs on this proposition were all of them where from the nature of the operation or treatment and attending circumstances it was held to be incumbent on the physician, in the exercise of ordinary care and skill, to have recognized the necessity for a continuance of his attentions. It is unquestionably the duty of a physician, if the matter is left to his discretion, to exercise both care and skill in the discontinuance, as well as in the performance, of his services; but the relationship is contractual, and the duties of care and skill are implied from the contract, and the relationship may be terminated by assent, after which no implied duty can attach. Here all of the evidence was to the effect and conclusion that the services of Dr. Blackburn were concluded by assent when the operation was performed. No other conclusion could be drawn from his testimony and the conduct of the plaintiffs in not calling him.

Liability of Physician for Frauds of Agent in Treatment

(*Jurkins vs. Pratt (N. Y.), 158 N. Y. Supp. 676*)

The Supreme Court of New York, Appellate Term, First Department, in reversing a judgment which dismissed the complaint in this case, says that the action was based on fraud. The defendant, a physician, held himself out as a specialist in the treatment of face disfigurements. The plaintiff was disfigured by "pock marks." On June 1, 1915, she went to the defendant's office for treatment. She saw the defendant there; also another man whose name she subsequently ascertained was Dr. Coates. She inquired for Dr. Pratt, and was informed he would return in a short time. Dr. Coates came into the room and said he was Dr. Pratt. She did not discover that it was not Dr. Pratt who was treating her until some time after, when Dr. Coates called to the defendant, "Dr. Pratt, come over here and look at her face." Dr. Coates examined the plaintiff's face, and said he could remove the "pock marks" very easily; that he had treated many people, and had never failed. He stated the treatment would hurt just a little. He said he would positively cure it. He said he would cure her in three months. The plaintiff believed all this to be true. The plaintiff gave Dr. Coates $50. He took it into another room. The girl employed in the place brought the plaintiff a receipt, signed with a rubber stamp. "Dr. Pratt—Face and Feature Specialists." Thereafter the treatment of the plaintiff began, and continued to August. In August the plaintiff went to the office and was informed Dr. Coates was away. The plaintiff was informed Dr. Pratt would take care of her. The defendant put her in a chair, examined her, and said, "You had better wait until Dr. Coates comes back, because he knows how far you went." He also assured her, "Don't worry; your face will be just as smooth as my own." In a few weeks Dr. Coates returned and continued the treatment, with bad results, until October, without benefit. A physician who was a witness for the plaintiff testified as to the nature of "pock marks" and that they are incurable. The trial court nonsuited the plaintiff solely on the ground that there was no proof that Dr. Coates was the agent of Dr. Pratt. But a principal is bound by the frauds of his agent, while acting within the scope of his authority, and the authority to make fraudulent representations need not be expressly given. Moreover, this court thinks there was ample evidence on which to go to the jury on the question of whether Coates was acting for the defendant Pratt. The evidence indicated that Pratt received the money for the treatment, the receipts therefor being given in his name. Pratt accepted payment for the services rendered by Coates, and must be deemed to have adopted the methods employed by him. He could not enjoy the benefits, and at the same time disclaim responsibility for the methods employed in obtaining such benefits. There was a question, however, as to whether actual fraud was sufficiently proved, or whether the action should not have been for malpractice. The question was not alluded to by the lower courts in its disposition of the case, and was not discussed by counsel for the appellant in his brief. For this reason this court has refrained from discussing the question on this appeal. The judgment dismissing the complaint should be reversed, and a new trial ordered, with $30 costs to the appellant (plaintiff) to abide the event.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
American Physiological Society, New York, Dec. 28-30.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Sixth Annual Meeting, held at Hopkinsville, Oct. 24-27, 1916

The President, Dr. J. W. Kincaid, Catlettsburg, in the Chair

Relation of the Discharging Ear to the Insurance Risk

Dr. Adolph O. Pfingst, Louisville: A more definite distinction between discharging ears of a dangerous nature and those apparently harmless is desirable. Cases, even in the presence of otorrhea, have merit as insurance risks if in otherwise healthy subjects, provided local examination shows the case to be of the nondangerous type. Cases which run a benign course should be examined by a competent aurist. The attitude of the insurance companies regarding the acceptance of applicants with chronic suppurating ears should be modified so as to further the acceptance of this rather safe class of risks.

Tuberculosis: Its Relation to Life Insurance Risks

Dr. W. R. Thompson, Mount Sterling: Tuberculosis is not confined to the lungs, and it is sometimes present in the fat, robust appearing subject, the so-called "phthisis florida" of the older authorities. At present any tuberculin test is impracticable, but at some time in the future it will be insisted on by the insurance companies in doubtful cases. A rapid small pulse and a continued low blood pressure for age, not accounted for by excitement or some demonstrable lesion, should be looked on with suspicion. These two symptoms persist long after all others in the arrested cases disappear. A careful preparation of the applicant and a more careful examination would eliminate hundreds of candidates for this disease each year, and result in an immense saving to the companies for which practitioners work.

DISCUSSION

Dr. W. B. McClure, Lexington: As medical director of a life insurance company, I pay very little attention to the ordinary case of otitis media in which the discharge ceases in a reasonable length of time and the drum membrane has healed. I believe the danger is largely in proportion to the number of attacks, and this danger increases with each recurrent attack. In those cases in which the discharge proves to be tuberculous, the applicants would be noninsurable.

Dr. W. A. Jenkins, Louisville: If I am in doubt as to the advisability of recommending an applicant as a risk, I make a special appointment so that I can examine him more thoroughly.

Dr. W. W. Anderson, Newport: One of the cardinal mistakes we make as examiners is putting up to the home office a question which it cannot solve. If an applicant has a pulse a little more rapid than normal, the home office has no means of determining why that pulse is rapid. If I do not answer that question, the home office will reject the risk.

Dr. J. A. Stucky, Lexington: If there is suppuration along the attic and the perforation is high up, and there are caries and granulation, undoubtedly that subject is a bad life insurance risk.

Dr. B. F. O'Connor, Louisville: There are undoubtedly numerous cases of rheumatic and nephritic infections which owe their origin to otitis foci. One of the most important points under the head of tuberculous infections of the lung is the fact that the medical examiner so frequently overlooks putting down the actual facts of his examination. He will count the pulse rate at 96 or possibly 100, and say, "Well, this is a nervous patient." Knowing this man will not be accepted with a pulse of over 90, he will put the pulse down as 80. This is a mistake. The general practitioner overlooks the trivial things the applicant tells him.

Dr. Henry Enos Tuley, Louisville: The medical director looks at the applicant through the medical examiner's eyes. It is surprising to notice the high mortality which occurs early from tuberculosis among insurance risks, or shortly after the issuance of the policy. A large number of fatal cases occur among the policy holders who have had their policies only two or three years.

Dr. J. W. Kincaid, Catlettsburg: Two of the first symptoms of tuberculosis are a fast pulse rate and loss in weight. Both are supposed to be given, but often they are guessed at. How is this to be overcome? Medical directors should make it an inflexible and inviolable rule to have applicants examined in a quiet place, and not where there is much noise to distract attention.

Significance of Abdominal Pain in Children

Dr. John D. Trawick, Louisville: In the production of abdominal pain, the afferent nerves of the autonomic system act by stimulating the cerebrospinal nerves in the cord. Such stimuli are received by the cerebrospinal system and expressed at the peripheral termination of whatever spinal nerves may be involved in terms of pain, hyperalgesia, or muscular contraction in the external abdominal wall. The difficulties of diagnosis in children are increased by the immaturity of development of the reflexes and by lack of insulation of the nerve trunks, and by the inexperience of the child organism in interpreting the various stimuli which may reach the central nervous system.

Functional Heart Diseases

Dr. B. B. Keys, Murray: Functional heart disease can be considered in many respects a cardiac neurosis which may have numerous etiologic factors: (1) mental conditions; (2) changes in the blood; (3) acute infectious diseases in which the toxic material in the blood irritates the cardiac accelerating nerves; (4) faulty digestion; (5) the use of stimulants; (6) (in the female) puberty and the menopause, and (7) diseases of the pelvic organs. The treatment depends largely on the cause. In many respects it is primarily psychic. Such treatment as the cold sponge every morning, or the hot bath, advice, encouragement, such medicine as valerian, and tonics are usually sufficient.

DISCUSSION

Dr. W. F. Boggess, Louisville: Many a patient is treated for functional heart diseases when there is true disease of the heart. Many cases of exophthalmic goiter with tachycardia, are treated simply as palpitation. The psychic effect of an examination is of inestimable value in handling the patient. Patients come to a practitioner often with functional heart disease, are given an incomplete examination, and digitalis is prescribed or some of the digitalis group of drugs. It is a mistake to prescribe digitalis when we do not know the real condition which exists.

Pruritus: Its Causes and Treatment

Dr. Charles R. Lanahan, Louisville: The causes of ruritus are: a functional perversion of the sensory nerves r an organic lesion somewhere in the path of the nerve; departure from the normal in the character of the fluid in ontact with the nerve ends, and an alteration in the pressure which the end bulbs have become accustomed. In the reatment, the first indication is to determine the cause, and possible, remove it. No case of general pruritus is too isignificant to warrant a thorough investigation. Each case hould be studied individually, keeping carefully in mind the arious possible etiologic factors in the condition. In the unctional nervous types, general tonic measures, with the limination of the possible cause of a reflex irritation, correcon of a retroversion or fixation of a floating kidney and e like, may relieve the condition. Glandular extracts, yroid and corpus luteum, are indicated if a deficiency or landular secretion is manifest. Local treatment, with the ossible exception of the actual destruction of the nerve ends, oes not cure pruritus. It is merely palliative. Topical pplications will almost always ameliorate the annoying ymptom temporarily, but they should be used as morphin is sed in a broken leg—to relieve the patient only while the roper attention is given to the underlying pathologic conition.

Nontuberculous Infections of the Kidney

Dr. Claude G. Hoffman, Louisville: Conservative meaures are advised in the majority of cases of renal infection hen the patient is seen early. This consists of rest in bed, milk or other light diet, the ingestion of large quantities f pure water, hot or cold applications, the internal adminisration of hexamethylenamin, sedatives when required, suitble remedies to overcome coprostasis if it exists, etc. Excelent results have been reported from the use of vaccines, both tock and autogenous. Lavage of the renal pelvis may be racticed advantageously, and is indicated when the infection oes not yield promptly to more conservative measures. Little an be expected from radical surgical treatment in any stage f bilateral renal infection, regardless of the causative factor, nd, for the most part, operative procedures are contraindiated. Decapsulation and resection have been performed in everal instances of bilateral infection, but the results have ot been encouraging. In unilateral infection, exposure by aparotomy, puncture of existing superficial cysts or abscesses, ecapsulation with or without nephrotomy, drainage, resection nd nephrectomy are accepted procedures. In virulent unilatral infection, the other kidney being anatomically and funcionally normal, it is suggested that to temporize with conervative operative measures often merely means to court isaster, and primary nephrectory is the safer and more satisactory procedure.

DISCUSSION

Dr. Herbert Bronner, Louisville: In a great percentage of ases the infection is hematogenous in character; in a small ercentage it is lymphogenous. In an absolutely normal idney no infection will take place; but if the resistance of he kidney is lowered, infection may occur.

Rheumatism from the Modern Point of View

Dr. Sidney J. Meyers, Louisville: The kidney deserves pecial consideration in its relationship to the production of yalgia and arthralgia. Even slight disturbance of renal unction may prevent elimination of deleterious products esulting from metabolic errors, and thus be a prolific cause of he syndrome clinically called rheumatism. Cabot says that in is experience, "rheumatism has sometimes turned out to ean aortic aneurysm, pleural carcinoma, tabes dorsalis, steomyelitis, spondylitis deformans, bone tuberculosis, syphiitic periostitis, lead poisoning, morphin habit, alcoholic euritis, trichiniasis and neisserian infection." Rheumatism s one of the most dangerous of all diagnoses to the concientious physician. To insure accuracy in diagnosis, the linician must depend to some extent on physiologic, bacterioogic, biochemical and mechanical methods of investigation. he clinical symptomatology is sometimes misleading; careul anamnesis affords information of considerable value from he standpoint of differential diagnosis.

Indications for Cholecystostomy and Cholecystectomy

Dr. Irvin Abell, Louisville: The routes of bacterial invasion of the gallbladder are, in their order of frequency, the systemic circulation, the common duct and the portal circulation. Surface infections of the mucosa are relieved by drainage; infections of the deeper structures are not relieved by drainage. The more acute the infection, the greater the safety of cholecystostomy over cholecystectomy; the more chronic the infection the greater the percentage of ultimate cures obtained by cholecystectomy. The presence of stones, except when producing obstruction or ulceration, is not a determining factor in the choice of operation. The degree of infection, its duration, extent and localization, the tissue changes thereby produced, and the condition of the patient are the all important factors in such choice. Recurrence of symptoms is noted after cholecystostomy in a certain number of cases, variously estimated at from 10 to 25 per cent., recurrence of symptoms after cholecystectomy, to an appreciably less degree.

Acute Bacterial Synovitis

Dr. J. Garland Sherrill, Louisville: Treatment may be classified as prophylactic, palliative and radical. The prophylactic measures consist in keeping all open wounds into the joint free of bacterial infection. Careful attention should be given to the teeth, and all small pockets containing pus in any portion of the body should be drained to prevent the bacteria entering the blood and being carried to the joint. Palliative measures consist in putting the part at rest and the application of heat or cold, as the case may be. The milder cases may be treated successfully by the application of adhesive plaster strapping. When the symptoms are more severe, it may be necessary to apply a well padded splint and snug bandage. In the nonsuppurative cases, simple aspiration gives the patient great relief, and if followed by proper bandaging will probably be all that is necessary to terminate the case favorably. In suppurative cases, aspiration, followed by the injection of a 2 per cent. dilution of liquor formaldehydi in glycerin, will often bring about a cure. In the more severe suppurative types, if this method fails, or if the process is so active that the life of the patient is endangered, prompt incision and drainage of the joint cavity should be employed. Some observers recommend the use of joint irrigation after the open operation, while others content themselves with simply providing free drainage. In any event the drainage must be free, and great benefit results from the application of hot packs after the drainage has been obtained.

Some Important Facts About Malaria

Dr. C. C. Bass, New Orleans: In considering the treatment of malaria, it should be known that though some of the parasites are being swept into the circulating blood and some can be found there at almost any time, as a matter of fact their chief place of growth and reproduction is in the capillary blood vessels, especially in the spleen and the bone marrow. When a dose of quinin is taken, it destroys the parasites which are in the circulating blood at the time, if the dose is large enough. It does not reach the parasites lodged in the capillaries. If the quinin is repeated in sufficient doses every day for a sufficient length of time, all parasites in the body are destroyed eventually. Many persons get rid of malaria from taking comparatively small doses of quinin for only a short space of time. Others fail on the same treatment. After observing the treatment of several thousand persons infected with malaria, I have concluded that 20 grains of quinin sulphate by mouth, every day, for four weeks, disinfects all persons of malaria parasites. The corresponding dose for a child is 1 grain for each year of his age. Ten grains of quinin, every day, for four weeks, fails to disinfect from 10 to 25 per cent. of those treated. It probably makes little difference in effect on the parasites whether the quinin is given in one or several divided doses during the day. Divided doses usually produce less discomfort to the patient.

Fractures

Dr. A. D. Willmoth, Louisville: No recent fracture should be operated on that can be treated successfully by other means, and then only under the most favorable surroundings, and by an experienced surgeon. The indications for operation vary greatly with the particular bone which is broken, the character of the break, and its situation in the bone. Admitting the desirabiliy of operating in certain carefully selected cases, it must not be forgotten that there are two important drawbacks, delayed union and sepsis.

What Can the Internist Do for Infection of the Bile Tract?

Dr. William A. Jenkins, Louisville: Previous to the stage of complications, cases are medical and curable. The intelligent and up-to-date internist may forcast serious complications, and in a measure, at least, forestall them by calling a surgeon into the case, before the pathologic condition has progressed to the point at which it is obviously impossible to do the patient any material good.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 12 and 13, 1916

(*Concluded from page 1626*)

Abdominal Surgery Under Local Anesthesia

Dr. R. E. Farr, Minneapolis: A comparison of a series of laparotomies performed under this plan, with a series performed under general anesthesia, shows such a difference in the convalescence from the standpoint of anxiety, gas, nausea, vomiting and thirst that there can be no argument regarding the merits of the two methods, at least from the point of view of the patient. Children lend themselves to the method fully as well as do older persons.

Certain Methods Used in the Laboratory Investigation of Acidosis and Renal Function

Dr. James M. Northington, Minneapolis: Acidosis is a diminution in the normal alkalescence. The kidney function test, which is above all others at once valuable, simple and inexpensive, is the phenolsulphonephthalein test as presented by Rowntree and Geraghty. The determination of the urea concentration of the blood is of great value. Determination of salt elimination is important as well as valuable. A fixed concentration of urine, as shown by only slight variations in the specific gravity following promptly on marked changes in the quantity of water ingested, and by slight difference in the quantity of day and night urines, is suggestive of impairment of kidney function.

The Spinal Fluid in Cerebrospinal Syphilis

Dr. C. R. Ball, St. Paul: In all nervous affections, a spinal fluid Wassermann test is of distinctly more value in diagnosis than a serum Wassermann test. The spinal fluid reaction is frequently positive when the serum is negative. The frequency of the negative serum reaction in specific nervous affections has been the cause of many mistakes in diagnosis which would not have occurred if a spinal fluid Wassermann test had been made. The reaction itself is less liable to error in the spinal fluid than in the blood. Cumulative evidence of its correctness may be obtained in the increase in the intensity of the reaction when larger amounts of fluid are used. While the spinal fluid in specific nervous diseases usually reacts positively when the larger quantities of fluid are used according to Hauptmann's method, it would be a serious mistake to exclude syphilis in any doubtful case just because there was a negative Wassermann reaction. I wish to emphasize the great value of Nonne's admonition, "No more serious mistake could be made in the differential diagnosis of a doubtful case than to displace proved clinical experiences in favor of serologic, microscopic and chemical examinations."

DISCUSSION

Dr. A. S. Hamilton, Minneapolis: When a positive result comes back, if the tests have been made as Dr. Ball has given them, I do not see what one has to do other than to accept the diagnosis of syphilis, whatever the clinical manifestations may be.

Tuberculosis of the Spine: End-Results of Operative Treatment

Dr. Melvin S. Henderson, Rochester: In order to obtain the best results, the Hibbs and Albee operations for tuberculosis of the spine should be done early before any great amount of deformity appears. Patients in the advanced stages of the disease and already debilitated by tuberculosis of the lungs should not be operated on. From July, 1912, to July, 1916, 274 cases of tuberculosis of the spine have been observed in the Mayo Clinic. Eighty-one patients were operated on, seventy-four according to the method of Albee and seven according to the method of Hibbs. Three of the patients were treated too recently to warrant a report as to the results, and five could not be traced. Thirty-one (42.4 per cent.) were cured and thirty-three (45.2 per cent.) relieved. There were no operative deaths.

Tumors of the Spinal Cord, With a Report of Eighteen Cases

Dr. E. H. Beckman, Rochester: I base my report on eighteen consecutive cases of tumors of the spinal cord with operative findings: two extradural tumors, six intradural (extramedullary) tumors, six intramedullary tumors, two angiomas and two cysts. The mortality of operations for spinal cord tumor is steadily decreasing, and should be well under 10 per cent. In forty-three consecutive laminectomies for spinal cord diseases, there were four deaths. One was from advanced tuberculous disease, and one from pulmonary embolism on the eleventh day. The exact cause of death in the two other cases could not be determined; but it was not shock. More frequent and early laminectomy for suspected cord tumors is urged as the only method of preventing crippling from long-standing pressure of tumors on the cord.

Secondary Anemias of Doubtful Causation

Dr. T. R. Martin, Duluth: Of the twenty-five cases of severe secondary anemias, four were bleeders from the gastro-intestinal tract, two of them being malignant, and none of them giving gastro-intestinal symptoms. Three cases giving a blood picture of pernicious anemia showed segments of the dibothriocephalus in the stool. In two cases a diagnosis of probable pernicious anemia was made from the history and the blood picture, the examination of the gastro-intestinal tract being negative. The duodenal contents in both of these cases did not show a pleochromia. One of these patients has since died in the fourth relapse. In two cases, with negative urine findings, the diagnosis of chronic interstitial nephritis was made on the blood pressures and the phenolphthalein output. In three cases a careful examination did not reveal causation of the anemia. Eleven of the twenty-five cases showed repeatedly a four plus Wassermann reaction, and careful examination did not reveal any other cause for the anemia. In these cases the hemoglobin index has been relatively low. There has been no particular change in the red blood cells, and nothing that would tend to confuse these cases with those of pernicious anemia. All of the patients under observation for a period exceeding two months showed a considerable improvement in the blood picture following antisyphilitic treatment. In no case was the spleen enlarged.

Cardiovascular Syphilis

Dr. Charles Lyman Greene, St. Paul: The mortality of syphilis depends on its vascular ravages. It may assume any one of the various forms of endarteritis or myocardial degeneration, but the most characteristic is the productive mesaortitis, almost constant microscopically in a more or less developed form at necropsy in every case of proved syphilis, and the actual cause of death in 50 per cent. of such cases. This disease shows a peculiar affinity for the first portion and arch of the aorta, and tends to assume at the root of that artery a characteristic line of march which in 80 per cent. of the cases results in the establishment of secondary aortic regurgitations of a peculiarly progressive and intractable type, once it reaches the stage of frank myocardial insufficiency. In 20 per cent. of such cases of the advanced type, true aneurysm and frank angina pectoris major occur in about equal proportion. The leading symptoms, aside from of aneurysm and actual angina pectoris, consist of dyspnea, diffuse dilatation of the aorta, and progressive impairment of vascular reserve. Many of the cases e wholly silent, and the syndrome may be blended, incom- or so misleading as to be misinterpreted.

Clinical Signs in the Diagnosis of Obscure Forms of Syphilis of the Nervous System

Dr. Arthur S. Hamilton, Minneapolis: In three cases of re progressive muscular atrophy, and two of amyotrophic eral sclerosis, the biologic tests for syphilis were all posi- e. Much oftener than the pure type of progressive mus- lar atrophy, we see instances of isolated muscular atrophy ociated with other forms of syphilis of the nervous system, for example, atrophy of the intrinsic muscles of the hand tabes dorsalis. Transverse and diffuse myelitis of the rd, including various degenerations and pathologic mani- stations, all occur as signs of syphilis of the nervous stem.

DISCUSSION

Dr. W. A. Jones, Minneapolis: When we speak of syphil- s we mean practically the same as a general carcinosis. e majority of cases of nervous syphilis are manifested by great variety of symptoms. The variability in the symp- is one of the chief things on which we rely for a diag- provided we find some one or two corroborative fac- The most difficult form to interpret is that of diffuse philis, and it is most often accompanied by mental disorders.

Dr. C. R. Ball, St. Paul: In Nonne's clinic in Hamburg, did not begin our search for symptoms of syphilis with e nervous system, but our first beginnings were with the her and mother and all the members of the family. I was equently impressed, in Nonne's examination, with his sud- ly stopping the examination and going over perhaps to e wife, because of something he had noticed about her, to estigate something which gave him a clue to syphilis in e case; or he would send out for the children and look em over very thoroughly. Sometimes the key to the diag- s was found in some other member of the family outside the patient. I think we ought to do this more than we do.

Dr. C. E. Riggs, St. Paul: Epilepsy is a frequent mani- ation of syphilis. In any person who has epilepsy, who over 30 years old, look out for syphilis or brain tumor.

Dr. A. C. Strachauer, Minneapolis: Three cases were ferred as cases of cystitis, and in making a cystoscopic amination a very typical finding of trabeculae in the urinary adder, without obstruction of the urethra, was present. Two them developed incoordination, and proved to be cases of d lesions. The urinary bladder is frequently involved ly in the process, and the low power of expulsion results the development of certain muscles in the bladder wall give a very definite and characteristic appearance to e urinary bladder.

Clinical Studies of Digitalis

Dr. S. Marx White, Minneapolis: When given in large gh doses, digitalis effects may be secured in from ty-four to forty-eight hours. The electrocardiogram vides a means of accurate study of these effects, showing erations in the T wave in all cases studied, and showing increase in conduction time in many. Alterations in the of the T wave accompany favorable effects, and may ist for from ten days to three weeks after administration of e drug has been suspended. Alterations in conduction time ay produce favorable or unfavorable effects, depending on e conditions in the heart at the time. When ventricular e is rapid, especially with irregularity, as in auricular rillation, reduction of the number of impulses reaching the tricle from the auricle produces a very favorable effect. ere a slow or normal ventricular rate occurs in a patient th some myocardial lesion of such a character as to affect e bundle of His by slowing conduction, digitalis may mask the condition. If the electrocardiogram gives evi- ce through an increased P L interval before administra- n of digitalis, the drugs should not be used, as partial ck in a heart with previously regular action is an unfavor- le effect.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, XII, No. 5

1 Neurotic Child. C. M. Campbell, Baltimore.—p. 425.
2 *Effect of Cold Air on Blood Pressure in Pneumonia in Childhood. J. L. Morse and D. M. Hassman, Boston.—p. 445.
3 *Acetone Body Production in Infancy and Childhood. J. Howland and W. McK. Marriott, Baltimore.—p. 459.
4 *Provocative and Prophylactic Vaccination in Vaginitis of Infants. A. F. Hess, New York.—p. 466.

2. Effect of Cold Air on Blood Pressure in Pneumonia.—A study of the effect of cold, out-of-door air on the blood pressure in pneumonia was made by Morse and Hassman on thirty-two children between 2 and 10 years, nineteen being under 5 years of age. Eight of the children died. The illness was classified as very severe in three, severe in fourteen, moderately severe in four and mild in three. The methods employed in the investigation were as follows: The children were kept in the warm ward for a varying number of hours. They were then put out of doors for a varying number of hours, brought back into the ward again, put out again, and so on, until after the crisis occurred or the child died. The blood pressures were taken at the end of each period. It is evident from the tables published that the temperature of the surrounding air had no constant effect on the systolic, the diastolic or the pulse pressure. Both the systolic and the diastolic pressure rose more often after the children had been in the warm air of the ward for some hours than after they had been out in the cold for a number of hours. Whether the change was from warm to cold or from cold to warm, the variations in the blood pressure were as a rule slight and within the limits of possible errors in observation. The variations in pressure bear no relation to the temperature of the outdoor air or the duration of the stay out of doors. There was no definite relation between the systolic pressure, the diastolic pressure or the pulse pressure and the severity of the disease. Relatively high pressures and relatively low pressures, systolic, diastolic and pulse, were found in all types of the disease. No constant relations of any sort can be made out. These statements are equally true as regards the fatal cases. The mortality in this series of cases shows nothing as to the effect of the cold air treatment on the mortality, however, because these patients were not treated consistently either out of doors or in the house. One fact was quite apparent, namely, that the patients symptomatically seem more comfortable when they are out of doors than when they are in the house. The authors state that no conclusions are justified as to the effect of the cold air treatment on the mortality of pneumonia in childhood.

3. Acetone Body Production in Infancy and Childhood.—It is pointed out by Howland and Marriott that acidosis and acetonuria are not synonymous terms, hence there is no justification for believing that acidosis due to the acetone bodies occurs in epidemic form. Deficient food or increased requirement for food (disproportion between caloric intake and output) is the chief cause of acetonuria but this rarely results in acidosis. The production of acetone bodies occurs at times when starvation cannot be held responsible. The production is rapid and excessive and sufficient to cause a severe or fatal acidosis. This condition is not necessarily accompanied by vomiting. It probably depends on the same underlying metabolic disturbance as do the majority of cases of recurrent vomiting.

4. Vaccination in Vaginitis of Infants.—Postmortem examinations made on four infants in the past five years, Hess says, show that in the subacute and chronic cases of vaginitis in infants the cervix is most frequently involved and that the vagina generally shows no signs of inflammation. Cervicitis would therefore seem to be a more correct term in this connection than vaginitis. In the overwhelming majority of these cases of cervicitis the inciting factor is the gonococcus. Smears taken from newborn infants very frequently show pus cells, probably due to the invasion of the vagina by saprophytic bacteria. In the newborn, they should not be considered pathologic or as evidence of gonococcal inflammation. By means of provocative inoculations of gonococcus vaccine Hess has found it possible to convert the concealed carrier into an open case, and in this way to discover many cases which had eluded detection. Vaccinations have also some prophylactic value, and may either confer protection or render subsequent infection of a mild character, so that it assumes a bacteriologic rather than a clinical type.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

November, LXXIV, No. 5

5 *Acidosis in Normal Uterine Pregnancies. L. A. Emge, San Francisco.—p. 769.
6 Is Operation of Cesarean Section Indicated in Delivery of Breech Presentation? R. McPherson, New York.—p. 776.
7 Interposition Operation of Watkins-Wertheim. In Treatment of Cystocele and Prolapsus Uteri. L. Frank, Louisville.—p. 780.
8 *Cesarean Section as Operation of Choice in Difficult Labor Cases. J. C. Hirst, Philadelphia.—p. 784.
9 Cesarean Section in Case of Sciolorachitic Pelvis. J. Saliba, Elizabeth City, N. C.—p. 793.
10 Asphyxia Pallida, Resulting from Early Separation of Lower Two of Four Placentae. W. E. Welz, Detroit.—p. 799.
11 Puerperal Infection. J. W. Kennedy, Philadelphia.—p. 801.
12 *Hypothyroidism Factor in Certain Types of Uterine Hemorrhage. S. Salzman, Toledo.—p. 812.
13 Case of Cholelithiasis Complicating Pregnancy. B. B. Finkelstone, Bridgeport, Conn.—p. 818.
14 Leather Bottle Descending Colon, Sigmoid and Rectum. R. A. Keilty, Philadelphia.—p. 828.
15 Case of Pelvic Infection Following Abortion. H. S. Lott, Winston-Salem, N. C.—p. 830.
16 Maternity Superstitions of Filipinos. E. P. McCloskey, Manila. —p. 833.
17 Abortive Type of General Septicemia, Following Pelvic Infection in Pregnancy; Autogenetic Infection, Puerperal Polyneuritis. S. E. Moore, Minneapolis.—p. 842.
18 Management of Ectopic Pregnancy. A. M. Miller, Danville, Ill. —p. 847.
19 Dermoid Cyst of Ovary, with Twisted Pedicle and Acute Appendicitis Complicating Pregnancy. F. B. Doyle, Brooklyn.—p. 849.

5. **Acidosis in Normal Uterine Pregnancies.**—From the study of carbon dioxid tension of the plasma by Emge it appears that an acidosis is present in the great majority of uterine pregnancies.

8. **Cesarean Section Operation in Difficult Labor Cases.**—Hirst's conclusions are based on a personal experience of 118 operations with three maternal deaths, a mortality of 2.54 per cent. One mother died of peritonitis, due to infection probably at the time of operation; one of peritonitis due to premature absorption of catgut and leakage from the uterine wound; and one from hemorrhage, not uterine in origin, but from a ruptured varicose vein in the broad ligament.

12. **Relation of Hypothyroidism and Uterine Hemorrhage.**—Salzman reports six cases of hemorrhage from the uterus not cause by any discernible pelvic disease or pathology, nor related to any of the so-called hemorrhage states, but due to an alteration or lack of one or more of the hormones which control the normal flow of blood from the uterus. This alteration is due to a deficiency in the secretion of the thyroid, and such hemorrhage can therefore be controlled by a judicious exhibition of the dried glandular thyroid substance.

American Journal of Orthopedic Surgery, Boston

November, XIV, No. 11

20 *Experimental Bone Tuberculosis. N. Allison and R. F. Fisher, St. Louis.—p. 631.
21 Giant Cell Tumor of Os Calcis. H. L. Prince, Rochester.—p. 641.
22 Roentgen Diagnosis of Lumbosacral Region. J. K. Young, Philadelphia.—p. 653.
23 *Partial Resection of Motor Nerves in Spastic Paralysis. C. H. Bucholz, Boston.—p. 657.
24 Treatment of Paralysis Following Poliomyelitis. G. G. Davis, Philadelphia.—p. 664.

20. **Experimental Bone Tuberculosis.**—In the experiments described by Allison and Fisher, foci of tuberculosis have been established in the various regions of the bones of young dogs. The epiphysis and diaphysis of the femur, the knee joint and the subperiosteal bone of the femur and tibia were chosen as proper and accessible regions for the location of these foci. Virulent human and bovine tubercle bacilli grown on glycerin agar mediums were used. In all, forty experiments were done. Of these, eleven were epiphyseal tuberculosis, six were diaphyseal tuberculosis, nineteen were subperiosteal tuberculosis and four were joint surface tuberculosis. The authors observed no essential differences in the reaction of the tissues to the human or bovine type of organism. They also observed that in cases in which there are elements that lend themselves readily to new bone formation, the tuberculous process is characterized, not only by bone destruction, but also by a reaction of proliferation, resulting in upbuilding of new bone. This latter observation is substantiated by the behavior of the periosteum and subperiosteal layers of bone in the experiments in which the focus was implanted in the diaphysis or under the periosteum. In the experiments in which the epiphysis or joint surfaces were inoculated, this reaction does not occur, for the simple reason that in these regions the proliferative elements are not found. It also seems clear that there are no essential differences in the reaction to tuberculous foci between spongy or cancellous bone and compact cortical bone, except, that in the latter, bone proliferation plays an important rôle.

23. **Partial Resection of Motor Nerves in Spastic Paralysis.**—Stoffel's operation is endorsed by Bucholz and cases are cited in which it is performed successfully. It is contraindicated when the disease causing the spasticity has a progressive character. Permanent contractures form another contraindication if they cannot be stretched out even under an anesthetic. This applies for contractures of the muscle itself which is to be weakened by partial resection of the motor supply, but also for muscles nearby, as, namely, the hamstring muscles and tendons, when the nerves of the gastrocnemius are to be resected. Furthermore, the nerve resection is contraindicated when marked paresis of the spastic muscles exists—not to speak of an actual paralysis. Stoffel's operation is also contraindicated in cases with marked mental deficiency, in cases showing choreiform movement, or in cases of hydrocephalus. Bucholz also advises against it in children of too young age, in patients with marked physical weakness or pronounced anemia, and in the presence of social or other factors which exclude or may handicap a careful and thorough after-treatment with systematic exercise.

Archives of Internal Medicine, Chicago

November, XVIII, No. 5

25 *Action of So-Called Female Remedies on Excised Uterus of Guinea-Pig. J. D. Pilcher, G. E. Burman and W. R. Delzell, Omaha.—p. 557.
26 *Glucose Formation from Protein in Diabetes. N. W. Janney, New York.—p. 584.
27 *Some Studies of a Diuretic (Theocin) H. A. Christian, Boston. —p. 606.
28 *Toxic Effects of Urea on Normal Individuals. A. W. Hewlett, Q. O. Gilbert and A. D. Wickett, Ann Arbor, Mich.—p. 636.
29 Relation of Recurrent Attacks of Pellagra to Race, Sex and Age of Patient and to Treatment of Disease. J. F. Siler, U. S. Army, P. E. Garrison, U. S. Navy and W. J. MacNeal, New York.—p. 652.
30 *Experimental Study of Mononuclear Cells of Blood and Tissues. F. A. Evans, New York.—p. 692.
31 *Phosphate Retention as Factor in Production of Acidosis in Nephritis. W. M. Marriott and J. Howland, Baltimore.—p. 708.
32 *Ventricular Response to Auricular Premature Beats and to Auricular Flutter. P. D. White and H. W. Stevens, Boston. —p. 712.

25. **Action of So-Called Female Remedies on Excised Uterus of Guinea-Pigs.**—The drugs employed by the authors with but one exception manifest their actions on the amplitude of the contractions rather than on the tone or the rate of contraction. The action is essentially the same on the pregnant and on the virgin uterus. The following drugs lower the amplitude of the excursion, as their primary action: Aletris farinosa, pulsatilla pratensis, Scrophularia nodosa and Ichthyomethia piscipula are very active in the strengths used; Valeriana officinalis (the oil is very active) and Cypripedium pubescens somewhat less active; Dioscorea villosa, Scutellaria lateriflora and Senecio aureus least of all. Caulophyllum thalictroides puts the strips into tonic contraction or tetanus. Chamaelirium luteum, Leonurus cardiaca, Passiflora incarnata, Mitchella repens, Viburnum opulus and V. prunifolium, Acer spicatum, Cnicus benedictus, Carduus marianus and Castanea dentata are inactive. The following infusions only are active and they are less active than the

rresponding alcoholic preparations: Leonurus, Scrophularia, hthyomethia and Cypripedium.

26. **Glucose Formation from Protein in Diabetes.**—A critical udy of diabetes mellitus and phlorizin diabetes has led to e conclusion that glucose formation from protein in both ese conditions is essentially the same. It is therefore stifiable to apply the very much more accurate results hich can be obtained in phlorizin experiments to the study human diabetes. By employing a carefully controlled chnic Janney found it possible quantitatively to determine e amount of glucose formed in the organism from ingested roteins. The chief results of his previous investigations e as follows: Isolated proteins were found to yield large nounts of glucose in metabolism, varying from 48 to 80 r cent. according to the protein examined. Contrary to isting opinions, the animal or vegetable origin of proteins ars no relationship to their ability to produce glucose in the imal organism, this function being found to be mainly depen-ent on the amounts of sugar-yielding amino-acids entering to the constitution of these various proteins. The forma-on of glucose from body proteins was also studied. It could shown that body proteins of man and animals yield about per cent. of glucose in metabolism. The nitrogen of these oteins bears about the relation of 3.6 to 1 to the glucose rmed from them. This definite establishment of the glucose-trogen ratio is of value in the prognosis of diabetes. ases showing such a high urinary glucose-nitrogen ratio, erage 3.4 to 1, are to be regarded as grave. The lower the tio the more favorable is the prognosis. As the glucose creted by the fasting diabetic is of protein origin, sugar rmation from fat does not take place to any great extent this disease.

New experiments relative to glucose formation from pro-in foods are also reported. The amount of glucose originat-g in the diabetic metabolism from various meats was ascer-ined with use of the same technic as hitherto. In von oorden's food tables for diabetics, glucose formation from rotein has not been taken into account. By adding the nounts of glucose yielded in metabolism by the proteins of given food to its carbohydrate content it is possible, how-er, to ascertain the actual amount of sugar, both set free nd formed in the metabolism of such foods. A more accurate ble could thus be constructed showing the relative adapta-lity of protein foods to the diabetic dietary, as compared equivalent amounts of bread. Finally, various proprietary rotein foods were studied in like manner. It was found that ich preparations present no advantages over equal amounts bread when fed to diabetics, as the large amount of protein esent leads to the formation of considerable glucose.

27. **Studies of a Diuretic (Theocin).**—A fairly complete study ade by Christian of a small group of patients with acute ephritis or chronic nephritis or cardiorenal disease indicates at theocin in patients with slight or no edema has little or therapeutic value, inasmuch as diuresis is not constantly oduced, elimination of nitrogenous substances quite often slightly if at all increased and renal function is frequently creased after giving theocin. In cardiorenal cases with arked edema, theocin is of therapeutic value, because it oduces, especially in conjunction with digitalis, an active uresis with increased sodium chlorid elimination, which creases edema, a troublesome feature in these cases. Inas-uch as there is evidence that following an active diuresis nal function is depressed, an intermittent usage of theocin ems preferable to a continuous usage in cardiorenal cases ith edema.

28. **Toxic Effects of Urea on Normal Individuals.**—The uthors claim that by giving approximately 100 gm. of urea mouth over a short interval of time it is possible to increase e concentration of urea in the blood of normal persons to vels of from 160 to 245 mg. per 100 c.c. At such levels of ood urea definite symptoms occur. These consist of head-che, dizziness, apathy, drowsiness, bodily weakness and tigue. These symptoms are comparable to those encountered the asthenic type of uremia. For every gram of excess ea in the body there is a rise of concentration in the blood hich approximates 2.5 mg. per hundred c.c.

30. **Study of Mononuclear Cells of Blood and Tissues.**—In regard to the adult cells seen in the mature organism Evans states definitely that (1) the vitally staining histogenous macrophages are not normally encountered in the peripheral blood and occur in the blood of the portal system in such small numbers as to be negligible; that (2) most of the nonoxydase large mononuclear cells of the blood, and those mononuclear wandering cells of the tissues designated as plasma cells, polyblasts, and cells of small round-cell infiltration are not identical with the vitally staining histogenous macrophages, or of myeloid origin, but are probably lymphoid cells or even emigrated blood lymphocytes; and that (3) the so-called transitional cell is not a lymphocyte, any type of histogenous macrophage, or of endothelial origin, but is, with the polymorphonuclear cell, a descendant of the myeloblast and might conveniently be termed the oxydase mononuclear of normal blood.

31. **Phosphate Retention as Factor in Production of Acidosis in Nephritis.**—Marriott and Howland determined the inorganic phosphate in the serum of patients with acidosis occurring in nephritis. In every instance there was an increase in the phosphorus to many times the normal amount, that is, to form 8 to 23 mg. per 100 c.c. of blood. Simultaneous determinations of the combined carbon dioxid of the serum showed that in certain instances the phosphoric acid was combined with twice as much of the available base as was carbonic acid, in striking contrast to the normal conditions in which the base combined with phosphoric acid is only from one tenth to one fifteenth of that combined with carbonic acid. The retention of acid phosphate (for approximately 90 per cent. of the phosphate in an average urine is acid phosphate) would seem to be sufficient to account for the degree of acidosis observed.

32. **Ventricular Response to Auricular Premature Beats and to Auricular Flutter.**—Twenty-two of twenty-three patients with auricular premature beats studied electrocardiographically showed normal ventricular complexes following abnormal auricular deflections; of these twenty-two, ten showed also aberrant ventricular responses to some of the auricular premature beats; one case showed only aberrant responses. The earlier the auricular premature beat the greater the likelihood of aberration of the ventricular complex responding. Five of twelve patients with auricular flutter showed 2 to 1 A-V block when first seen, six showed irregular pulses due to variable block, and one showed a 1 to 1 rhythm. In the latter case a remarkable transition, consisting of aberration of the ventricular complexes, occurred between the 1 to 1 and the succeeding 2 to 1 rhythms. A cervical rib seems to have been at least a contributory cause of the flutter in this case.

Annals of Surgery, Philadelphia

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33 *Case of Epithelioma Immediately Following Single Burn. T. R. Chambers, Baltimore.—p. 513.
34 *Total Bone Grafts into Skull Defects; Report of Two Cases. A. G. Brenizer, Charlotte, N. C.—p. 516.
35 *Case of Partial Epiphysial Transplantation for Defect in Fibula. J. S. Davis, Baltimore.—p. 519.
36 Case of Venous Aneurysmal Varix. W. H. Axtell, Bellingham, Wash.—p. 525.
37 *Segmental Resection for Gastric Ulcer. G. D. Stewart and W. H. Barber, New York.—p. 527.
38 Intraparenchymatous Hemorrhage of Spleen; Report of Case. B. D. Baird, Galesburg, Ill.—p. 537.
39 Choledochus Cyst; Report of Case. R. S. Fowler, Brooklyn.—p. 546.
40 Case of Retroperitoneal Rupture of Duodenum by Blunt Force. R. T. Miller, Pittsburgh.—p. 550.
41 Chronic Appendicitis and Its Relation to Visceroptosis. A. MacLaren, St. Paul, Minn.—p. 579.
42 Pseudomucinous Cyst of Appendix Complicating Ruptured Ectopic Gestation. N. Ginsburg, Philadelphia.—p. 585.
43 Cystic Dilatation of Vermiform Appendix; Report of Three Cases. S. Graves, Louisville, Ky.—p. 587.
44 Major Surgery Under Minor Anesthesia. J. Wiener, New York. —p. 589.
45 Device for Warming Ether During Inhalation. J. E. Engstad, Minneapolis.—p. 601.
46 *Results Obtained by Use of Radium in Treatment of Cancer of Uterus. J. G. Clark, Philadelphia.—p. 602.
47 Four-Post Fracture Bedstead. J. M. Flint, New Haven.—p. 613.
48 Supernumerary Muscle of Dorsum of Hand Cause of Disability in a Pianist. D. B. Pfeiffer, Philadelphia.—p. 615.

49 Importance of Proper Dosage of Sodium Citrate in Blood Transfusion. R. Lewisohn, New York.—p. 618.

33. **Epithelioma Following Burn.**—The interesting features of Chambers' case were: A growth following on a single thermic burn, of structures apparently previously healthy, the development of the growth taking place within less than a month of the burn, without the healing of the original lesion.

34. **Total Bone Grafts into Skull Defects.**—The cases cited by Brenizer were of six and fifteen years' duration, respectively, both patients had been previously trephined and both showed but little growth of new bone around the edges, and that irregular. The same cases showed an even filling out with bone and a limiting at the site of the former periosteal periosteum at the location in which the bone transplant was taken from the tibia.

35. **Partial Epiphysial Transplantation.**—The lower fourth of the left fibula was lacking in Davis' case. The upper extremity of the left fibula was exposed and split longitudinally, so that a section of bone 6 cm. long was removed, including about one third of the thickness of the shaft with its periosteum, and a similar thickness of the upper extremity with its epiphysial cartilage. The transplant was then placed in the channel prepared for it, with its marrow surface toward the tibia. The upper end of the transplant and the stump of the fibula were held in approximation by a cuff of fascia removed from the upper wound, and the epiphysial end was held in the position of the external malleolus by a band of free fascia, which was securely sutured to the astragalus. It was found impossible to close the scar tissue over the transplant, so in order to fill the defect and cover the transplant, a free graft of whole thickness skin, with a thin layer of fat, was obtained from the thigh. The result was excellent. All the tissues healed in place. The question arises as to whether the gain of 4.75 cm. in addition to the 6 cm. of the transplant, in the length of the left fibula, five years after the operation was caused by growth of bone originating from the transplanted epiphysial cartilage, or whether it came from the epiphysial cartilage at the upper extremity of the bone, or from both. Davis' experimental experience has been that when either extremity of a long bone, including a portion of the diaphysis and the adjacent epiphysis with periosteum, has been removed, there is only an insignificant attempt to fill out the defect, either from the remaining epiphysis or from the stump. He believes therefore that the upper epiphysis probably has been the marked factor in the increase in length of the left fibula. Considering the time which elapsed before the ossification of the transplanted epiphysial cartilage and the continued steady increase in size, both in the diaphysial and epiphysial portions of the transplant, it seems possible that the transplanted epiphysis might have also had, for a time at least, a small share in adding to the length of the fibula.

37. **Segmental Resection for Gastric Ulcer.**—This is a preliminary report and the conclusions implied are tentative, and require further clinical and experimental study. It was Stewart and Barber's purpose to determine, if possible, which of the two methods, the resection of the ulcer-bearing segment or the removal of the ulcerous site for gastric ulcer leaves the stomach with the better postoperative motility. Mayo's report or implication that the "sleeve" resection is followed by good motility is borne out by the present study, certainly, in so far as the proximal segment is concerned, and apparently in respect to the distal one. All the segmentally resected stomachs have not emptied quite as effectively as normal stomachs but somewhat more satisfactorily than "triangularly" resected ones. This difference in the emptying times may be due in part to the mechanical relations incidental to the gastrectomies themselves, but more probably (observations during experimental operations and postoperative tracings) due, in greater part, to the fundamental disturbances in the neuromuscular motor mechanisms of the stomachs.

46. **Radium in Treatment of Cancer of Uterus.**—In his work Clark has adhered strictly to one rule, namely, never to attempt an operation on any patient that has been healed locally by radium. It appears a most unwise surgical polic to subject a patient to the grave hazards of a radical operation, after the radium has acted beneficially, in a fatuou attempt to secure still more effective results. Clark emphasizes the fact that radium is by no means a universal panace for cancer, even when the growth is strictly localized. Ther is no way of determining which cases will be benefited by it use. There is beyond doubt a certain percentage in whic cancerous growths are not retarded by roentgenotherapy indeed, occasionally it would appear that there is a positiv acceleration of growth. Many cases show an astoundin improvement and local cure. Removal of the uterus in case of cancer of the fundus has yielded such good results tha Clark does not feel justified in taking any chances wit radium, not even in the borderline cases. His attitud toward the cervical and fundal growths is diametrically opposite. In borderline cases of cancer of the cervix he invariabl employs radium. In advanced cases of cancer of the fundus h invariably performs a hysterectomy. As a palliative agent, Clar says, he has never obtained results with any other metho that have even approached in beneficence those secured b radium. The cloud, however, that hangs over the remed is the danger of unbridled optimism.

Boston Medical and Surgical Journal

November 16, CLXXV, No. 20

50 Mental Pitfalls of Adolescence. H. R. Stedman, Brookline.—p. 695.
51 Relation of State Department of Health to Communicable Disease of Childhood. A. J. McLaughlin, Boston.—p. 703.
52 Measles and Public Health. E. H. Place, Boston.—p. 704.
53 Etiology of Scarlet Fever. F. B. Mallory, Boston.—p. 713.
54 Scarlet Fever. C. V. Chapin, Providence, R. I.—p. 715.
55 Report of Fatal Cases of Diphtheria Occurring in Connecticu Valley Health District in Massachusetts During 1914. J. S Hitchcock, Northampton.—p. 718.
56 Diphtheria. W. H. Park, New York.—p. 721.
57 Whooping Cough; Measures to Be Taken for Its Control an Prevention. J. L. Morse, Boston.—p. 723.

Bulletin of Johns Hopkins Hospital, Baltimore

November, XXVI, No. 309

58 *Roentgenography in Localization of Brain Tumor. G. J. Heue and W. E. Dandy, Baltimore.—p. 311.
59 *Study of Prognosis in Tuberculosis. H. M. King, Loomis, N. Y —p. 322.
60 Renaissance of Urology. H. H. Young, Baltimore.—p. 327.
61 *What Was English Sweating Sickness or Sudor Anglicus of Fifteenth and Sixteenth Centuries? A. G. Gerster, New York —p. 332.

58. **Roentgenography in Localization of Brain Tumor.**—With the exception of the comparatively few which show definite tumor shadows, roentgenograms of the head in th opinion of Heuer and Dandy are merely an aid, though a important aid, in the diagnosis of brain tumor. Uncalcifie tumors do not cast shadows in the roentgenogram, unles tumor tissue has invaded the accessory sinuses. A possibl exception may be hypophysial lesions which are viewe against the dark temporal fossa. Calcified or bony tumor cast shadows which are readily recognized. Such shadow occurred in 6 per cent. of the patients with brain tumor see by the authors. The signs in the skull of increased intracranial tension, that is, enlargement of the skull, separatio of the cranial sutures, general convolutional atrophy an destruction of the sella turcica, have a considerable value i the differentiation between cerebral and subtentorial lesions for they indicate an internal hydrocephalus. The loca changes in the skull due to brain tumor are of greatest value i the diagnosis of hypophysial or suprasellar lesions. The combination of characteristic eye changes and local sellar destruction or enlargement makes the diagnosis the most certain perhaps, of all intracranial conditions. Local hypertrophy o the skull over cerebral tumor is of definite diagnostic valu and occurred in 4 per cent. of the 100 patients examined b Heuer and Dandy. Local atrophy of the skull over tumor is of equal diagnostic importance, but occurred in only per cent. of the patients. Local unilateral vascular change occurred in 4 per cent. of the patients. Local convolutiona atrophy is of importance in the focal diagnosis of tumor onl when demonstrably unilateral. Local enlargement of th internal auditory meatus has had very little diagnostic value

about 45 per cent. of the patients in this series roentgen-graphy has been of real diagnostic value.

59. **Prognosis in Tuberculosis.**—According to King the eath rate in the incipient class (6.1 to 1 in favor of life), icreases after the second year, and the curve does not again end toward the horizontal until the last year of the period. the far advanced class of tuberculous patients, the odds gure 3.5 to 1 against the chance of life at the end of five ears; but this group is made up of individuals who were ischarged, some apparently cured, some arrested, some nproved and some unimproved. The death curve in the pparently cured class differs slightly from that of the eneral population. The curve as applied to the unimproved spectacular, not to say shocking—76 per cent. dying within e year after discharge, and only 5 per cent. remaining ive after five years. The apparently cured enjoy odds of .3 to 1 in favor of life, while among the unimproved the iances against living are 19 to 1, or practically the same obability of dying within the five years as the normal pulation has of living for the same period.

Georgia Medical Association Journal, Augusta

November, VI, No. 7

2 *Cancer of Breast. L. C. Fischer, Atlanta.—p. 117.
3 Angina Pectoris. S. R. Roberts, Atlanta.—p. 134.

62. Abstracted in The Journal, May 6, 1916, p. 1490.

Illinois Medical Journal, Chicago

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4 Some Fundamental Causes of Disease. W. S. Bainbridge, New York.—p. 307.
5 Individuation in Study of Mental Disorders. F. P. Norbury, Jacksonville.—p. 310.
6 Angina Pectoris; Report of Cases. S. E. Munson, Springfield.—p. 315.
7 Responsibility of Medical Profession in Management of Hard of Hearing and Deaf. J. C. Beck, Chicago.—p. 322.
8 Prognosis and Treatment of Diabetes as Influenced by Recent
9 Relation of Roentgenologist to Physician and Surgeon. E. Blaine, Chicago.—p. 338.
0 Chronic Ethmoiditis and Its Treatment. O. H. Maclay, Chicago.—p. 342.
1 Cooperation Between County Medical Societies and State Board of Health for Good of Commonwealth. C. St.C. Drake, Springfield.—p. 344.
2 Printers' Ink in Organization. T. P. Foley, Chicago.—p. 349.
3 Valuable Aid in Work. E. W. Fiegenbaum, Edwardsville.—p. 352.
4 How to Promote Interest and Attendance in County Societies. A. Hall, Mt. Vernon.—p. 354.
Studies. S. Strouse, Chicago.—p. 332.
5 Full Term Ectopic Gestation; Report of Case. G. W. Green and J. J. Moore, Chicago.—p. 356.
6 Treatment of Constipation. P. Lewin, Chicago.—p. 360.
7 Microscopic Examination of Feces and Its Clinical Significance. S. M. Wylie, Paxton.—p. 361.

Iowa State Medical Society Journal, Des Moines

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8 Proposed Medical Department. J. Brigham, Des Moines.—p. 457.
9 Importance of More Thorough Examinations in Diseases of Rectum and Colon. C. B. Hickenlooper, Winterset.—p. 459.
0 Conservation in Gynecology. H. A. Minassian, Des Moines.—p. 462.
1 Metallic Injury of Eye or Chemical Action of Certain Metals on Structures of Eye; Report of Case. J. G. Roberts, Oskaloosa.—p. 466.
2 Case of Osteoma of Retina. F. E. V. Shore, Des Moines.—p. 467.
3 Intermenstrual Pain. W. C. Newell, Ottumwa.—p. 469.
4 General Anesthesia. J. Russell, Des Moines.—p. 472.
5 Anaphylaxis in Medicine. G. McConnell, Waterloo.—p. 475.

Modern Hospital, St. Louis

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6 Brooklyn's Oldest Hospital Built Anew. W. J. Nealley and J. M. Hewlett, Brooklyn.—p. 361.
7 Convalescent Institution; Methods and Results. F. Brush, White Plains, N. Y.—p. 367.
8 Hospital and Surgeon. S. S. Goldwater, New York.—p. 371.
9 New Army Train for Mexican Border. A. G. Grinnell, Washington, D. C.—p. 378.
0 Canned Fruits—Their Quality, Purity and Price. J. P. Street, New Haven, Conn.—p. 384.
1 Small Community Hospital—Interior Arrangement. J. A. Hornsby, Chicago.—p. 388.
2 Hospital or Fifth Year. E. H. Lewinski-Corwin, New York.—p. 392.
3 Open Hospital; Factor in Preventive Medicine. W. L. Babcock, Detroit.—p. 411.

New Jersey Medical Society Journal, Orange

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94 Diagnosis and Management of Placenta Praevia. F. M. Dorohue, New Brunswick.—p. 605.
95 Study in Refraction. S. E. Pendexter, East Orange.—p. 607.
96 Some Methods of Commercial Physician and Protection of Other Physicians and Public Against Him. R. S. Cone, Westwood.—p. 609.
97 Economic Care of Mental Defectives. C. C. Shinn, Atlantic City.—p. 614.
98 Standardization of Physical Defects; Is It Practicable? F. M. Corwin, Bayonne.—p. 616.
99 Practical Application of Medical Inspection in Small Communities; Some Results. W. K. Campbell, Long Branch.—p. 621.
100 Military Drill in High-School in Interest of Health. W. S. Small, Washington, D. C.—p. 624.
101 Nurse's Part in School Medical Inspection. A. W. Kerr, New York.—p. 627.
102 Congenital, Idiopathic, Dilatation of Colon—Hirschsprung's Disease. B. Gutmann, New Brunswick.—p. 629.
103 Acute Lymphoid Leukemia. B. Gutmann, New Brunswick.—p. 630.

Ohio State Medical Journal, Columbus

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104 Congenital Hypertrophic Stenosis of Pylorus from Medical Viewpoint. E. W. Mitchell, Cincinnati.—p. 726.
105 Congenital Hyperplastic Pyloric Stenosis from Surgical Viewpoint. D. W. Palmer, Cincinnati.—p. 730.
106 Congenital Hyperplastic Stenosis from Surgical Viewpoint. F. E. Bunts, Cleveland.—p. 737.
107 Case of Carcinoma of Cervix Complicating Pregnancy at Full Term. M. A. Tate, Cincinnati.—p. 739.
108 Sexual Hygiene Malfeasance. M. L. Heidingsfeld, Cincinnati.—p. 740.

Tennessee State Medical Association Journal, Nashville

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109 Some Surgical Considerations of Gastric and Duodenal Ulcer. H. M. Tigert, Nashville.—p. 267.
110 Treatment of Fractures with Special Reference to Indication for Open Operation. E. A. Sayers, Nashville.—p. 273.
111 Secondary Hemorrhage Following Tonsil and Adenoid Operations. W. S. Farmer, Cookeville.—p. 284.
112 Tonsillectomy—Indications and Technic. E. L. Roberts, Nashville.—p. 286.
113 Why Go to an Oculist for Refraction? W. W. Potter. Knoxville. p. 294.

Texas State Journal of Medicine, Fort Worth

November, XII, No. 7

114 Roentgenoscopy as Factor in Correction of Strabismus. R. W. Moore, Fort Worth.—p. 284.
115 Some Cataract Cases. H. T. Aynesworth, Waco.—p. 286.
116 Tucking Operation for Strabismus. E. A. Robin, New Orleans.—p. 288.
117 Traumatic Cataract Followed by Glaucoma; Operation and Results. E. H. Vaughn, Tyler.—p. 291.
118 Status of Ophthalmology in America, Past Achievement and Present Need of Reform. L. H. Lanier, Texarkana.—p. 292.
119 Conjunctival Flap in Treatment of Gonorrheal Ophthalmia; Report of Cases. R. H. T. Mann, Texarkana.—p. 295.
120 Appendicitis in Pregnant Women; Report of Cases. J. H. McLean, Fort Worth.—p. 296.
121 Meckel's Diverticulum; Report of Cases. J. W. Burns, Cuero.—p. 298.
122 Medical Selection for Life Insurance. J. L. Davis, Waco.—p. 299.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

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1 Localization of Bullets and Shrapnel Balls by One Roentgenogram on One Plate. A. H. Pirie.—p. 137.
2 Roentgenography in Gunshot Wounds of Thigh. G. Vilvandré.—p. 140.
3 Inverse Current. A. C. Gunstone.—p. 149.

British Journal of Surgery, London

October, IV, No. 14

4 *Carcinoma of Suprapapillary Duodenum Causally Associated with Preexisting Simple Ulcer. G. Jefferson.—p. 209.
5 Dangers of Intestinal Exclusion. G. G. Turner.—p. 227.
6 Anatomic Localization of Metallic Foreign Body and Reconstruction of Its Track. P. T. Crymble.—p. 234.
7 *Treatment of Papilloma of Bladder by High Frequency Current. J. W. T. Walker.—p. 259.
8 Use of Opaque Ureteral Catheter to Localize Missiles in Region of Kidney and Ureter. A. Fullerton.—p. 278.
9 *Interpelvi-Abdominal Amputation. J. H. Pringle.—p. 283.

10 Two Cases Illustrating Effects of Rotation of Pointed Bullet Around Its Transverse Axis. G. H. Makins.—p. 297.
11 Case of Sarcoma of Stomach; Resection. L. E. Barrington-Ward and E. H. Shaw.—p. 301.
12 Treatment of Wounds of Thoracic Duct. E. Harrison.—p. 304.
13 Portuguese Contemporary Surgery. A. H. Bizarro.—p. 313.
14 Case of Spontaneous Rupture of Urinary Bladder. S. White and N. J. Wigram.—p. 324.
15 Case of Wound of Portal Vein; Operation; Death Nine Days Later. W. H. C. Romanis.—p. 325.
16 *Regeneration of Bone in Its Relation to Cultivation of Bone Tissue. N. A. Dobrowolskaja.—p. 332.
17 After-Treatment of So-Called Frost-Bite. F. A. Johns.—p. 336.
18 *Thirty-Two Cases of Penetrating Wounds of Abdomen. C. H. S. Webb and E. T. C. Milligan.—p. 338.

4. **Cancer of Suprapapillary Duodenum.**—Jefferson's case is as follows: A middle aged man was operated on for symptoms of food retention in the stomach; at operation a duodenal ulcer, to all appearances of the simple peptic variety, was discovered; a gastro-enterostomy was performed and the patient made a good recovery. He remained well for some time, but three and a half years later died, and at necropsy a duodenal carcinoma was found. The most interesting point in the case is the apparent grafting of the carcinoma on a simple ulcer base. Carcinoma of the duodenum is a rare disease. It is found in 0.04 per cent. of hospital postmortems (that is, deaths from all causes). Inch for inch the duodenum is more liable to cancer than the rest of the small intestine. Of seventy-one small intestine carcinomas, thirty-four (48 per cent.) were in the duodenum. Jefferson has been able to find in the literature only thirty cases in which carcinoma seems to have developed on ulcer. Several of these cases are very doubtful.

7. **Treatment of Papilloma of Bladder.**—In fourteen of the thirty-three cases of papilloma of the bladder suitable for treatment by the high frequency cautery reported by Walker (42.4 per cent.) the growth was completely destroyed at one sitting, and the patients were either not confined to bed at all, or rested only for one day. In one case two sittings, in three cases three sittings and in one case four sittings were required for the removal of the growth; in five cases there were five or more sittings. The remainder were still under treatment; some of them having only had one or two applications. In the cases in which five or more sittings were required for the removal of the growths, one of the great disadvantages of the method becomes apparent, namely, the time expended in some cases. In these, however, the growths were very extensive, and in two of the most troublesome open operations of the most thorough kind had been performed recently, and had failed to prevent rapid recurrence. In one case in which the treatment was prolonged, the growths were small, sessile, and scattered and the case was not a promising one for open operation, had this method been selected; moreover, the two rapid recurrences after complete removal in this case could not have been dealt with by repeated operations. The great value of the method in cases of recurrent growth is well illustrated by one case, in which five small papillomatous growths were discovered four months after a complete open operation, and were destroyed completely by the high frequency cautery at one sitting. Walker says that the results of the method are being claimed as better and more lasting than those of suprapubic operation, but nothing that has been published up to the present time has given proof that this happy result will be attained.

9. **Interpelvi-Abdominal Amputation.**—The indications for this operation as given by Pringle are: 1, neoplasms arising from (*a*) the hip bone; (*b*) the femur so high up that the disease cannot be removed by an exarticulation at the hip joint; (*c*) muscles or fascia in the region of the hip; 2, infective processes involving the hip bone: (*a*) tuberculous disease; (*b*) acute osteomyelitis; (*c*) actinomycosis might possibly justify the operation in some rare instances. In the majority of the cases the operation has been carried out in one stage, namely, removal of the limb along with the hip bone; but in a few it has been done in two stages—exarticulation at the hip joint, followed by the removal of the hip bone at a later date. The factors which should determine which of these procedures is the correct one to follow in the case of tuberculous disease are, (1) the extent of the disease, and (2) the state of the patient at the time of operation. I a total of forty-three cases there is a mortality of 58.1 pe cent.; or taking the cases of neoplasms alone, a mortality o 56.6 per cent.

16. **Regeneration of Bone.**—The experiments by Dobro wolskaja were carried out in the following manner: Sma pieces of bone taken from young animals (mice, kitten rabbits) were placed on slides in homogeneous plasma an covered with a watchglass with a hanging drop of distille water, which was hermetically sealed with paraffin. Th preparation was placed in the incubator and from time t time examined under the microscope. As soon as the fir signs of liquefaction appeared in the medium, or sometime even sooner, the cultures were fixed in situ in the usua manner. For the first experiments Dobrowolskaja used bon with its periosteum and bone marrow. The result was mostl a luxuriant growth, accompanied by intense round-cell infi tration, which partially obscured the picture of the growtl For this reason an attempt was made to cultivate the differer constituents of the bone separately. The long bones wer cut longitudinally; then the periosteum was scraped off wit a knife and the bone marrow removed with a small curet finally, the bone and periosteum were in turn subjected t experiment.

The scraped bone was cut into small pieces in differer directions and placed in plasma on the slide in the usual mar ner. The result was a very definite and clear growth almost fre from cellular infiltration, and probably arising from all liv ing elements of compact bone. This growth was not s luxuriant as the one produced in the experiment in which a the constituents were taken together; but it showed ver distinctly the different forms of cells, with processes growin out of compact bone, and sometimes a connecting strand c protoplasm was noticed between the new cells and those lyin in the original tissue. Occasionally, two pieces of bone wer closely adjacent to each other, and the space between ther was rapidly filled by growing cells which united the tw separate parts. The cultivation of separated periosteum gav less satisfactory results, and hardly any growth was observec The experiment with bone spongiosa showed an active growtl but the picture was again obscured by intense round-ce infiltration.

Dobrowolskaja concludes that a detached piece of bon must of necessity play some active part in the process c bone regeneration. Blood coagulum aids the growth c osteogenetic cells by means of its fibrinous network. Th practical lesson gained by these experiments is as follows Splinters in nonsuppurating fractures must be treated mos carefully, and if possible the wound must not be interfere with. In suppurating cases, the extraction of splinters shoul be delayed as long as possible, in order to give the organisr a chance of profiting by the regeneration of bone.

18. **Penetrating Wounds of Abdomen.**—Webb and Milliga believe it advisable not to operate at sight and on principl on every patient of suspected penetrating wound of the abdo men, but to make as definite a diagnosis as is possible befor deciding whether to operate or not. They think it advisabl to wait a certain time after the patient has been admittec for the following reasons: *a*, to combat shock; *b*, to dis tinguish between moribund cases and those that rally witl antishock measures; *c*, to endeavor to distinguish case requiring operation from those likely to recover withou operation, that is, that group of cases which rally with anti shock measures. It is essential to operate in every case tha rallies well, where after due consideration they believe a hollow viscus to have been wounded, or in case in whicl they have reason to suppose that progressive hemorrhage i taking place. It is useless to operate in bad cases that d not respond to preoperative shock therapeusis.

Finally the authors do not think it advisable at present t operate in a casualty clearing station on patients in whon they have reason to believe solid organs alone are injurec and in which there are no signs of continued hemorrhage During operation it is of the utmost importance to follow a rigid routine method of examination of the abdominal con tents, keeping in mind so far as possible the track of th wound. Minor points are: *a,* to make a complete and detailed estimate of the number and character of all the lesions wrought by the projectile, before attempting any remedial measures; *b,* the performance of one resection of intestine, where possible, rather than multiple sutures; *c,* not to place sutures in devitalized tissues; *d,* a careful search for the missile; *e,* completeness of operation, especially thorough closure of the inevitably large laparotomy wound. Suture the abdominal wall in layers. Postoperative shock is never negligible, and in most cases is almost certain to be the most dangerous complication to be feared after the patient has left the table.

British Medical Journal, London

October 28, II, No. 2913

19 Harvey, Man and Physician; Harveian Oration. T. Barlow.—p. 577.
20 *Meralgia Paraesthetica. W. J. Rutherfurd.—p. 583.
21 Shell Shock and Its Treatment by Cerebrospinal Galvanism. W. Garton.—p. 584.
22 Serum Treatment of Meningitis. W. Broadbent.—p. 586.

20. **Meralgia Paraesthetica.**—A dozen cases of this disease have been seen by Rutherfurd in the last ten years. The condition is characterized by mononeuritis of the external cutaneous nerve of the thigh. The special feature of this neuritis, which, as the external cutaneous nerve is purely sensory, is unattended by motor disturbance, is dissociated sensation, the deep or protopathic sensibility, through afferent fibers contained within the motor nerve bundles supplying the muscles, being unimpaired. Sensation over the area of distribution of the affected nerve, which, as a rule, can be strictly delimited, is lost, so far as finer sensibility is concerned for slight touch, for perception of points, for heat and cold, and to a certain extent for pain, while deep pressure can be perceived, and a touch on the bare skin is felt as though a layer of clothing intervened, or as one might feel a touch on the back of a gloved hand. In old standing cases a distinct cutaneous thickening may be made out locally if a fold of skin is pinched up between the finger and thumb, and the skin of the affected area (in some cases at least) begins to grow bald from atrophy of the hair follicles; while, either in association with this, or as the result of the local analgesia, the phenomenon of the cutis anserina is lost locally, so that if the patient is examined in a cold room there is no goose-skin on an area in the upper and outer aspect of his thigh, even though the other parts show this distinctly, with erection of the hairs over the rest of the limb.

Not only is there this anesthesia, or rather analgesia, but perverted sensations are present in the affected area. These take the form of shooting pains, of a sensation as though an invisible hand had grasped the thigh and were screwing round a handful of the flesh, and of a sensation as though scalding water were pouring down the outside of the limb. These sensations are usually of short duration, and are of variable onset; they may not occur for months on end, or even for years in old standing cases, but are liable to recur again and again on little or no provocation. The etiology of the condition seems to be unknown. Treatment is of little use. Tonics, massage, electric treatment have all been tried and have all failed. The attacks of pain tend to wear off and to become less frequent with the lapse of time.

Journal of Laryngology, Rhinology and Otology, London

October, XXXI, No. 10

23 Some Reminiscences, Reflections and Confessions of Laryngologist. J. N. Mackenzie, Baltimore.—p. 411.

Lancet, London

October 28, II, No. 4861

24 *Penetrating Wounds of Abdomen. T. C. English.—p. 746.
25 Technic of Agglutinin Test. P. N. Panton.—p. 750.
26 Method of Applying Wassermann Reaction in Large Numbers. P. Fildes and J. McIntosh.—p. 751.
27 Occasional Absence of Rise of Temperature Following Administration of Diagnostic Doses of Tuberculin to Tuberculous Persons. D. Forbes and C. W. Hutt.—p. 753.

24. **Penetrating Wounds of Abdomen.**—Operations for penetrating abdominal wounds, English says, are not advisable unless they can be done in good surgical surroundings and by an operator with some knowledge of abdominal surgery; otherwise disasters will be more frequent than successes. Patients with abdominal wounds should be sent to an operating station as quickly as possible, provided that they are fit to travel; their prospects depend mainly on the quickness with which this can be done. Patients who are not fit to travel should be kept absolutely quiet, warm and under the influence of morphin; saline infusion, hypodermically or otherwise, is most beneficial. They are then transported to the operating station as soon as their condition improves; the question is usually settled by the character of the pulse. If the pulse rate is 130 or over, it is certainly best to keep them in the place in which they are receiving their primary treatment until improvement occurs. On reaching the place in which they can be operated on patients whose condition is good should be dealt with at once, otherwise two or eight hours should be spent in preparative treatment. Operation is never advisable if the pulse rate is 140 or over. The abdominal exploration must be systematic and quick, the duration of the operation should rarely exceed forty-five minutes. When good surgical conditions are obtainable operation is the best treatment in most cases and must be done as soon as the patient's condition allows it. Be prepared for a high mortality, but know that early operative treatment will substantially reduce it.

Bulletin de l'Académie de Médecine, Paris

October 17, LXXVI, No. 41, pp. 259-305

28 *Syphilis Without Chancre in Women. Gaucher.—p. 288.
29 Apparatus for and Roentgen Localization of Projectiles. (Le localisateur-guide.) Gudin.—p. 294.
30 Causes of Development of Male Characteristics in Females. (A propos de la cause du virilisme.) M. Baudouin.—p. 296.
31 *Technic to Ensure Durable Immunity with Vaccination. (De l'influence du temps, de la quantité et de l'activité du vaccin sur la production de l'immunité.) L. Camus.—p. 298.
32 *Acute Suprarenal Inflammation in Pernicious Malaria. (Surrenalites aigues dans les accés pernicieux palustres.) G. Paisseau and H. Lemaire.—p. 300.
33 Changes in the Blood Pressure and the Pulse Under the Strain of Trench Life. (La pression artérielle et le pouls chez le soldat dans les tranchées.) F. Menard.—p. 301.

28. **Syphilis Without Primary Superficial Lesion.**—Gaucher remarks that as the chancre is only the reaction of the epidermis to inoculation with the virus of syphilis, if the inoculation occurs by some other route, there is no reaction on the part of the epidermis. He has seen instances of this, and describes four such cases. In one he attributes the infection to a laparotomy as he knows that the assisting surgeon had syphilitic lesions in the mouth at the time, and he suspects this etiology in a second case. In another case infection occurred as the surgeon cut his finger deep at an operation on a syphilitic, and in a fourth case as a therapeutic injection was made with the same needle that had just been used on a syphilitic whose disease had not been recognized. He has known instances likewise in which infected semen inoculated the uterus wall while the intact external genitals escaped. The syphilis thus tranmitted to the woman may run a latent course for years. In one such case gummas on the legs were the first signs of trouble, thirty years after infection had presumably occurred in this way. The husband's syphilis dated from ten years before his marriage. Other women in this category had leukoplakia of the tongue as the first manifestation of infection, one, tabes, another sclerosis in patches. In a total of ten such cases, the circumstances rendered it almost positively certain that the women had been inoculated in the uterine mucosa by infected semen outside of pregnancy.

31. **Technic for Vaccinations in General.**—Camus asserts that although a single pustule confers immunity as well as six pustules, yet the interval before the immunization is complete is much longer when a small dose of vaccine is used than when a large dose of an extra active vaccine is used. In time of epidemics, the activity of the vaccine is extremely important, and possibly also the number of inoculations, as it is necessary to hasten the immunization.

32. **Suprarenalitis in Malaria.**—Paisseau and Lemaire noticed in the course of three cases of pernicious malaria a syndrome indicating acute insufficiency on the part of the

suprarenals: extremely low blood pressure without changes in the heart rhythm, vomiting, diarrhea, lumbar and abdominal pains, extreme weakness and white dermographism. Necropsy revealed advanced degeneration in the suprarenals and local hemorrhages and, in one, foci of necrosis. The malarial parasite was found in the suprarenal tissue. They think it probable that the suprarenal syndrome occurs in malaria more often than generally recognized. Epinephrin, to combat it, may be indicated in all cases of malaria, even the simplest forms, when the symptoms suggest possible insufficiency on the part of the suprarenals.

Paris Médical

October 21, VI, No. 43, pp. 345-360

34 Staff Apparatus for Immobilizing Fractures of Bones and Joints in War. (L'immobilisation par le staff des blessures osseuses et articulaires à evacuer.) V. Aubert.—p. 345.
35 *Blood Cultures and Serodiagnosis in Typhoid After Vaccination. (Observations sur les méthodes de la laboratoire appliquées au diagnostic des infections typhoidiques.) A. Demolon.—p. 354.
36 *The Pathophiles. H. Sancey.—p. 357.

35. **Agglutination After Vaccination Against Typhoid.**—Demolon has found that the typhoid bacilli linger only a very short time in the blood of a vaccinated subject. The best culture medium for them seems to be bile, using twice as much bile as of the blood. If a polyvalent vaccine is used, there is liable to be coagglutination of the three strains, but the one involved is agglutinated more intensely and more rapidly than the others.

36. **Pathophilia.**—By this term Sancey means the condition when the patient adapts himself and his mode of life to some chronic affection and gives up to it, cheerfully tending the trouble, as it were, instead of fighting it. He lives on good terms with "his" enteritis, "his" dilatation of the stomach, etc. These patients are not simulators or neurasthenic; they merely take their pathologic condition too much as a matter of course, and are liable to "pharmaceutic debauches." This sets up a vicious circle from which they can be released only by rational psychotherapy.

Presse Médicale, Paris

October 19, XXIV, No. 58, pp. 461-468

37 *The Cerebrospinal Fluid in Meningococcus Meningitis. P. Nobécourt and E. Peyre.—p. 461.
38 *The Suprarenal Reaction and Vaccination Against Typhoid. M. Loeper.—p. 463.
39 *"Trench Foot" a Mycetoma. (Etiologie, prophylaxie et thérapeutique de l'affection dite "gelure des pieds.") V. Raymond and J. Parisot.—p. 464.

37. **The Cerebrospinal Fluid in Epidemic Meningitis.**—Nobécourt says that the fluid may have cleared up under serotherapy but the fact that the disease has not been conquered is revealed by the persisting albumin content. In most cases convalescence is on the way when the fluid clears up, and the serotherapy can then be suspended. But in other cases the meningitis keeps up and drags along, and these patients should be studied with special care. The leukocyte count in the cerebrospinal fluid in 38 cases of cervical rheumatism with sciatica showed zero in 8 cases; up to 10 leukocytes in 21 cases; from 10 to 30 in 5 cases, and from 130 to 183 in 4. Lumbar puncture relieves in these cases and helps to exclude meningitis. The fluid in 10 soldiers and 2 children with meningococcus meningitis showed from 700 to 37,200 leukocytes per cubic mm. at the first three punctures, the days following injections of the antiserum. The number of leukocytes then gradually dropped to from 31 to 460 in the course of the serotherapy, and the fluid became limpid after from three to five injections in 8 cases. The other 4 required from seven to twelve injections and the leukocyte count rose and fell again and again. The albumin content was high at first in all the cases, but subsided under serotherapy. When it kept high or ran up again later, the case was liable to be a protracted one. By watching over the leukocyte count and the albumin content, we can be saved from the danger of stopping the serotherapy too soon.

38. **The Vascular Phenomena with Vaccination Against Typhoid.**—Loeper has encountered six cases in which the evening or the day following the first antityphoid vaccination, the men grew pale, with cyanosis, pains in the legs and lumbar regions, low blood pressure and diarrhea—all signs of asystole of suprarenal origin. The immediate and complete subsidence of all these symptoms under a dose of epinephrin by the mouth or subcutaneous injection confirms the assumption that some transient upset in suprarenal functioning is responsible for them. He has noticed also that the simple or triple vaccination induces signs of suprarenal insufficiency in many cases, asthenia, the "white line" and low blood pressure. The latter was pronounced in twenty-six of thirty soldiers tested for the purpose, and it persisted for a day or so. This reaction is less intense after each injection of the vaccine. Experiments on guinea-pigs confirmed the suprarenal origin of these symptoms. Before vaccinating against typhoid, in future we must examine not only the kidneys, liver, heart and lungs but also the resisting power of the suprarenals. This can be estimated from the blood pressure. The vaccination should never be done on much fatigued men. If the blood pressure is low, a dose of epinephrin had better be given a few hours before the vaccination, and again a few hours later in case the blood pressure keeps low or drops lower.

39. **Trench Foot.**—Raymond and Parisot present evidence to prove that peripheral neuritis is responsible for the anesthesia, paresthesia and trophic changes that characterize what is known as trench foot. It has been ascribed to freezing, but it develops more often in bleak, rainy weather than when it is very cold. Extensive experimental research has shown further that the injury of the feet from standing in cold water permits invasion by a fungus, and this sets up an actual mycetoma, like "Madura foot." Local treatment with boric acid and camphor solutions, supplemented in a few cases with copper sulphate, arrested the affection in all his cases and amputation was never required. The loss of part of the toes was the severest injury, but healing was very gradual and tedious.

Deutsche medizinische Wochenschrift, Berlin

September 28, XLII, No. 39, pp. 1181-1212

40 *Importing Colon Bacilli to Fight Pathogenic Intestinal Flora. (Ueber die Grundlagen einer neuen ursächlichen Bekämpfung der pathologischen Darmflora.) Nissle.—p. 1181.
41 *Deadly Action of Roentgen Rays on the Mouse. (Ueber die biologische Wirkung der Röntgenstrahlen auf Mäuse.) F. Blumenthal and J. Karsis.—p. 1184.
42 *Is Hemoglobinuria a Sensitization Phenomenon? (Zur Theorie des Schwarzwasserfiebers.) K. Hintze.—p. 1186.
43 Vascular Contracted Kidney. (Zur Klinik der "vaskulären Schrumpfniere.") H. Machwitz and M. Rosenberg.—p. 1188. To be continued.
44 Nervous Disease from Standpoint of Military Efficiency. (Zur militärischen Beurteilung nervöser Krankheitszustände, speziell der Epilepsie.) E. Stier.—p. 1190. Concluded. See Abstract 26, p. 1632.
45 Elimination of Salvarsan in the Urine as Guide in Treatment. (Salvarsanausscheidung im Urin als Wertmesser konzentrierter Injektionen und grosser Infusionen.) Engwer.—p. 1194.
46 Technic for Dressing Wounds. (Ueber das Verbinden unserer Kriegsverwundeten.) O. Vulpius.—p. 1196.
47 Methylene Blue in Testing for Sugar in the Urine. (Ueber die Anwendung des Methylenblaus zum Zuckernachweis im Urin.) Liebers.—p. 1197.
48 Single Public School System from Medical-Hygienic Standpoint. (Die "nationale Einheitschule.") J. Schwalbe.—p. 1198.

40. **Importing Colon Bacilli to Combat Pathologic Intestinal Flora.**—Nissle noticed that when specimens of stools from different persons were inoculated with typhoid bacilli, the bacteriologic findings later differed widely. In some the typhoid bacilli proliferated luxuriantly, in others not at all. This divergence in results is evidently due to the differing power of the natural colon bacilli to combat and annihilate the added typhoid germs. He isolated colon bacilli from different specimens of stools, and compared their behavior in respect to typhoid bacilli. Tubes of bouillon culture medium were inoculated with a loop of a bouillon culture of typhoid bacilli and incubated at 37 C. (98.6 F.) for seven hours, and then inoculated with the colon bacillus strain and incubated anew for fourteen hours. After this, Endo plates were prepared with the diluted mixture. The next day 100 or 200 well isolated colonies were counted. The ratio between the colon and typhoid colonies is calculated for 100

colon colonies. We thus obtain what he calls the "antagonistic index." It shows the capacity of the individual strain of the colon bacillus to crowd out the typhoid bacilli. One strain may present an index of 100: 500, another of 100: 20. The ratio of the antagonistic power of these two strains would therefore be 1: 25. The extremes found in his research were 100:4,050 and 100: 3.

Study of the colon colonies revealed further that the strains producing more lactic acid gave the highest index figures. When the index was high against typhoid bacilli, the colon bacilli were also highly antagonistic to other strains of colon bacilli. The lowest index in his numerous experiments was found in eight cases of chronic typhoid bacilli carriers. Repeated tests confirmed the constancy of this phenomenon, the index ranging always from 100: 200 to 100: 4,050. The highest index was found in some paratyphoid cases of exceptional mildness. The logical consequence of these findings is to apply them in treatment, giving patients with inefficient colon bacilli others from other persons with high antagonistic index. He gave the alien colon bacilli in capsules, and reports here eleven clinical cases in which this treatment was systematically applied. In four the intestinal flora was normal and no benefit was apparent, but in seven cases of paratyphoid, typhoid or streptococcus intestinal trouble the bowel flora returned to normal. The treatment seems thus to have proved its usefulness, and it offers a prospect of successful prophylaxis for persons exposed to danger of bowel infections and to prevent development of carriers. He suggests that the new born might be treated in this way to ensure them a highly antagonistic strain for life, thus warding off their being taken possession of by a weakly antagonistic strain. It is possible, he adds, that this same principle might apply to superficial infectious processes and those of other internal organs.

41. **Biologic Action of Roentgen Rays on Mice.**—The dose common in roentgenotherapy is more than enough to promptly kill a mouse. Larger doses do not kill it so promptly, probably because the rays pass on through it. Only a certain proportion is absorbed. The harder the rays the more destructive their action on the mouse, according to the experiences related.

42. **Hemoglobinuria.**—Hintze is convinced that various causes may induce blackwater fever, but the most common cause is malaria plus the action of quinin. He queries whether this combination of quinin and the disintegration products of hemoglobin, resulting from the action of the malaria germ, may not have a sensitizing influence. Research to determine whether the blood is more susceptible to the light rays than under other conditions is now in order, and he urges those who have opportunity for such studies to investigate this.

Medizinische Klinik, Berlin

October 1, XII, No. 40, pp. 1039-1064

49 *Reinfection as Main Factor in Tuberculosis. F. Reiche.—p. 1039.
50 *Vascular Sclerosis of the Kidneys. III. (Zur vasculären Nierensklerose.) M. Löhlein.—p. 1042.
51 Grazing and Denting Wounds of the Skull. (Ueber Schädelstreif- und Prellschüsse mit Impressionsfrakturen.) Boit.—p. 1043.
52 Lipoid Nephrosis. (Die Nephrosen.) F. Munk.—p. 1047. Concluded in No. 41, p. 1073.
53 *Earliest Localization of Variola Eruption. F. Willner.—p. 1050.
54 War Fractures of Long Bones. (Ueber Schussbruchbehandlung der Extremitäten.) W. Katz.—p. 1051.
55 Long Gauntlet Gloves for Unsterilized Hands. (Ein steriler Gummihandschuh für die unvorbereiteten Hände.) Fuhrmann.—p. 1054.

October 8, No. 41, pp. 1065-1090

56 *Influenza. H. Scholz.—p. 1065.
57 *Lymph-Borne Tuberculosis. (Infektionswege experimenteller Impftuberkulose, zugleich ein Beitrag zur Lehre von der Lymphbewegung.) K. Ziegler.—p. 1968.
58 *Radical Operation for Large Hernias. (Zur Radikaloperation grosser Bauchbrüche.) Städtler.—p. 1071.
59 Nephrosis. F. Munk.—p. 1073. Concluded.
60 Symptomatology from Wounds of Frontal Brain. (Stirnhirnschüsse.) O. Sittig.—p. 1076.
61 Dressing Wounds. (Praktischer Wink für die Wundbehandlung.) M. Winands.—p. 1076.
62 Paratyphoid A Fever. (Zur Klinik und Diagnose des Paratyphus A im Felde.) E. Mayerhofer and G. Jilek.—p. 1077.

49. **Reinfection and Immunity in Tuberculosis.**—Reiche analyzes the findings and family history in 6,000 adult tuberculous insured whom he has examined since 1895. The family history was known in 4,931 cases, and there was no history of tuberculosis in 66.5 per cent. In the others, namely, in 33.5 per cent., one or both of the parents had been a consumptive. This percentage was 29.3 for the 1,012 men and 43.4 for the 639 women. Among 7,860 nontuberculous adults from the same social strata, a history of tuberculosis in the parents was found only in 15 per cent. These and similar data are discussed from various standpoints, Reiche's conclusion being that repeated reinfection is more probably responsible for pulmonary phthisis in adults than autoinfection from an old latent tuberculous process. The former assumption seems to be the only possible explanation for the preponderance of women over men, and also for the larger proportion of cases in which the father had been tuberculous, rather than the mother. Women, as stay-at-homes, are more exposed to familial infection, while the tuberculous, smoking father, spitting and coughing, is more liable to disseminate contagion than the more careful mother.

50. **Nephrosclerosis.**—This term is applied by Löhlein to progressive contracted kidney from sclerosis of the arterioles. The prognosis is grave from the moment when the atherosclerosis is fully developed. From then onward the affection must be regarded as malignant, menacing at any moment, although clinically it is impossible to tell when this occurs.

53. **Early Diagnosis of Smallpox.**—Willner calls attention to the first sign of the eruption as it appears on the inner surface of the prepuce. This will probably reveal the variola before any other differentiating symptoms appear. In the eight cases he describes, nodules or pustules appeared here on the prepuce and ran their whole course ahead of pustules elsewhere. The men had either never been vaccinated or it had never "taken." He did not see them until the eruption was well under way, but the advanced state of the prepuce pustules showed that they must have preceded considerably all the other cutaneous manifestations.

56. **Influenza.**—Scholz restricts the term epidemic influenza to cases for which Pfeiffer's bacillus is responsible, while endemic grippe may be traced to other bacteria, especially diplococci. He gives no figures but relates that influenza has been comparatively common among the troops in his charge, appearing in the nervous, the bronchopneumonic, the gastro-intestinal and the rheumatic-neuralgic forms. The toxic nature of the disease was most evident in the nervous type. The symptoms in some cases suggested meningitis, but the cerebrospinal fluid was always limpid although under considerable pressure. A number of the gastro-intestinal cases were treated for typhoid at first. Prompt improvement usually followed treatment with salicylates. Acetyl-salicylic acid in 0.5 gm. doses reduced the temperature to normal within forty-eight hours, and the pains subsided with it. After an interval of from two to four days the fever returned, but was arrested again by the same doses. The drug evidently does not conquer the infection, although it modifies its symptoms, shortening and mitigating the acute phenomena. Lung and gastro-intestinal symptoms were given the usual treatment. In some of the cases febrile recurrences returned from four to six times with afebrile intervals of two or three days. Headache and pains in the limbs were the only manifestations besides the fever during these recurrences.

57. **Lymph-Borne Tuberculosis.**—Ziegler reports experimental research and one clinical case which apparently demonstrate that the lymphatic apparatus is responsible for much disease that we have been classifying as blood borne.

58. **Large Hernias.**—Städtler runs three rows of a purse-string suture around the hernia opening in the fascia, after the hernia has been reduced. By drawing up and tying separately each row, a pad is produced which serves as an effectual protection against further eruption of the hernia. The muscles are then sutured in perpendicular tiers, and suturing the transverse incision in the skin completes the work.

Wiener klinische Wochenschrift, Vienna

September 28, XXIX, No. 39, pp. 1225-1256

63 Epilepsy and Tuberculosis. F. Weleminsky.—p. 1225.
64 *Death Following Intravenous Injection of Salvarsan; Two Cases. W. Kerl.—p. 1227.
65 Course of Typhoid in the Vaccinated. (Verlauf des Bauchtyphus bei Schutzgeimpften.) E. Freund.—p. 1232.
66 Pathogenesis of Paroxysmal Hemoglobinuria from Chilling. (Zur Pathogenese der paroxysmalc Kältchämoglobinurie.) O. P. Gerber.—p. 1234.
67 Induced Passive Hyperemia as Aid in Differentiating Typhus. (Wert der künstlichen Blutstauung als diagnostisches Hilfmittel bei Fleckfieber.) J. Šimeček.—p. 1236.
68 *Urobilinuria. (Zur Klinik der Urobilinurie.) A. Kirch.— p. 1238.
69 Autodeviation of Complement in the Wassermann Test. (Bedeutung der Eigenhemmung.) R. Müller.—p. 1239.
70 Enuresis in Soldiers. (Ueber Enuresis militarium.) K. Ullmann. —p. 1240. Continued.

64. **Deaths Following Intravenous Injection of Salvarsan.**—Kerl relates that the necropsy findings in his two cases confirmed the assumption that a substandard constitution and especially a weakness on the part of the lymphatic and vascular systems are the main causes of such mishaps under salvarsan. This assumption is sustained in particular by the case of two brothers who both developed practically the same clinical picture of cerebral syphilis after infection, although ten years apart, and one died. One had never been given salvarsan. The other had been treated with it two years before the fatal manifestations of the disease. Abuse of tobacco and of alcohol was evident in all his cases, contributing further to the danger on the part of the vessels. In contemplating salvarsan treatment, he emphasizes that the condition of the vessels, especially of the cerebral vessels, should be investigated with extra care.

68. **Urobilinuria After Injection of Salvarsan.**—Kirch has found urobilinuria quite common after salvarsan treatment, and he thinks we must accept some transient reversible injury of the liver parenchyma as responsible for it. No permanent injury seemed to result in his forty cases.

Zeitschrift für Tuberkulose, Leipzig

XXVI, No. 3, pp. 161-240. Last indexed April 15, 1916, p. 1281

71 Measures to Combat Tuberculosis during the War. (Die Aufgaben der Tuberkulosebekämpfung während des Krieges.) M. Kirchner.—p. 161.
72 *The Incidence of Tuberculosis Estimated by Skin Tuberculin Test. (Die Verbreitung der Tuberkulose nach den Ergebnissen der v. Pirquetschen Kutanreaktion.) O. Schlesinger.—p. 180.
73 Official Directions for Examination, Treatment and Dismissal from the Service of Tuberculous Soldiers and Surveillance Later. (Vorschriften über das Verfahren bei der Behandlung und Entlassung der an tuberkulösen Lungenleiden erkrankten Heeresangehörigen einschliesslich ihrer Ueberführung in die bürgerliche Fürsorge.)—p. 200.

72. **World Distribution of Tuberculosis Judged by Response to Skin Tuberculin Tests.**—Schlesinger expatiates on the absolute harmlessness of the Pirquet test and the ease with which its findings are estimated. As to its reliability, he says that the negative findings with infants may be due to the inability of the infant skin to react in this way, even although under other conditions there would be a positive response. The negative response is noteworthy further in tuberculous meningitis and miliary tuberculosis, during and after measles, and during the incubation and course of scarlet fever, as well as in far advanced cases. Feer has also observed cases of a negative response with active peritoneal tuberculosis, etc. Positive findings indicate beyond question that the organism has had a fight with the tubercle bacilli at some time. The fight may still be going on, as when the test is positive in children, but in adults this is not necessarily the case. The test on adults, however, is important for statistical purposes, and he reviews from this point of view a large number of reports of the findings with the test on hundreds of children and adults in various countries. Analysis of these figures shows that in remote regions where there is little intercourse with tuberculosis-tainted civilized states, the disease has very little if any foothold. The more the region becomes colonized with persons from the more civilized states, the more prevalent tuberculosis becomes. In villages and small towns apart from the highways of commerce tuberculosis spreads only very gradually, probably by the mediation of the school. In medium sized cities the children become infected before the school age, and in the larger cities a considerable portion of the children become infected with tuberculosis during the very first years of life. The exceptionally high mortality and the more rapid course of tuberculosis in peoples that lived remote and only recently had tuberculosis brought into their midst, suggest that in our environments a certain immunity has been acquired in the course of time, which is of course lacking in those peoples meeting tuberculosis for the first time. This immunity, he believes, is gradually growing more and more pronounced and is the explanation for the gradual subsidence of the tuberculosis mortality which has been observed in the last few decades in Germany and England. In short, he exclaims in conclusion, the Pirquet skin tuberculin reaction has demonstrated better than all other means of investigation at our command, that in the distribution of tuberculosis the highways of trade and commerce, increased facilities for intercourse between the inhabitants of a country and of different countries, if not the only factor, is yet in a high degree the decisive factor.

Policlinico, Rome

October 22, XXIII, No. 43, pp. 1247-1270

74 Experiences with War Surgery. (Brevi note di chirurgia di guerra.) F. Durante.—p. 1247.
75 *Epidemic Jaundice in the Troops on Active Service.—(Osservazioni cliniche e sperimentali sopra una forma d'ittero infettivo epidemico nelle truppe combattenti.) C. Moreschi and U. Carpi. —p. 1256.

75. **Epidemic Jaundice.**—Moreschi and Carpi state that from the very first of the Isonzo campaign cases of jaundice were occasionally observed. The number has kept increasing as also the gravity of the disease. The disease was always well under way when the men reached the base hospital in their charge. In some cases it came on insidiously, the jaundice being the first symptom to attract attention; in others there was at first a period of malaise with a chill and fever, oppression in the epigastrium and congestion of the conjunctiva. Herpes was almost constant and pronounced, while epistaxis was not rare. The temperature reached its highest point in the first two days and then gradually declined. In some cases the fever did not last beyond the first twenty-four hours. The intensity of the jaundice was not proportional to the severity of the disease; in some cases it was transient while in others it persisted for weeks or months. The glands in the groin, axillas and epitrochlea were often enlarged but smooth. Of twelve guinea-pigs inoculated with about 1 c.c. of blood from the vein of three patients with this epidemic jaundice, two developed jaundice the tenth day, with bile pigments and albumin in the urine. A spirochete was found in the tissues, probably the same as that described by Hübener and Reiter as responsible for infectious jaundice. Experiments with blood from patients were positive only with this one patient. The spirochetes have probably disappeared from the blood by the time the men reach the base hospital. Tests to determine the presence of paratyphoid bacilli were almost constantly negative.

Cronica Medica, Lima, Peru

XXXIII, No. 10, pp. 341-376

76 Echinococcus Disease of the Liver. (Dos casos mas de quiste hidatico del higado.) H. F. Delgado.—p. 341.
77 Biologic Differentiation of Specimens of Blood. (Aplicacion de la anafilaxia a la determinacion de la naturaleza humana o animal de la sangre.) P. L. Pajuelo.—p. 345.
78 Tuberculosis in Peru. (Estado actual y porvenir de la tisiologia en el Peru.) J. A. Escarcena.—p. 354.
79 Tuberculosis from Anthracosis in Mines in Peru. (La tuberculosis antracosica en una region montanosa del sur del Peru.) E. Escomel.—p. 356.

Siglo Medico, Madrid

October 14, LXIII, No. 3279, pp. 657-672

80 Atypical Sporadic Case of Friedreich's Disease. E. F. Sanz.—p. 657.
81 Present Status of Knowledge Concerning Epidemic Poliomyelitis. (Estado actual de nuestros conocimientos sobre la paralisis infantil.) F. G. H. Ramirez.—p. 661.
82 Ethical and Vicious Medical Periodicals; The Four Remedies for the Latter. (La buena y la mala prensa.) C. Juarros.—p. 664. See Propaganda Department, p. 1616.

October 21, No. 3280, pp. 673-688

83 *Diagnosis of Sarcoma of the Choroid. (Dificultades de diagnostico cuando se inicia el desarrollo del sarcoma de la coroides.) B. Castresana.—p. 674. To be continued.
84 Morbid Fear of Blushing. (Consideraciones sobre la ereutofobia.) J. S. de Figueroa.—p. 677.

83. **Sarcoma of the Choroid.**—Castresana has encountered sarcomas of the choroid in the proportion of five or six to each 10,000 patients with eye affections—about the usual average of frequency. He emphasizes the extreme importance of an early diagnosis, and discusses the first signs of the affection as he studied them in three recent cases. One patient is the chief of a bacteriologic service, aged 59. About a year ago he noticed a blurring in the outline of microscopic specimens, with dark specks, but vision for ordinary objects was normal. After about six weeks there came a dark spot in the upper segment of the microscopic field. Soon this dark spot became manifest in ordinary vision, and it gradually encroached more and more on the visual field. The diagnosis of circumscribed hemorrhage or tumor in the choroid was confirmed by a bulging into the vitreous. There never had been pain at any time, although the intra-ocular pressure was slightly above normal. Nothing abnormal elsewhere was found as the eyeball was enucleated, the melanosarcoma being restricted to the choroid. In the second case, a man of 30, about a month and a half after a piece of dirt had been flung into one eye, found that vision in this eye became imperfect, the upper and outer part of the field being shut off. A large tumor was found in the choroid, hard and nonmovable, and slight pain was experienced as the tumor was pressed. In both these cases vision previously had been normal, but the third patient, a man of 60, for ten years had been wearing glasses to correct hypermetropic astigmatism. Four months after a blow on one eye, an oval spot interfered with vision in that eye and objects also appeared distorted, with luminous sensations. In all these cases the eye appeared normal until examined with the ophthalmoscope. The article is to be continued.

Russkiy Vrach, Petrograd

XV, No. 36, pp. 841-864

85 War Wounds of the Skull and Their Treatment. (Ognestrielniya raneniya cherepa.) A. L. Polienoff.—p. 841.
86 Closing Cavities in Bones After War Fractures. S. A. Novotielnoff.—p. 841. Concluded in No. 37, p. 878.
87 *Chauffeurs' Fracture of the Radius or Ulna or Both. (Provrezhdenie nizhnyago kontsa predplechya u shofferov.) S. A. Maximovich.—p. 851.
88 Acute Myelosis in Man of 36. K. N. Biezhanitskaya.—p. 854.

87. **Chauffeur's Fracture.**—Maximovich has encountered twenty cases of chauffeur's fracture and describes the four varieties and the mechanism causing it. The injury resulting from the blow of the crank seems to vary with the age of the subject. In four who were 19 or 20 the epiphyses were merely pried off. In two, 25 and 26 years old, the fracture was of the classical type resulting from a fall on the wrist, with fracture of the styloid process of the ulna. In fourteen the men were all over 23, and in each the epiphyseal line, although consolidated, was evidently a point of lesser resistance, particularly at its outer end, and the bone split here, a triangular piece being pried off. In the other cases there was separation of the epiphyses with partial fracture of both bones above. Some of the cases had had no treatment and had healed with considerable callus and the movements of the wrist were difficult and painful, emphasizing the necessity for immobilization, massage and exercise as for other fractures. The men were all serving on army automobiles. He never had encountered a case in civilian practice.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

October 14, II, No. 16, pp. 1365-1452

89 *The Task of the Medical Teacher. (Een en ander over hooger onderwijs in de geneeskunde. VI.) G. van Rijnberk.—p. 1365.
90 Metal Olive to Explore the Esophagus. (Een eenvoudig hulpmiddel voor de herkenning van vernauwing in den slokdarm.) C. E. Benjamins.—p. 1368.
91 Research on the Action of Gastric Rennin. (Over de lebwerking.) L. de Jager.—p. 1378.
92 *Infectious Process in Urinary Apparatus Caused by Chicken Cholera Bacillus. (Over besmetting van de urinewegen met een pseudopestbacil bij den mensch.) C. Elders—p. 1391.
93 *The Carriers in Epidemic Meningitis. (Een en ander over een nekkramp-epidemie.)—W. Beijerman.—p. 1397.

89. **The Task of the Medical Teacher.**—In this sixth installment of his rambling notes on medical education, van Rijnberk discusses the principles that should guide the professor in his teaching. His remarks are not addressed to the present members of medical faculties so much as to the young men from whom are to come the professors of the future. He deplores the way in which universities have changed from seats of learning where old and young used to go to increase their knowledge and broaden their mind. In the course of time they have become merely institutions one has to go through to get a diploma. This fact that the universities have become merely training schools for the professions need not debar them from fostering science, but for this they must discard the standards of the preparatory school. The university is not so much a place for increasing one's knowledge of facts as for sharpening the mind and reason and training them in insight. The university professor should not impart facts without criticism. On the contrary, he should emphasize the doubts everywhere, always and in everything. Each fact should be observed, not independently, but in its relation to all that is known. The higher education should impart the power to regard one's self critically, to learn critically, and to build up new knowledge out of what is observed and learned.

The professor's aim should be not to teach the certain branch of science, root and branch, but to teach the student to learn it for himself. In this way he will learn and follow the course of this branch of science as long as he lives. Otherwise, he will be merely crammed with data which a year's progress may throw on the scrap heap. He says that in the Netherlands the lectures are too long and too numerous. The student protects himself by skipping an occasional lecture, but in this way he loses the "thread" of the instruction. Rijnberk insists that the lectures should not take up more time than an average, passive student can attend conveniently and with interest. It is better to teach the fundamentals of the branch of science one is teaching, and teach the student to learn the rest for himself in his practical work, leaving him time and opportunity to learn something of other branches and science beyond what is necessary to help him through his examination. Abstracts of van Rijnberk's previous articles have been published in this department recently, pp. 1191 and 1262.

92. **Pseudoplague Bacillus in the Urine.**—Elders' patient was a woman with intractable pyelocystitis for several years. From the urine could be cultivated in pure cultures a bacillus which resembled in every respect, in growth and virulence for animals, the classic pasteurella, the germ causing hemorrhagic septicemia in fowls. A vaccine made with it caused such a violent reaction that the attempt at vaccine therapy was abandoned.

93. **Epidemic Meningitis.**—Beijerman calls attention to his search for carriers among the troops in a garrison when several cases of cerebrospinal meningitis developed among them. There were only five cases in all, but four carriers were found on a single examination and were isolated. The rest of the men were taken for a week to an encampment on sandy ground in spacious tents. On their return, ten carriers were found among them, but repeated examination every four days showed that the meningococci soon disappeared. These men had probably been carriers from the first, so that a single examination cannot be regarded as conclusive. The isolation of those found at the first examination evidently did not contribute to the arrest of the epidemic so much as the brief change to an outdoor life. One man had an acute follicular tonsillitis and meningococci were found in his throat. They were probably responsible for the tonsillitis, but he lists the man with the carriers. He tabulates the findings with the carriers to show the brief period of positive findings. Examination a week later proved negative in seven; after two weeks in one. Three gave alternating negative and positive findings for nearly a month, and one for two months. The carriers gargled with hydrogen dioxid and had the throat swabbed with iodin glycerin, but meningococci were found in one case three minutes after a thorough swabbing, showing that these local measures are of little use. All the carriers

had slight rhinitis and one a frontal sinusitis, but the man whose carriership lasted the longest had no sinus trouble.

Hospitalstidende, Copenhagen

October 18, LIX, No. 42, pp. 1013-1036

94 Tercentennial of Thomas Bartholin, 1616-1916. M. K. Zahrtmann. —p. 1013.
95 *Proliferation of Epithelium Under the Action of Anilin on the Skin. (Epitelproliferationer fremkaldt ved Indvirkning af Anilin paa Huden.) H. Haxthausen.—p. 1018.
96 Case of Intestinal Infarction. (Tarmgangræn.) Kjelgaard. —p. 1024.

95. **Proliferation of Epithelium Under Action of Anilin Applied to the Skin.**—Scarlet red and a number of similar substances have been applied in the endeavor to stimulate proliferation of epithelium to induce experimental tumors, but Haxthausen is not aware of anilin having been applied to the skin for this purpose. He has been experimenting with anilin applied in the form of a salve to the skin. This technic ensures a more regular and prolonged and a strictly circumscribed action, concentrating it on one point. He used a 20 per cent. anilin salve or 10 per cent. solution in collodion. These were applied every third day to the spot selected, the back or ear of eight rabbits. The animals were killed after a month, and although nothing resembling an actual neoplasm had developed, yet the proliferation of the epithelium was so striking and so constant as to encourage further research in this line on a more extensive scale, especially testing the response on different animals and with different epitheliums. Four microscopic views of the findings are reproduced.

Hygiea, Stockholm

LXXVIII, No. 19, pp. 1473-1552

97 Methods and Aims in Scientific Research. (Om metoder och mål i vetenskaplig forskning.) E. Müller.—p. 1473.
98 *Tuberculous Stricture of the Small Intestine; Four Cases. (Till de tuberkulösa tunntarmsstrikturernas kasuistik.) P. Carlsson. p. 1502.

98. **Intestinal Stenosis of Tuberculous Origin.**—Carlsson's four patients were men of 35, 44 and 54 and a woman of 50. The stretch of bowel involved was resected in three of the cases. In the older man the small intestine showed numerous ringlike strictures at intervals of about 30 cm. He had been having colic pains with distention and exaggerated peristalsis for nearly three years, with vomiting. The exploratory laparotomy revealed the serosa smooth but with nodules near the strictures. The latter were of half solid (*halvfast*) consistency. The mesenteric glands seemed normal. The abdomen was closed without further intervention, and great improvement followed at once, but the later history is not known. The single stricture in the woman was resected. It was free and movable, like a cicatricial stricture, and for eleven years after resection of this stretch of the ileum she was in good health, free from pains. Before this she had suffered from digestive disturbances for twenty-two years, with colic pains, tympanites and exaggerated peristalsis with vomiting. Of the two other patients one had had abdominal pains recurring during eight years, the symptoms gradually presenting König's complete syndrome of tuberculous stenosis. Two tumor-like strictures were found in the lower ileum. Death occurred a year later from tuberculous peritonitis. In the fourth case there had been symptoms for only three or four months, and they were merely irregularity in bowel function, difficulty in passing flatus, and eructations. A tuberculous tumor was found in the cecum and a stricture near the valve of Bauhin. Death followed the ninth day from peritonitis, one of the sutures having given way. The fact must never be forgotten that tuberculous strictures are very likely to be multiple. The only chance for recovery is from an operation. Carlsson reviews further the pathology and symptoms as described in the literature.

Ugeskrift for Læger, Copenhagen

October 5, LXXVIII, No. 40, pp. 1703-1754

99 *Experiences with Lumbar Anesthesia. E. Petersen.—p. 1703.
100 Simple Colorimeter Estimation of Capacity of the Blood for Oxygen. (Kolorimetriske Bestemmelser af Blodets Iltkapacitet.) M. Krogh.—p. 1722.

October 12, No. 41, pp. 1755-1798

101 *Roentgen Exposures in Treatment of Exophthalmic Goiter. (Om Behandling af Morbus Basedowii med Røntgenstraaler.) J. F. Fischer.—p. 1755.

99. **Lumbar Anesthesia.**—Petersen reports in detail the experiences with lumbar anesthesia in 136 operations, including gastro-enterostomies and hysterectomies, at the Randers hospital. The contraindications are the same as for lumbar puncture in general. Good results were obtained with patients between 70 and 80; one woman of 77 had exarticulation of the hip-joint for sarcoma done under the lumbar anesthesia alone. The by-effects were few and slight except in a few cases in which there was a chill and the temperature ran up high a few hours after the operation. But it soon dropped again as abruptly as it had risen, and the patient did not seem to have been much affected by it. In one case the patient was extremely debilitated and any intervention was risky. There was collapse at once after the lumbar injection, requiring artificial respiration and massage of the heart. The operation, suprapubic cystostomy, was then commenced and successfully concluded and the patient is still living in good health. He has the patients sit up after the injection which perhaps explains the absence of the by-effects reported by others. There was severe headache persisting for several days only in two cases, but slight headache was not uncommon. It always yielded to a little acetyl-salicylic acid. On the whole, he asserts, the by-effects average much less in numbers and severity than with ordinary inhalation anesthesia.

101. **Roentgen Therapy of Exophthalmic Goiter.**—Fischer remarks that roentgenotherapy seems to be far more effectual than all other measures combined, with the exception of the operative, in treatment of exophthalmic goiter. If we assume that this disease is the result of excessive thyroid secretion, it seems logical to treat it with roentgenotherapy as we know that this has a destructive action on the gland. When carried too far, cachexia strumipriva has been known to follow. Bruno-Glaserfeld's compilation of 2,032 cases of exophthalmic goiter in which thyroidectomy was done shows 82 per cent. materially improved or permanently cured. Fischer has compiled statistics of roentgenotherapy in the same disease showing 80 per cent. cured or improved, but the figures are too small for comparison. At the same time, roentgenotherapy is comparatively harmless, while operative measures show a mortality of 5.4 per cent. in Bruno-Glaserfeld's compilation, and 6 per cent. in Hildebrand's compilation from the Kocher, Riedel, Klemm and Schulze clinics.

Fischer has treated with Roentgen exposures 94 exophthalmic goiter patients, in his private clinic, and 37 with simple goiter. The ages ranged from 14 to 67; 8 were under 18 and 9 over 50. Only 2 of the 94 in the Basedow group were men. Fully 20 per cent. in this group were unable to be out of bed except as they came for treatment. The affection was of from one to four years' standing as a rule. Positive benefit was obtained in from 77 to 80 per cent. of all the cases, while no improvement was evident in the others. Two of the patients claimed that they felt worse after the course of treatment, but one of these was found a few months later to have much improved. A complete subsidence of all objective and subjective signs and symptoms of the exophthalmic goiter was realized in 15 cases. In the other improved cases some of the symptoms subsided while others persisted. Three especially severe cases are described in detail, with illustrations of one patient. The thyroid subsided to normal size in 22, but in fully two thirds of the cases it became much reduced in size. The exophthalmos was the most refractory symptom, yielding most slowly if at all to treatment. It was present in 49 of the cases and subsided completely in the course of a year in 5, and was much improved in 18, but it never retrogressed completely when excessively pronounced. Fischer gives a good historical review of the application of the Roentgen rays in treatment of exophthalmic goiter. He usually gave ten sittings and then waited three months before resuming them, the entire course taking from six to twelve months. The therapeutic effect is never so prompt as after operative measures. He thinks a trial is justified even in the operable cases.

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SPINAL FLUID FINDINGS CHARACTERISTIC OF CORD COMPRESSION [*]

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On two consecutive days of October, 1915, our attention was forcibly called to the significance of certain changes in the spinal fluid characteristic of cord compression. Together we performed a necropsy on a man in whom the diagnosis was obscure, as shown by the term "myelitis," which had been the most satisfactory one obtainable. His spinal fluid had been examined by one of us a week previously; it was yellow, contained a fibrin clot, showed great excess of proteins by ammonium sulphate and alcohol precipitation, but only one cell could be found and the Wassermann and culture were negative. Necropsy showed compression of the cord by an extradural abscess. The very next day a patient came to operation because of increasing symptoms of transverse myelitis; he had previously had yellow fluid, increased proteins, increased cells and positive Wassermann; in him a dense fibrous thickening of the pia enveloping the spinal cord was found, sufficient cause for the symptoms of transverse myelitis.

On talking with colleagues at our own hospital, we found that a fluid characteristic of cord compression was not recognized by them; nor did we fare better on questioning physicians and surgeons of other Boston hospitals. Fearing local ignorance, a number of men in nearby cities most likely to see such fluids were approached; some had seen one or two yellow fluids which had greatly puzzled them, others had heard of them and not seen them.

On turning our attention to the literature, however, we were promptly rewarded by finding a number of articles, especially in French and German, dealing with this subject, and in these countries it was evidently recognized that there are certain changes in the spinal fluid characteristic of cord compression, colloquially referred to as the "spinal fluid compression syndrome." We have been able to find no collection of a series of cases illustrative of this subject in American journals, although a number of isolated case reports have been presented, occasionally with excellent discussion of the literature, particularly the articles by Mix.[1]

A group of twelve cases is here presented, all personally known to one or both of the writers, either from the laboratory or the clinical side, and usually from both points of view. All show the spinal fluid compression syndrome in its complete or incomplete form, and in all we have proof of cord compression, either from operation or necropsy, in one case only resting our proof on a combination of clinical and Roentgen-ray evidence. It has been hard indeed to exclude five other cases of similar nature, in which proof of the lesion or lack of personal knowledge of the case was lacking; suffice it to say, that this rejected group is in perfect accord with the twelve which are presented. Before proceeding to our own cases, however, let us examine the literature.

REVIEW OF LITERATURE

Abnormal findings in the spinal fluid, which have now become regarded as indicative of pressure on the spinal cord, were observed by Froin[2] in 1903. The spinal fluids from his cases showed three abnormal characteristics, a yellow color or xanthochromia, spontaneous coagulation, and an increase in the cell count. Three cases were reported at first and later one more.[3] Although no operative or postmortem findings are given, the histories of these patients would lead us to believe that the first was probably a pachymeningomyelitis of the conus terminalis, the second (?) tuberculous meningitis, the third Landry's paralysis, and the fourth syphilitic meningitis. From 1903 on, cases with these findings in the spinal fluid have been reported almost every year and Mix[1] in 1915, after a careful review of the literature, was able to find thirty-three and to add one case of his own. Since that time cases showing this complete syndrome have been reported by Demole[4] and Bromer.[5]

These thirty-six cases fall into three groups (1) the meningitis cases, (2) the cases showing pachymeningomyelitis of the conus terminalis, and (3) the cases of cord tumors. Under the first heading, meningitis cases, are found two of Froin's cases, one reported by Sicard and Descomps,[6] one of Froin and Foy's,[7] one by Verhoogen and Dustin,[8] one by Mestrezat,[9] one by Marinesco and Radovici,[10] one by Debré and Paraf,[11] and one by Bromer. Cases of Landry's paralysis reported by Froin, Donath,[12] and Braillon[13] also come into this

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[1] Mix: Clinics of John B. Murphy, 1915, iv, 317.

[2] Froin: Gaz. d. hôp., 1903, lxxvi, 1005.

[3] Froin: Aubry's Thèse de Paris, 1909.

[4] Demole: Rev. neurol., 1915, xxviii, 648.

[5] Bromer: Am. Jour. Med. Sc., 1916, cli, 378.

[6] Sicard and Descomps: Gaz. d. hôp., 1908, lxxxi, 1431.

[7] Froin and Foy: Gaz. d. hôp., 1908, lxxxi, 1587.

[8] Verhoogen and Dustin: Soc. d. sc. méd. et nat. d. Brux., 1909, lxvii, 169.

[9] Mestrezat: Liquide céphalo-rachidien normal et pathologique, Paris, 1912.

[10] Marinesco and Radovici: Rev. neurol., 1913, xxv, 268.

[11] Debré and Paraf: Presse méd., 1913, xxi, 952.

[12] Donath: Wien. klin. Wchnschr., 1905, xviii, 1327.

[13] Braillon: Gaz. d. hôp., 1909, lxxxii, 635.

first group. A typical example of this meningitis group is the case reported by Mestrezat:[14] Clinically there was flaccid paresis of the lower extremities of sudden onset with pain, loss of sphincter control, and with sensory and trophic changes. The spinal fluid one month after onset showed massive coagulation and xanthochromia and many lymphocytes. Necropsy showed extradural inflammatory neoformation at the level of the eighth and the ninth dorsal segments cutting off the end of the cord, with extension of inflammatory process to the leptomeninx.

The second group of cases is that best classified as pachymeningomyelitis of the conus terminalis, cases such as have been reported by Froin, Babinski,[15] Cestan and Revaut,[16] Fornaca,[17] Tedeschi,[18] Derrien, Mestrezat and Roger,[19] Claude,[20] Mestrezat, Marinesco and Radovici, and Launois, Frolin and Ledoux.[21] Some of these cases were without operation or necropsy, so that exact classification is impossible. One illustration of this group may be cited. The case of Launois, Froin and Ledoux is as follows: At first there was monoplegia, later flaccid paralysis, incontinence, Babinski, increasing paraplegia and death. The duration of the symptoms was four months. The spinal fluid formed a spontaneous clot with xanthochromia and lymphocytes. Necropsy showed chronic pachymeningtis with cutting off of dural cone at level of the conus terminalis.

The third group of the tumor cases all showed xanthochromia and spontaneous coagulation, but a variation in the cell count. Two examples of this group are as follows: In a case of Blanchetière and Lejonne,[22] a man of 66 had clinically spastic paraplegia. The spinal fluid finding showed yellow fluid, coagulation en masse, and few lymphocytes, found on seven punctures. Postmortem examination showed a tumor of the dura mater on the dorsal surface, at the seventh, eighth and ninth thoracic segments, not adherent to the cord. There was distinct compression of the cord, but no signs of meningitis. The duration of the symptoms before puncture was four months. A case reported by Klieneberger[23] was clinically a case of flaccid paraplegia. The spinal fluid findings showed increased pressure, amber color, spontaneous clot, increase in lymphocytes, on two punctures. On operation there was found a tumor of the fibers of the cauda equina and the anterior wall at the level of the second and the third lumbar vertebrae. A clear yellow fluid under pressure was seen below the tumor. The duration of the symptoms was about six months. Other cases in this group have been reported by Flatau,[24] Rindfleisch,[25] Collins and Elsberg[26] and Mix. All of these cases show xanthochromia and spontaneous coagulation.

Unlike the cases of meningitis there was only a slight cell count or none at all. This last fact was specially noted by Blanchetiere and Lejonne, who criticized the observation of Secard and Descamps, that all such spinal fluids were due to meningomyelitis. Mix also notes that the inflammatory compressions are the ones that give high cell counts. Thus he concludes that this characteristic is not a necessary part of the syndrome.

In regard to the cause of these findings there have been marked differences of opinion. Froin made no attempt to generalize. Cestan and Ravaut were the first to attempt to explain the xanthochromia and coagulation. They thought that the deep yellow color was due to the dissolution of the red blood corpuscles and consequent freeing of hemoglobin. The increase in albumin was due to the serofibrinous exudate of the inflammation. They even went so far as to think that a diagnosis of fibrinous hemorrhagic meningitis could be made from the spinal fluid findings. Sicard and Descomps believed that the inflammation was annular and caused vascular compression and the formation of a meningeal pouch below the point of constriction. As no tumor case had been reported up to that time they believed that the syndrome was always diagnostic of meningitis.

With the publication of the first tumor case by Blanchetière and Lejonne in 1909 the early theory of meningomyelitis as being the only cause had to be abandoned. These workers thought that the xanthochromia was derived from the hemoglobin. Klieneberger in 1910 believed that the tumors in his cases divided the spinal canal into two parts. Launois, Froin and Ledoux in 1914 came to the conclusion that the yellow color was due to local hemolysis or an exudation of the blood plasma. Mestrezat[27] concludes that "it is a transudation and perhaps sometimes little capillary hemorrhages in a closed pouch in the lumbar culdesac isolated in different ways from the remaining subarachnoid space, which brings about the syndrome of massive coagulation and xanthochromia."

It was soon noted that many cases of obvious spinal cord pressure due especially to tumors did not give a spinal fluid showing the complete syndrome of xanthochromia and coagulation en masse, with fibrin clot, but did show a marked increase in protein content, entirely out of proportion to the number of cells present. Nonne[28] in 1910 seems to have been the first to note this point and in that year he published a report of six cord tumors with spinal fluids of a pathologic nature. Nonne's cases did not show spontaneous coagulation as had the carefully reported case of Blanchetiere and Lejonne's, but all showed a very strong Phase 1 reaction with few or no cells. Three cases were verified by operation and two by postmortem examination.

The next important paper was one by Raven[29] from Nonne's clinic in 1912. Raven gives a careful review of the literature and reports fifteen cases, each showing an increase in proteins, and some showing spontaneous coagulation and xanthochromia. All these cases came to operation or necropsy and all showed a definite lesion causing compression of the spinal cord, the large majority being tumors. Raven also gives a table of forty-seven cases found in the literature, including his own fifteen and the six previously reported by Nonne. The focus of compression varied, eight being cervical, eighteen dorsolumbar, eight conus or cauda, and five diffuse. His conclusions are as follows:

Albumin increase with slight or no lymphocytosis indicates compression of the spinal cord. The cause of the compression cannot be determined by this test.

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[14] Mestrezat: Footnote 9, p. 432.
[15] Babinski: Presse méd., 1903, xi, 755.
[16] Cestan and Ravaut: Gaz. d. hôp., 1904, lxxvii, 985.
[17] Fornaca: Gazz. d. osp., 1906, xxvii, 497.
[18] Tedeschi: Gazz. d. osp., 1906, xxvii, 1067.
[19] Derrien, Mestrezat and Roger: Rev. neurol., 1909, xvii, 1077.
[20] Claude: Rev. neurol., 1909, xvii, 1420.
[21] Launois, Froin and Ledoux: Gaz. d. hôp., 1914, lxxxvii, 361.
[22] Blanchetière and Lejonne: Gaz. d. hôp., 1909, lxxxii, 1303.
[23] Klieneberger: Monatschr. f. Psychiat. u. Neurol., 1910, xxviii, 346.
[24] Flatau: Sektion d. neurol.-psychiat. Gesellsch z. Warschau, Nov. 19, 1910; Ztschr. f. d. ges. Neurol. u. Psychiat., 1911, iii, 146; Rev. neurol., 1911, xxi, 440.
[25] Rindfleisch: Deutsch. Ztschr. f. Nervenh., 1904, xxvi, 135.
[26] Collins and Elsberg: Am. Jour. Med. Sc., 1914, cxlvii, 493.
[27] Mestrezat: Footnote 9, p. 448.
[28] Nonne: Deutsch. Ztschr. f. Nervenh., 1910, xl, 161.
[29] Raven: Deutsch. Ztschr. f. Nervenh., 1912, xliv, 380.

The increase of albumin occurs through stasis of fluid below the site of compression. Xanthochromia results from hemoglobin. Its presence strengthens the diagnosis. The syndrome may be found in cases of intramedullary tumors. The article is illustrated by two good colored reproductions of spinal fluids showing xanthochromia.

Later Raven[30] adds seven more cases to the fifteen already reported by him. In this paper he said that he was trying to find out the point of compression and the cause of compression, but this he was unable to do at that time. He reiterated his belief that a spinal fluid showing increased proteins and xanthochromia means compression at some point on the spinal cord. Nonne[31] in 1913 reported sixteen more cases, giving in detail the history of each patient with operative and postmortem findings and many exceptionally good photographs of the lesions. Many are tumor cases and the majority show increased proteins and some xanthochromia in the spinal fluids. Two cases are specially notable: His Case 3, gumma of the meninges in the dorsal region pressing on the spinal cord; the first lumbar puncture showed lemon color, Phase 1, triple plus, no lymphocytes and a positive Wassermann in both blood and spinal fluid. After intensive antisyphilitic treatment with clinical improvement the spinal fluid became clear and colorless. Phase 1, plus, showed no lymphocytes and Wassermann negative. In speaking of the value of lumbar punctures as diagnostic measures, Nonne says that these two punctures showed that there was compression of the spinal cord, that it was due to syphilis, and that the second puncture gave ocular demonstration of the improvement under treatment. Case 5 was osteoma of the tenth dorsal vertebra causing marked extradural compression. Clinically it was transverse myelitis. The spinal fluid was clear, Phase 1, triple plus, eight cells, Wassermann negative in both blood and spinal fluid. Three good illustrations of the cord are shown.

The following conclusions are drawn by Nonne:

1. The examination of spinal fluids seems to give us a compression syndrome by the increase in globulin with slight or no lymphocytosis, and either with or without a yellow color.
2. The increase of albumin in the spinal fluids in cases of tumor is probably due to stasis distal to the point of compression and not to inflammation.

The following diagnostic points are given:

1. Isolated increase of albumin in the fluid strengthens the suspicion of compression of the cord.
2. It is present only distal to the point of compression.
3. Xanthochromia of the fluid is due to mixture with blood coloring matter, probably in consequence of hemorrhage.
4. The syndrome gives no inference as to the character or starting point of the compression.
5. Spinal fluid results do not differentiate intramedullary and extramedullary growths.

Rare, isolated cases are found in the American and foreign literature, often reported without special attention to the spinal fluid findings. Such cases are those of Bassoe,[32] Schaller,[33] Assmann,[34] and Skoog.[35] Demole[4] in 1915 reported a case of carcinoma of the vertebrae metastatic from the breast, which showed massive coagulation and xanthochromia in the spinal fluid. Reichmann[36] in 1912 reported a case of von Recklinghausen's disease with multiple metastases in the spinal canal giving the syndrome of xanthochromia and increased proteins in the spinal fluid. Bromer[5] reported in 1916 a case of Pott's disease in the cervical region, the spinal fluid showing spontaneous coagulation and xanthochromia.

The literature may be summarized thus:

1. Abnormal findings in the cerebrospinal fluid in cases of cord compression was first noted by Froin in 1903. Since that date over fifty cases have been reported, mostly in the French and German literature.
2. The original syndrome of Froin consisted of xanthochromia, spontaneous coagulation with increase in the cell count. Other workers have shown that compression is also indicated by a low cell count, marked increase in protein content, with or without xanthochromia (Nonne and Raven).
3. The cause of compression may be tumors, Pott's disease, circumscribed meningitis, meningomyelitis, or any pathologic process causing complete or partial transverse myelitis from pressure, within or outside of the cord.
4. Compression may be exerted at any point on the spinal cord, but in the majority of the cases reported it was in the lumbar region or the conus terminalis.
5. The pathologic fluid was found only distal to the point of compression.
6. The cause of these findings is not known. It seems certain that in all of the cases reported there was the formation of a culdesac below the point of compression and it is in this walled-off space that the abnormal spinal fluid is found.

ANALYSIS OF PERSONAL CASES

1. *Characteristics of the Spinal Fluid.*—The one outstanding feature of the fluid in these cases is the marked increase of protein content. Normally, the spinal fluid contains a trace of proteins, as may be demonstrated by precipitation with alcohol; the fluid in cases of chronic inflammation of the meninges, such as tabes, shows slight increase, as demonstrated by alcohol, ammonium sulphate (Nonne), butyric acid (Noguchi) and other tests. The increase in these cases is usually many times that of the tabetic fluid.

That this increase of proteins is not dependent on an inflammatory process is evident from the fact that cells are either absent or in negligible quantity, and when found, are frequently endothelial in origin and not exudative in type; in two cases, in which a definite lymphocytosis occurred, the constrictive process was shown to be syphilitic. Interesting in this connection is Case 8, in which we have spinal fluid examinations before and after the appearance of symptoms of compression; with no more evidence of inflammation we see a marked increase in the protein content.

Xanthochromia occurred in just half of our cases, the color varying from the palest yellow tint to a deep yellow. The remaining six cases showed clear, colorless fluids, to the eye apparently normal. In one patient, in whom consecutive punctures were made, we were able to follow the fluid in its transition from colorless to yellow and to colorless again after operation. Whether colorless or xanthochromic, the fluids were invariably clear, with the exception of fibrin clots, which formed spontaneously in four of the most deeply yellow fluids.

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[30] Raven: Deutsch. Ztschr. f. Nervenh., 1913, xlix, 36.
[31] Nonne: Deutsch. Ztschr. f. Nervenh., 1913, xlvii, 436.
[32] Bassoe, J.: Nervous and Mental Diseases, 1915, xlii, 736.
[33] Schaller: Jour. Nerv. and Ment. Dis., 1913, xl, 489.
[34] Assmann: Deutsch. Ztschr. f. Nervenh., 1910, xl, 131.
[35] Skoog: Spinal Cord Compression from Leptomeningeal Cysts, The Journal A. M. A., July 31, 1915, p. 394.
[36] Reichmann: Deutsch. Ztschr. f. Nervenh., 1912, xliv, 95.

Pressure, as tested by manometer, was invariably within normal limits, tending toward low readings. An additional argument that there exists a closed cavity below the level of constriction is given in Case 6; this patient had brain tumor with beginning choked disk and should have had high spinal fluid pressure, 400 mm. or more; his pressure was normal, 170 mm. It is reasonable to assume that the tumor, which also constricted the cord, had shut off the lower from the upper spinal canal.

The Wassermann reaction was negative in all except three cases, two of these undoubtedly syphilitic.

The colloidal gold test of Lange was performed in eleven cases. In seven the greatest color change appeared in the maximum dilutions, the so-called tumor zone. In one it was in the syphilitic zone, and in three there was a slight color change in all dilutions. In two patients in whom goldsol reactions were performed at different times the maximum change was seen to occur in progressively greater dilutions as the clinical picture of transverse myelitis became more marked, this change going hand in hand with increase in proteins.

Culture was negative in one case of epidural abscess, thus showing what an important barrier the dura presents to infection by direct extension.

cases fall in the dorsal region, as is to be expected from its relatively greater length and variety of pathologic processes involved.

Concerning the aspect of the cord on which compression is chiefly exerted, we find pressure from the side, from back, from front, constriction from all sides and pressure from within; in fact, every aspect imaginable.

3. *Probable Duration of Compression.*—In these cases this was as varied as the pathologic process and the location and aspect of the compressing agent. For the most part, however, they fall into two groups: compression from acute processes, such as extradural abscess leading to rapid paralysis, and compression from chronic processes, causing insidious symptoms. All, however, produced spinal fluids which gave the syndrome, complete or incomplete.

A glance at Table 1 will give a concise idea of the above facts, and will help to understand the subsequent discussion. Intensity of symptoms is shown by a plus sign, depending on the degree of disability, both motor and sensory, exhibited at the time of puncture. Spinal fluids are classed as forming the complete or incomplete syndrome, depending on whether they exhibit xanthochromia or not. The arrangement is topographic from cervical to sacral downward.

TABLE 1.—DATA OF AUTHORS' CASES OF CORD COMPRESSION, ARRANGED IN SUCCESSION FROM HEAD DOWN

Case No.	Spinal Fluid Syndrome	Compressing Agent	Location and Aspect of Compression	Duration of Compression	Intensity of Symptoms
10	Incomplete	Dermoid cyst of cord	Cervical 4 and 5, central pressure	6 years	+++
3	Incomplete	Tuberculosis of vertebra	Cervical 6 and 7, ventral pressure	4 weeks	++
5	Complete	Intramedullary tumor	Cervical 7, central pressure	7 years	++
9	Complete	Chronic progressive fibrous leptomeningitis (syphilitic)	Diffuse; all sides upper dorsal	1 month	+++
7	Incomplete	Intramedullary tumor?	Dorsal 4, central pressure	13 years	+
1	Complete	Epidural abscess	Dorsal 4 and 5, dorsal pressure	1 week	+++
6	Complete	Glioma of meninges	Diffuse, all sides, mostly dorsal	4 months	+++
2	Incomplete	Extradural endothelioma	Dorsal 6, dorsal pressure	1½ years	++
11	Complete	Epidural abscess	Dorsal 4 to 7, dorsal pressure	2 weeks	+++
8	Incomplete	Charcot spine	Dorsal 11 and 12, lumbar 1 and 2	14 weeks	+
12	Complete	Varix of cord	Sacral, central pressure	5 years	++
4	Incomplete	Fibroma	Cauda equina	4 to 6 years	+

To sum up, all fluids showed increased proteins, all except one greatly increased. There was no evidence of acute meningeal irritation in any and there was evidence of slight chronic irritation, as shown by mild lymphocytosis, in two only. Half of our cases showed the yellow color and four of these exhibited the full characteristics of the original *syndrome de coagulation massive et de xanthochromie* of the French. The remaining six fluids are, however, pathologic only to a less extent, and are characteristic of cord compression, though less strikingly so. Pressure of spinal fluid was essentially normal in all tested cases. The Wassermann reaction was strongly positive only in syphilitic cases. The goldsol reaction usually fell in the tumor zone, with marked change of color in the greater dilutions.

2. *Constricting Agent.*—Even in this small group we find many different types of causes and degrees of constriction. We have agents causing compression for a week and for years; we have pressure caused from outside of the dura, from inside of the cord and from affection of the meninges themselves. We have acute inflammations and chronic inflammations; we have rapidly growing tumors and benign tumors.

Again, we find that our series shows constriction of nearly every segment of the spinal cord, and even a tumor below the cord is found to give the characteristic spinal fluid picture. By far the greater number of

COMMENT

Can we go farther than to differentiate two general varieties of spinal fluid indicative of cord compression? Can we deduce anything of more minute diagnostic value from the study of even these few cases?

It seems to us that we can. One point seems certain, pressure sufficient to cause marked sensory and motor disturbance tends to give the complete spinal fluid syndrome. The one exception was Case 10, in which the locus of pressure was the highest in the series; and this leads to the second point, that in cases in which symptoms of compression were marked, the lower loci of compression more frequently gave the stronger positive fluids. Compression from acute processes was more potent in the production of yellow fluids than that from chronic causes, and, lastly, it seems that intramedullary and meningitic lesions, especially when surrounding the cord completely, are more productive of the complete syndrome than are extradural processes.

It seems reasonable at this point to take into consideration five other cases which have come to our attention, which could not, for lack of proof, be used before; all are clinically cord pressure cases, and one proved by necropsy (case of Dr. Charles A. McDonald of Providence); four of these five had punctures from forty-eight hours to six weeks after onset of symptoms; all gave the complete spinal fluid picture. The

TABLE 2.—SYMPTOMS, FINDINGS, TREATMENT AND RESULT IN AUTHORS' CASES OF CORD COMPRESSION

Case Number and Condition Present	Symptoms and Signs	Spinal Fluid	Result
1. Pressure on cord from extradural abscess	Complete transverse myelitis, middorsal; one week	Yellow, clear, with fibrin clot; coagulable proteins greatly increased; cells 0; pressure normal; culture negative; goldsol meningitis	Necropsy. Pressure on D. 4 and 5 segments, posterior and lateral, by pus, extradural
2. Progressive paralysis from extradural endothelioma	January, 1914. Brown-Sequard syndrome, 8 weeks' duration. Probable diagnosis, syringomyelia	Colorless, clear; proteins much increased; cells 8; Wassermann negative; goldsol: 0, 0, 1-2, 2, 2, 3, 2, 2, 1, 0	
	December, 1914. Increase of symptoms, approaching transverse myelitis. X-ray of spine negative	Colorless; proteins much increased; cells 1; Wassermann negative; pressure 150 mm.; goldsol: ±, 1, 2, 2, 2-3, 2-3, 1, ±, 0, 0	
	August, 1915. Partial transverse myelitis at D. 4. Unable to walk. Double clonus and Babinski, more marked on right	Colorless; proteins much increased; cells 5; Wassermann negative; pressure 210 mm.; goldsol: 0, 0, 0, ±, 1, 1-2, 1-2, 1, ±, 0	Aug. 10, 1915. Operation. Endothelioma extradural, size of English walnut pressing on D. 6 and attached to dura on right. Erosion of lateral wall of vertebral canal into base of 4th D. spine. Tumor removed entire, dura incised, with escape of clear fluid. Complete recovery of patient
3. Pressure from Pott's disease	July, 1914. Partial transverse myelitis, 4 weeks. X-ray shows distinct difference in articulations of lower cervical vertebrae	Colorless; proteins much increased; cells 26; Wassermann negative; goldsol: 0, 0, 0, ±, 1, 3, 3, 5, 4, 2; culture negative	Operation. Cord bulging of anterior wall of spinal canal caused by extradural tubercular abscess. Improved
4. Fibroma of cauda equina	September, 1915. Pain and paralysis of legs, without loss of sphincters or sensory disturbance characteristic of transverse myelitis; slowly progressive	Colorless; proteins much increased; cells 40; Wassermann negative; goldsol: 0, 0, 0, ±, 2, 3, 3-4, 3, 2, 1; pressure 110 mm.	First operation, no tumor found (too low). Second operation, fibroma found on one part of cauda equina, molded to the shape of spinal canal
5. Intramedullary tumor	Illness began 7 years ago with pain in left arm which became, 4 years ago, replaced by numbness; later, stiffness of legs. X-ray showed distinct atrophy of 7th cervical vertebra	Yellow; proteins much increased; Wassermann negative; goldsol: 0, 0, ±, 1, 1, ±, 1, 2, 3, 3; pressure normal	Operation. Swollen, discolored cord at C. 7 level. Diagnosis, intramedullary tumor. Partial benefit
6. Glioma of brain; extension to spinal meninges	Marked ataxia of legs of few weeks' duration, rapidly progressive to motor and sensory paralysis with upper level at D. 8. Optic neuritis, developing into choked disk, and symptoms of increased intracranial pressure. X-ray of spine and cranium negative	Oct. 21, 1915. Yellow; no clot on standing; proteins much increased; cells 11; Wassermann negative; goldsol: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1; pressure 170 mm. Nov. 17, 1915. Slightly yellow; cells 4; goldsol: 0, 0, 0, 0, 0, ±, 1, 1, ±, ±	Nov. 9, 1915. Operation. Subtemporal decompression; no tumor found Nov. 17, 1915. Necropsy. Glioma at base of brain, and also extending up and down cord for greater part of its length, between membranes, most marked and entirely surrounding cord in dorsal region
7 Intramedullary disease (?)	For 13 years increasing paresthesia of fingers and, later, feet. Recently cutaneous sensory disturbance to level of upper dorsal. X-ray negative	Colorless; proteins moderately increased; cells 0; pressure normal; goldsol: 0, 0, ±, ±, ±, 0, 0, 0, 0, 0; (Wassermann blood and fluid negative previously)	Operation. Discolored cord at D. 4. Cord not enlarged
8. Charcot spine	1913. Typical low tabes of 2 years' duration. Treated with salvarsan and mercury, without change	Colorless; proteins slightly increased; cells 78; pressure 60 mm.; Wassermann negative (later positive); (Wassermann blood positive)	
	1915. Cutaneous sensory disturbance with Babinski. Knuckle of lumbar spine noted for first time. X-ray showed fusiform swelling about and involving high lumbar vertebrae	Colorless; proteins greatly increased; cells 21; Pressure 100 mm.; Wassermann strongly positive; goldsol: 0, 0, ±, 2, 2, 2, 3, 1-2, ±, 0	Plaster cast gave partial relief
9. Chronic progressive syphilitic leptomeningitis	1908. Treated for syphilis of nose. 1913. Left 6th nerve palsy, 6 months' duration, with pains in legs and unsteadiness. Argyll Robertson pupils, but normal reflexes. Improved under salvarsan	Colorless; cells 10; Wassermann negative; (proteins not examined)	
	March, 1914. Better........................	Colorless; cells 44; Wassermann positive; pressure 160 mm.; (proteins not examined)	
	August, 1914. Complains of pain about shoulders and stiffness in walking	Yellow, clear; proteins much increased; cells 1; Wassermann anticomplementary; pressure 110 mm.	
	Sept. 21, 1914................................	Yellow, clear; proteins much increased; cells 1; pressure 100 mm.; Wassermann anticomplementary; goldsol: 0, 0, 4, 4, 4-5, 5, 5, 5, 5, 5	
	Oct. 1, 1914..................................	Slightly yellow, clear; proteins much increased; cells 11; pressure 170 mm.; Wassermann anticomplementary; goldsol: 0, 1, 2, 2, 2-3, 3, 3-4, 3-4, 3, 1	
	Nov. 7, 1914. No change in condition clinically. Clearly spastic paraplegia with diminished cutaneous sensation below nipples	Yellow, clear; proteins much increased; cells 5; pressure 150 mm.; goldsol: 0, ±, 1, 2, 2, 2-3, 3, 3, 2, 1	
	December, 1914. Same. Babinski and clonus both sides. Atrophy shoulder girdles		
	July 16, 1915. Condition same............	Colorless; proteins moderately increased; cells 5; pressure 90 mm.; goldsol: 0, 0, 0, ±, 1, 1, 1, ±, 0, 0	Oct. 8, 1915. Operation. Extensive dense fibrous leptomeningitis encasing cord posteriorly and laterally in upper dorsal region, extending above and below laminectomy opening. Incised but cannot be removed
	Oct. 23, 1915. Condition about same......	Bright yellow; proteins much increased; cells 3; pressure 170 mm.; goldsol: 0, 0, 0, ±, ±, ±, 1, 2, 2, ±	
	Feb. 10, 1916. Same. Perhaps a little improvement in motion and sensation	Colorless, clear; proteins moderately increased; cells 4; pressure 100 mm.; goldsol: 0, 0, 0, ±, 1, 1-2, 3, 3, 3, 2-3	
10. Large dermoid cyst of cord	March, 1916. Pain in arms for 6 years. For one year weakness of legs and numbness of arms and legs; marked spastic gait with crutches. Cutaneous sensory change to C. 4	Colorless, clear; proteins slightly increased; cells 1; Wassermann negative; goldsol: 0, 0, 0, ±, 1, 1, ±, 0, 0, 0	Operation. Dermoid cyst, apparently arising from and markedly distorting the spinal cord at C. 4 and 5. May 3, able to stand and walk a little better
11. Pressure on cord from extradural abscess	Feb. 18, 1916. Pain in left shoulder and chest 2 weeks. Retention 5 days. Spastic paraplegia 4 days. Temp. 101 to 105. Hyperesthesia. D. 7 to 9. Anesthesia below D. 9	Yellow, clear; fibrin clot; protein greatly increased; cells 0	Operation. Epidural abscess pressing on cord, D. 4 to 7. Culture from pus shows Staphylococcus aureus. Death; no necropsy
12. Varix of posterior spinal veins of sacral cord	Pain in spine, back and legs 5 years. Disturbance sphincters 1½ years. April 25, 1916. Knee jerk, left greater than right. Ankle jerk not obtained. Plantar reflexes normal. Atrophy right leg with toe drop. Sensation normal	Bright yellow, clear; fibrin clot while needle in situ; protein much increased; pressure not increased; cells 4; Wassermann negative; goldsol: 0, 0, 0, ±, 1, 1-2, 3, 3-4, 4, 5	Operation, May 1, 1916. Cord seemed to be under pressure and forced outward on opening dura. Veins of sacral cord greatly dilated at first, but normal after few minutes. No other abnormality. Patient improved

fifth case shows little disability, but symptoms are referable to the lumbar cord; the fluid in this case also is yellow.

In line with our finding of incomplete fluids as a result of extradural pressure from chronic processes is the only case which we have had which failed absolutely to give positive findings. This patient gave the clinical picture of transverse myelitis in moderately complete form, with level at dorsal 5 to 7. Operation revealed myeloma of the vertebra, with extradural pressure on the cord. This is in agreement with Nonne, who found negative fluids in a few cases with evident cord pressure. On the other hand, in upward of 1,000 punctures we have not found the syndrome in other than cases of cord compression. While, then, we must admit that spinal cord compression may be present without causing changes in the spinal fluid below the pressure level, the fact seems to be that the characteristic changes usually occur, and that we can reasonably expect to find the spinal fluid syndrome in its complete form in cases in which symptoms of pressure develop rapidly, especially if the compressing agent is within the dura and the pressure is exerted on the lower part of the spinal cord.

CONCLUSIONS

1. We believe that changes in the spinal fluid frequently occur as a result of compression of the spinal cord.
2. The principal characteristic of such compression fluid is marked increase of proteins without corresponding cellular increase, obtained under normal pressure.
3. Xanthochromia with massive coagulation added to the above makes a more intense reaction of the same significance, only more conclusive.
4. Factors which tend to give the syndrome most readily, or to give it in its most intense form, are processes which act rapidly, are intramedullary or cause pressure on the cord from all sides, and which affect the lower cord.
5. We do not believe that such findings are necessary in cord compression, but that their presence is confirmatory evidence of value in some cases.

ABSTRACT OF DISCUSSION

Dr. Peter Bassoe, Chicago: In an article by Dr. Charles L. Mix on massive coagulation and xanthochromia it is shown that this syndrome is not characteristic of either inflammation or tumor, but of the formation of a meningeal pouch in the lower part of the spinal canal. Dr. Mix insists that only cases in which the fluid coagulates massively, so the tube can be turned upside down without spilling, should be included. In a recent case of sarcoma of the cord in the thoracic region I repeatedly obtained a uniformly yellow fluid which coagulated spontaneously but not massively.

Dr. Francis A. Ely, Des Moines, Ia.: Within the past six months I have had the opportunity of studying the cerebrospinal fluids in two cases. The first case was that of a young man who came into the hospital with symptoms which led to a provisional diagnosis of laminated cervical meningitis although there was marked loss of sensibility to pin prick and temperature discrimination. The predominance of tearing bilateral symmetrical pains in the distribution of the median and ulnar nerves and the marked loss of sensibility to cotton wool led me temporarily astray from the proper diagnosis. Fearing that I might be overlooking an intramedullary tumor the patient's consent to a cervical laminectomy was secured, and at operation the dura was observed to be nonpulsating and the cervical cord to be greatly swollen and distended. A subsequent necropsy revealed an extensively tubulated syringomyelic cord. The cerebrospinal fluid obtained by lumbar puncture when the patient first entered the hospital exhibited the xanthochromic syndrome and the fluid obtained from the cavity within the cord was found to have the same characteristics. The other case was one of posterior fossa tumor probably primary in the cerebellum and growing into the pontine angle, in which the cerebrospinal fluid also exhibited the yellow color, strongly positive Noguchi, low cell count, and negative Wassermann. In this case no evidence of compression of the cerebrospinal axis below the foramen magnum could be obtained.

Dr. A. L. Skoog, Kansas City, Mo.: I have had similar experiences with cord compression cases due to several different causes. Perhaps the most interesting cases I have observed during the past ten months are two psammomas, both of them growing from the inner surface of the dura and both involving the middorsal region. One had existed, judging from the clinical history, for a period of nine years, the other for about two years. Pathologically the tumors showed a difference owing to their age, the older one being much more dense and having a heavy capsule. The operation demonstrated that they had been localized correctly, and they were removed successfully. One of them showed a mild xanthochromia, the other not. Both of them had a greatly increased protein content in the spinal fluid. They were negative to Wassermann and gold colloid tests for syphilis. One interesting finding on which I lay a great deal of stress, and which I believe should be added to the syndrome, is the state of pressure of the cerebrospinal fluid. For instance, the first patient cited had in the sitting posture a spinal fluid pressure of only about 40 mm., while the normal pressure is in the neighborhood of 120. After withdrawing, allowing it to drop away, not more than 3 c.c., the pressure was reduced to nil. The second patient, again in the sitting posture, at first had a spinal fluid pressure of about 55 mm. (measured by the water-gage apparatus). After removing about 5 c.c. the pressure in this case also was reduced to nil. The first patient had no lymphocytosis. The second patient, the one most recently operated on, had a lymphocyte count of 9.3 per cubic mm. In cerebrospinal syphilis there is practically always increased pressure. I know of but one exception in my experience, and at necropsy it was demonstrated that the choroid plexus was practically destroyed, which explained the subnormal spinal fluid pressure. I think that nine tenths of the choroid plexus cells had been destroyed, but he had marked evidences of cerebrospinal syphilis.

Dr. Ernest Sachs, St. Louis: About two years ago I had a case of fibroma of the spinal cord, the patient having had symptoms for about four years. At the end of the first two years he was completely paralytic, had lost all power in the legs and had complete loss of sensation to the eighth dorsal segment. Following this he recovered the use of his legs to a slight extent. They became very spastic, and still he was bed-ridden. At the end of four years he came to me. The spinal fluid showed the characteristic picture of xanthochromia. It did not coagulate, and we made a diagnosis of spinal cord tumor at the level of the eighth dorsal segment. The two interesting points in the case were, first, that after withdrawing about 3 c.c. of yellow fluid, we were unable to obtain any more; second, that the tumor symptoms had receded, which was explained at operation by the fact that histologic examination of the tumor indicated that at one time it was very vascular but had contracted. As to the statement that xanthochromia is produced by complete compression of the cord, this case would seem to throw some doubt on that conclusion, since the tumor, having contracted, occupied less space in the spinal canal than had been the case originally. I would like to ask Dr. Ayer whether in any of his cases a second puncture yielded yellow fluid. In this case a second lumbar puncture showed no fluid whatever, and following operation the spinal puncture yielded normal cerebrospinal fluid. I think that the yellow color must be due to blood pigments. I do not see why a transudation should give a yellow color unless the color is imparted by some degeneration of the hemoglobin.

Dr. Charles R. Ball, St. Paul: In my experience xanthochromia is not confined to cord lesions, but in quite a number of cases that have come under my observation I have found it in lesions of the brain proper. This has been observed by me in a number of cases of severe apoplexy where two or three weeks afterward there was a very distinct yellowish tinge to the cerebrospinal fluid. Also in two cases of cerebrospinal syphilis there was very marked xanthochromia. These cases afterward cleared up under specific treatment. In the cerebral lesions, and in the cases of cerebrospinal syphilis, however, the cell count was quite large, so that the compression syndrome which Dr. Ayer describes in his paper was not present. In deciding on the diagnosis of spinal cord compression this syndrome to which Drs. Ayer and Viets have called attention is a very important one. I would have much more assurance in advising a decompression by laminectomy when it is present. It is well for us to keep in mind that xanthochromia may be found in both brain and cord lesions.

Dr. W. F. Lorenz, Mendota, Wis.: I concur that xanthochromia does not necessarily indicate a case of spinal cord compression. In two cases that came to necropsy a focal lesion was found, and the condition was evidently the result of former hemorrhage.

Dr. Charles A. Elsberg, New York: Up to the present time we have been unable to discover anything characteristic in the spinal fluid in spinal cord tumor. In thirty cases of extramedullary spinal cord tumor that I have operated on there was xanthochromia in six, but five of these six cases were tumors of the conus and cauda equina, the other was a tumor in the lower dorsal cord. In a considerable number of my patients there was neither an increase of globulin nor an increase in the number of cells, nor anything else abnormal. In other words, in at least one third of them the spinal cord fluid was absolutely normal in every respect. In the absence of abnormalities in the spinal fluid, therefore, there may nevertheless be pressure on the spinal cord. On the other hand, however, I have seen three cases of tumor near the cerebral ventricles, in which aspiration of the ventricle yielded a yellow fluid; in all three patients lumbar puncture also yielded a yellow fluid. Two of the cases came to necropsy, and were proved to be large tumors near the third ventricle. The third case, which did not come to necropsy, was operated, and the tumor was found. I do not believe, therefore, that the findings described by Dr. Ayer are absolutely characteristic of spinal cord tumor, although frequently present.

Dr. James Bourne Ayer, Boston: One of the speakers stated that xanthochromia occurred in other conditions, as tumors of the brain. I do not doubt it, but xanthochromia is not the syndrome. It is xanthochromia plus the other findings. We have had two cases showing yellow color, but with only very limited increase in proteins, one with many red blood corpuscles, the other with polynuclear leukocytes, both of which were unlike the fluids of cord compression. Dr. Elsberg is very skeptical in regard to the use of this syndrome. It is in differentiating certain other organic conditions affecting the spinal cord which may or may not be cord tumor, seen rather by the neurologist than by the surgeon, in which I take it the importance of this syndrome lies. We have not as yet found any cases of this particular syndrome either complete or incomplete, from brain conditions. On the other hand, we have one case, and doubtless will have more, as is the experience of Elsberg, Nonne and others, of cord compression from tumor with absolutely negative findings. What we recommend is to use this syndrome in connection with, and only in connection with, clinical findings, laying stress chiefly on positive findings. Dr. Skoog mentioned pressure, and I should have said more about the pressure. We measured the pressure in practically every case, and it was almost invariably normal. In one case the pressure was normal in spite of the fact that the patient had, besides his cord tumor which constricted the dorsal region, a brain tumor, which should have given a high pressure reading 400 mm. or more. This patient had 170 mm. pressure, which with our technic has been found to be normal. Dr. Ely's cases are exactly what would be expected. Syringomyelia certainly acts like tumor of an intramedullary nature. Dr. Mix's analysis was one of the best I have seen. But he does not seem to go any farther than did Mestrezat three years earlier; that is, he says the complete syndrome is necessary to be of clinical significance. But if we wait until then, I think in some cases we will have lost our chance; we have to use the incomplete syndrome in helping us to make an early diagnosis of compression. In one case in which we had a series of punctures, the first one showed the syndrome in incomplete form. Operation was considered, but thought premature. A year and a half later the patient showed increase of symptoms, with increased intensity of the fluid syndrome; operation was then performed, and a tumor removed. It would have been done earlier had the significance of the incomplete syndrome been appreciated.

MUNICIPAL HEALTH ADMINISTRATION *

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So numerous and so excellent have been the papers on municipal health administration which have been presented before this Association and the American Public Health Association in the past few years and published in their respective organs, to say nothing of other able papers presented elsewhere, that it is scarcely possible to improve on work already so well done.

And hence, in accepting the invitation of our Chairman to discuss this subject before the Section on Preventive Medicine and Public Health, I did so with the distinct understanding that I might depart entirely from the usual method of presentation, the method followed in the splendid papers to which I have just referred, that I would not have circles and squares and connecting lines, or text of the kind which goes with such diagrams.

There is, it seems to me, one important phase of municipal health administration which may be profitably discussed at the present time. Following the suggestion in the address of our Chairman, I will at the outset state the idea which I wish to present for your consideration.

Sanitary science has advanced so rapidly within the past few years that no municipal health department can possibly do more than a very small proportion of those things which we know how to do, because we are held down in our appropriations and limited in the exercise of authority.

The next point is that conditions differ so greatly in our cities that the relative importance of the various problems of public health, as well as the methods by which these problems can best be dealt with, must also differ. In consequence of this, each health officer must formulate a working program of public health especially adapted to his own community, in order that he may devote his limited funds to those things which will bring the best returns; so that, just as he gets increased appropriations and increased powers, he may use them so as to accomplish the maximum amount of good.

In the preceding two paragraphs I have stated the theorem which I wish to discuss here today.

The development of sanitary science and of the practical means whereby we can give to the people the benefits of that development has been so tremendous in recent years as to be almost appalling. I am sure that every member here present who has tried to keep himself informed is conscious of the fact that there

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has been an immense broadening of our conceptions of public health work within the past two or three years; that we look on its possibilities today as tremendously more far-reaching than we did even that short time ago.

It is literally true that from the time a person gets up in the morning until he gets up next morning there is scarcely an act of his that has not its bearing on the health of that individual. And so we may look through the wide range of municipal activities and find that in every one of them the health of the community is in some way, directly or indirectly, involved.

But obviously no normally constituted person is going to give the consideration of health first place in everything he does. Equally obviously, no sane health officer would advocate the taking over of every municipal activity by the department of health, even though there be in every one of them a health element of one sort or another. In consequence of this it has long been recognized by health officials that there should be closer agreement as to what municipal activities should properly be under the department of health.

In a general way this is unquestionably desirable. But I wish to make it very plain that this is quite a different matter from attempting to formulate a standard plan of work for municipal departments of health. Indeed, to show that such a standard plan is neither desirable nor feasible is the chief contention of this paper.

Communities differ greatly in many fundamental conditions which affect profoundly the actual value and the relative importance of various health policies, and any attempt to work out a standard program for municipal health departments must result only in failure.

It is unnecessary to go into an exhaustive analysis of all the diversities which make it impracticable and undesirable to work out a standard plan for the organization and administration of city health departments. The most important of these diversities are the following:

- Size.
  - Area.
  - Population.
- Location.
  - Geographic.
  - Topographic.
- Industries.
- Character of population.
  - Racial.
  - Habits and customs.
  - Language.
  - Age distribution.
  - Stability (immigration, floating population, etc.).
- Stage of development of health work.

The above list is not presented as complete. It is merely suggestive. Moreover, in many instances the topics overlap each other. Climate is dependent on location, both geographic and topographic, while both climate and location are important factors in determining the nature of industries, as is also the nature of the population. On the other hand, the nature of industries already established is a factor in further determining the nature of the population. Illustrations of such interaction are almost numberless.

Discussion of the factors given in the above list will not be entered into further than to illustrate the point which I wish to establish.

First, let us consider the size of the community. Were any argument needed to prove its importance it would be found in the fact that before we can intelligently discuss the subject of municipal health administration we must have it distinctly understood that no general plan of organization applies to our greatest cities, our large cities and our smaller ones.

Climate is of immense importance. In northern cities scarlet fever and diphtheria have far greater relative importance than in southern cities. In southern cities typhoid fever, malarial fever, hookworm, yellow fever, all intestinal diseases and everything affecting infant mortality have relatively more importance than in northern cities.

Topographic location is highly important. Nearness to a large stream or lake bears directly on the question of water supply, as does also the nearness and size of other communities upstream. The health work in a city, especially a southern city, located near swampy, low lands must differ decidedly from the health work of a city only a few miles away, but in the mountains.

As a simple illustration of the effect of topography, a city of a given size located on the seashore or on a great lake has to draw on a radius of seventy miles for its milk supply, while an inland city of the same size has to go only fifty miles to draw on an equal land area. One draws on only a semicircle; the other on a circle. This has a direct bearing on the quality of the milk supply, and hence on health, since it affects the freshness of the milk and modifies the work of the dairy inspector. The same principle applies to other fresh products of the farm, but these involve economic considerations rather than health.

Racial considerations must always be taken into account, especially in case there is a large proportion of negro population. We southern health officers despair of having our northern friends understand how fundamentally important this really is. We frankly admit that a considerable part of the excess of the negro death rate is to be explained by average inferior living conditions, but we further believe that, so far as the negro in our cities is concerned, the death rate, as a whole, as well as the death rate from many important causes, will remain higher than the rate among the white race, even under equal sanitary conditions.

The negro has been taken out of savagery and thrust into an alien civilization. In rural life the contrast is not so great, but in our cities, where the artificial conditions of life are frequently so trying on the white race, we believe that, even under equal sanitary conditions, the negro is distinctly handicapped. In its slow advance in civilization the white race has more or less effectively eliminated the unfit at every step. With the negro this process of elimination is still going on, actively and intensely.

Other communities have racial problems quite different. Our large seaports have a steady stream of immigrants, a large foreign element to deal with. This class cannot be compared with the negro element in the South, because, in a general way, the immigrant is of a hardy type and must be physically fit in order to get in, besides being at a very favorable age period. Nevertheless, a large foreign element presents its own peculiar problems.

A mixed population as regards language gives rise to special problems. By way of illustration, we have our problem of health education greatly complicated.

Public lectures can be understood by only one special group. Bulletins have to be translated into several ongues. But frequently this is not enough. Some bulletins at least will lose much of their usefulness f the same ideas are presented in just the same way, except as to language, to native Americans, to Russian Jews, to Italians, to Germans and to various people of unpronounceable nationalities. The very nature of the text must be changed. The ideas, as well as he words, must be made comprehensible and appealing.

Age distribution of the population is a differential point of great importance, more perhaps in a statisical way that in an administrative. It is absurd and misleading to compare crude death rates of communiies without taking this into account. Many of our most important preventable diseases claim their vicims largely at certain age periods. It is utterly miseading to compare the death rate from such diseases n a city which has grown by normal excess of births over deaths with that of a city which has grown rapdly by influx of young adults. In the latter case we have not only an especially favorable age distribution of the population, but, perhaps even more important, a large proportion of robust citizens, individuals with vigor and energy enough to pull up stakes and start ife anew in another field.

The points which I have endeavored to bring out are, to repeat, only suggestive. The list of diversities which I have given is not itself complete, and not one of these diversities has been fully dealt with, to say nothing of the almost endless combinations of wo or more of them.

I have tried to bring out the fact that these differences in fundamental conditions are far more important than is generaly realized and that they should always be taken into account in formulating the health work which is done in any community. Held down in the amount of money which we may expend to an absurdly small sum, and held down also in our powers, we can do only a small fraction of those things which we know how to do, which we would like to do, and which it is harder not to do than it is to do.

We must realize that in addition to being well acquainted with the fundamental teachings of sanitary science and public health administration, we must make a special study of the peculiar conditions and needs of our own communities, in order that, as we succeed n getting a little more money, a little more power, we may apply that money and that power where they will accomplish most. If we fail to do this we do not only essen our usefulness in our own communities, but, by our failure to do the best that we can do, we are also derelict in our duty of giving the fullest demonstration of the possibilities of intelligent public health work.

Every indication points to the fact that public health work, and especially municipal public health work, is to undergo a marvelous expansion in the next few years. Already we are beginning to get the people to see that a health department is not doing its full duty f it is merely reducing, no matter how greatly, the morbidity and mortality of certain diseases. Our new ideal is that every human unit shall be brought to the highest state of physical and mental efficiency. Within a very few years we will look back on the best of our public health work of today as almost ludicrously inadequate.

I suppose many of you have heard that within the past few months one of our greatest life insurance companies has appropriated the sum of one hundred thousand dollars to be used in fighting tuberculosis in some community of about five thousand inhabitants, or twenty dollars per capita to fight this one disease in this community, which I believe is not yet selected.

Only think of how this compares with the twenty or thirty or fifty cents which most of us get for all health purposes in our communities. It is purposed to make a demonstration with this fund. Nowhere yet in this country have we done more than merely scratch the surface in our efforts to control tuberculosis. It is proposed now to determine the result of doing everything we know how to do for the eliminating of tuberculosis in this single community. This, it seems to me, is one of the greatest things which has happened in the public health world in many a year. This demonstration will be of tremendous value, and it may be that within a few years it will be nothing unusual for municipal health departments to get at least one dollar per capita for all health purposes.

I wish, in closing, to emphasize again the undesirability of a standard health program for all cities, except, perhaps, in a few respects. Fundamental conditions are so diverse as to make this wrong in principle. Familiarity with local conditions is as essential to the health officer as is knowledge of sanitary science and practice. The working out of a health program adapted to his own community is the most fundamental, the most important and the most difficult administrative problem with which the municipal health officer has to deal.

The efficiency of the health department of any city is measured by the degree to which it is adapted to the needs of that particular community, and not by the degree to which it conforms to any arbitrary general standard.

ABSTRACT OF DISCUSSION

Dr. Guy L. Kiefer, Detroit: With reference to the establishment of a standard for all communities, Dr. Levy is right when he says that this cannot be done, but I do think that it would be well for health departments in various communities to try to agree on what is really public health work. We hear of one city being allowed 30 cents per capita and another $1 per capita, and yet the one receiving the 30 cents may be spending it all in actual public health work whereas the other includes in its budget any number of unnecessary expenses for activities only remotely connected with the public health.

Dr. Francis E. Fronczak, Buffalo: A point well taken is as to how much money we shall spend on public health work. In some places they spend as little as 15 cents per capita and get better results than in other cities where they spend a dollar. It is a question whether such things as street cleaning, supervision of plumbing and drainage, and public baths should be included in health work or not; yet, many health departments cover such work. We have, on the other hand, communities that apparently do not spend any money for medical school inspection, which in my opinion is a public health work of superior importance. There is no doubt that communities are spending more money for public health work and are incidentally taking up functions that do not properly belong to the health department; for instance—street cleaning, privy vault cleaning, supervision of water, water works, and in some places even both natural and artificial gas is under the jurisdiction of the health department, but I for one do not see where such utilities legitimately come under public health work. Another point well taken is the question of climate. In one place they spend a lot of money for the drainage of swamps to relieve the section from the breeding of malaria-bearing mosquitoes, as they are doing at the present time around New York City and in New Jersey, and this is most essential and excellent work, and work that really comes within the sphere of public health activities. On the other hand, in other parts of the country, there is no such necessity. Down South they are spending a lot of money to eradicate hookworm disease. Up North we do not have this worm, yet down South this is a very important public health activity. In regard to the question of milk, because New York has the Atlantic on one side, she is obliged to reach out for her milk supply from a distance, tapping several states. In inland cities, on the other hand, where there is a supplying district on all sides, there is no such necessity, nor such expenditure. In case of New York City it is a very important public health work, and the money spent for the purpose is well spent. I certainly agree with Dr. Rucker that a certain amount of money should be spent in the education of the community on matters relating to public health. Most cities do not spend as much money for this purpose as they should. Money properly spent in health department bulletins is certainly money well spent in municipal public health education. There are many instances where it would appear to be a waste of good white paper to print them.

Dr. I. M. Rubinow, New York: Dr. Levy pointed out the impropriety of comparing death rates without further analyses of the population, as for instance, the death rate of infants, and he indicated the necessity of taking into consideration the makeup of the population not only by age groups, but also by racial groups. There is, however, a substantial danger there, and especially a danger for southern cities, because it might offer a very convenient apology for bad results of health work. There is a tendency not only among southern statisticians, but unfortunately among northern statisticians, to explain too much by the negro death rate. Not being a northerner or a southerner, but having lived in both parts of the country, I want to point out that if you do get a high negro mortality rate, there are probably some very substantial material reasons for it, which may or may not be available to the public health work, but should not be taken as a sufficient excuse because we are dealing with the negro population. I doubt whether any substantial biologic or medical reason exists to think that a mortality rate of various races, at least after some time of the climatization, is substantially different, if their living and their mechanical, medical and physical conditions are substantially equal. Too much has been said about the biologically high mortality rate of negroes.

For instance, to draw on my own experience, I visited Atlanta. I saw the white children in schools which were perfect buildings in every respect. I also saw a negro school housing 800 children, a frame building, with individual class rooms, heated by coal, with sanitary conditions so poor that a stench was permeating the entire school, and with very little facilities for play for the children. Now, if you are going to get in Atlanta a higher child mortality rate for negroes than for white men, I think it would be very poor vital statistics to blame it on the color or the race of the children. It is a very substantial danger statistically as well as from the point of view of public health.

A negro, besides being a different racial element, is also a different industrial element. His industrial hazards to health are different. He is a different economic element. His wages are lower, and his food is therefore poorer. His housing conditions are very much worse.

Ten years ago I happened to come across some very interesting statistics dealing with the Russian peasant. I succeeded in proving statistically that the mortality rate of the Russian peasant, which is very high, higher than that of the negro, varied in inverse proportion to the amount of land the peasant had; the more land they had, the less the mortality rate was. The average rate was about twenty-six, and it varied from seventeen to thirty-four, according to the prosperity of the community. If a similar investigation was ever undertaken, I think it would be established that the mortality rate of the negro would not be higher and could be reduced to the same level as that of the white race.

Dr. Charles J. Hastings, Toronto, Canada: The most important phase of public health work is education. Dr. Levy spoke of the amount of money that was expended by insurance companies in this connection. I think we agree that that is the most valuable lesson that the public is receiving, so far as administrators of public health are concerned, because the insurance companies are in it for the money that is in it. They know that money used in public health work is not an expenditure, but an investment. They know they are going to get big returns out of what they spend in that way or otherwise they would not spend it. If we can have the public properly educated along that line, and the members of our various boards of health, and those who are responsible for supplying the sinews of war in this particular work, then a great deal, probably nine tenths of the work, will have been accomplished. In regard to the great objection to uniform standards: If we strike a happy medium between discarding that altogether and accepting a uniform standard, we will probably be a little safer. I think, undoubtedly, that to have a uniform standard up to a certain point is extremely important. I heard at a discussion in a medical meeting not long ago some rural public health officers refer to cases of measles in which they were satisfied that the contagion was conveyed through a letter from across the Atlantic. Now, when there is that condition of ignorance existing, I think it is extremely important that there should be a uniformity in regard to what the real sources and modes of infection are.

Most departments of health are doing a tremendous lot of work on what are only very indirectly public health problems. I do not think that any intelligent health officer today thinks that garbage disposal, or sewage disposal, or street cleaning, or even plumbing inspection, etc., are directly public health problems, and yet municipalities are having that charged up as a per capita allowance for public health administration. I do not think that one of us could trace any single death, we certainly could not trace any communicable disease, to that in any of our municipalities. It is a duty of the department of health to see that that work is properly administered, but it should not be charged up to the department of health. There is other work that a public health department should undertake, and that is to realize the fact that in putting up a campaign against communicable diseases, or all forms of diseases, that it must be directed along two distinct lines, first, to prevent the disease germs from entering the body; and second, to build up and maintain the resisting powers of the body against these germs, should an invasion take place. In endeavoring to do the latter, we find at the very foundation of public health administration the social problems in the home. We have got to get into the home. We have got to ascertain the revenue of the home. In many cases when we trace up diseases to the home, we ascertain that there is a social problem there, that the revenue of that home has not been sufficient to do more than simply keep soul and body together. It should be the duty of the department of health to act as social agents, and refer these cases to the proper social organizations, and see that the social problem is solved, because until the social condition is remedied they have not got at the real etiology of disease.

In regard to education, my experience in Toronto has been that the first ones we are required to educate are our boards of health and members of our council. It is extremely important that we have every member on our board of health an enthusiast in public health administration. We want to get him to realize that he constitutes one of the custodians of public health. I have always made it a point to advise the chairman of the board of health that whenever there was an obstructionist in the council, to have him appointed on the board of health, and inside of three months that man would advocate public health administration. When we get the public properly educated, and get public sentiment behind us, we can do anything.

Dr. O. P. Geier, Cincinnati: I would like to ask Dr. Levy to comment on the matter of industrial hygiene in the modern department of health. Recently there was formed an organization of industrial physicians. It seemed apparent that there were possibly hundreds of thousands of men today under very definite supervision of the industrial physician. Now they must be making a very definite contribution to public health work, and it seems to me it is possibly the new note in blic health work where the first opportunity comes of doing ensified personal hygiene with the individual.

Dr. Ernest C. Levy, Richmond, Va.: The point brought t by Dr. Fronczak and Dr. Hastings as to what constitutes oper activities for municipal health departments is just at I tried to bring out. As I stated, there is no civic tivity without some health aspect. It is for us to deter ine what things the health department itself should do. her matters having such intimate relation to public health one of the things referred to by Dr. Fronczak, namely, e attention to privy vaults, need not be actually done by the alth department, but the health department should by all eans have such control over it as to see that it is efficiently ne.

I cannot agree with Dr. Rubinow in some of the things said regarding the negro race. I can only repeat what I ave said, that it is only those of us who work in the South d are familiar with this problem who understand each her. As I tried to bring out, we do not say for one minute at inherent racial peculiarities are the only thing respon- ble for the high negro death rate, but we do say that these main after you have done everything else that you can do; d I further qualify this by saying that this applies to our ties. I do not believe that in the country the difference tween the death rate of the colored race and the white ce is so marked. But it is in our cities, in spite of anything hich we may do. Under equal sanitary conditions the negro ath rate in cities is much higher than the white race. It ems to me there is, perhaps, one little discordant note in e discussion which was due to my not making myself derstood. I do not think that we can standardize a com- ete working program of municipal health departments, but do think that we can standardize each of the activities. /e can have standardization of the various units of municipal blic health activity, but the determination of which of ese units we are going into depends on the factors I have cussed.

Dr. Hastings' account of the doctor who thought that a se of measles was brought by a letter from abroad is f course not an illustration of any need of standardizing our blic health activities, but of the need for better education sanitary science. I am very glad that Dr. Geier touched n the question of industrial hygiene. It strikes a new note public health work. The future in this direction is tremen- ous. I do not know of anything more important. Unfor- nately, few of us know much about it.

There is in my mind, however, even a newer note than at, and also a bigger one. Up to a few years ago we were ontent to have for our highest ambition the prevention of rtain diseases. If we did not have people dying of typhoid ever or malaria, or one or another communicable disease, e thought we had done just about all we could. Nowadays ur ambition is far higher. We are not doing enough if we mply keep the people from dying of disease which we class preventable. The newer ambition of public health work a community of strong, robust, aggressively healthy people, very unit in it developed to its highest activity of mind nd body.

Endemic Diseases and Mental Retardation.—Not only does e continued presence of endemic diseases entail great conomic losses to communities where they prevail by reduc- ng the physical efficiency of a great part of the population, ut they are also accompanied by a similar reduction in ental efficiency. These harmful influences continue to exist ecause of the general lack of information so common in ural communities concerning their cause and prevention. In number of instances it is a difficult matter to secure the ooperation of the adult population, which is set and fixed in s habits, in measures intended to improve the community ealth. Health supervision of school children not only gives aluable information concerning the prevalence of these con- itions, but it also exercises an educational effect on the ising generation, through whom the sanitary redemption of hese communities is largely to be brought about.—T. Clark, *ublic Health Reports*, Aug. 25, 1916.

A FURTHER REPORT ON THROMBOPLASTIN SOLUTION AS A HEMOSTATIC*

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Somewhat over a year ago, in a preliminary report on "Tissue Extract as a Hemostatic,"[1] it was stated that a very efficient hemostatic could be prepared from brain tissue, and that this preparation, which was termed "thromboplastin," had been found serviceable for local use in hemorrhage, especially in bleeding associated with true hemophilia. This substance is a solution and a fine suspension of ox brain in normal salt solution, with 0.3 per cent. of tricresol added in order to preserve it. Some months later a paper was published by Cronin[2] stating that he had made use of "thromboplastin" in a routine way in over 2,000 tonsil and adenoid operations which were performed in the clinics of the New York department of health, and that he found it of decided value in decreasing bleeding and the incidence of undue hemorrhage. For about a year the research laboratory has distributed thromboplastin solution to physicians and has collected reports on the results obtained. During this period I have also had many occasions to make further trials of its clinical value, and have also carried out numerous laboratory tests to determine more fully its various properties. It is the sum of these twofold experiences which forms the basis of this second report.

Thromboplastin solution has been supplied to several of the maternity hospitals of the city, where it has been employed locally in cases of melena neonatorum, in bleeding from the cord, skin, mouth, vagina, etc. It has also been used by physicians in these institutions as a dressing where there was undue hemorrhage following circumcision. The following two cases illustrate its application in melena:

Case 1.—April 18, 1916, baby 1 week old, seen at the Bellevue School for Midwives, on the service of Dr. Austin Flint, showed numerous cutaneous hemorrhages, as well as some in the mouth, at the junction of the hard and soft palate. The main site of bleeding was the cord. There had been some bleeding from the bowel. Jaundice was moderate. Thromboplastin solution was applied to the cord, and the bleeding was checked and did not recur.

A case which is of particular interest on account of the persistence of the bleeding and the fact that numerous other hemostatics had been previously applied without result was the following:

Case 2.—Jan. 15, 1916, a 5-day-old baby was seen on Dr. Edwin Cragin's service at the Sloane Maternity Hospital. The frenum of the tongue had been incised two days previously, and since this time hemorrhage had persisted. When seen, the infant presented some subcutaneous ecchymoses and a small hematoma of the scalp, and was evidently suffering from loss of blood. Various measures had been tried to check the bleeding. Human serum and whole blood had been injected subcutaneously. Locally silver nitrate had been used, tannic acid applied assiduously for a period of two hours, and clamping had been attempted. The bleeding persisted for two days in spite of all these efforts. Thromboplastin solution was applied locally with partial success. Following this a few cubic centimeters of the preparation (which had been brought to the boiling point) were injected into the site of the hemorrhage at the root of the tongue. The bleeding stopped at once and did not recur.

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* From the Research Laboratory, Department of Health, New York City.

[1] Hess, A. F.: Tissue Extract as a Hemostatic, Journal A. M. A., April 24, 1915, p. 1396.

[2] Cronin, J. J.: Thromboplastin (Tissue Extract) as a Hemostatic, The Journal A. M. A., Feb. 22, 1916, p. 557.

This case raises the question as to the most effective method of applying thromboplastin solution. In this connection it may be stated that, as in the instance just cited, where topical applications do not check the bleeding, some of the solution should be boiled and if possible injected into the site of the bleeding. This method of application is especially suitable in bleeding from the gum, which frequently offers great difficulties following the extraction of a tooth. The following is a case in point:

TABLE 1.—CLOTTING EFFICIENCY OF THROMBOPLASTIN SOLUTION

	Thromboplastin Solution Unboiled		Thromboplastin Solution Boiled (One Minute)	
	Strength of Thromboplastin Solution Added,* per Cent.	Coagulation Time of Plasma, Minutes	Strength of Thromboplastin Solution Added, per Cent.	Coagulation Time of Plasma, Minutes
Test A, with plasma having coagulation time of ten minutes.....	100	1	100	2.5
	50	1	50	2.5
	10	1	25	2.5
	1.0	2	1.0	4
	0.5	4	0.5	6
Test B, with centrifugalized plasma having coagulation time of twenty-two minutes.....	10	3	10	6
	1	5	1	8
Test C, with human plasma having coagulation time of thirteen minutes..........................	100	1	100	1.5

* In all tests 1 drop of thromboplastin solution, 5 drops of oxalated plasma, and an optimal amount of calcium chlorid solution were used.

Case 3.—Oct. 5, 1915, a young man with splenomyelogenous leukemia was seen at Beth Israel Hospital. A tooth had been extracted five days previously, and since then there had been almost continuous bleeding. Serum had been given subcutaneously; serum, human blood, epinephrin, coagulen and emetin had been applied locally without avail. Thromboplastin solution was then applied locally, but as it did not check the steady oozing, some was heated to the boiling point and injected into the gum. The bleeding promptly ceased.

In discussing the method of applying thromboplastin solution, emphasis should be laid on the necessity of having it come into direct contact with the bleeding point; if soft clots have formed, they should be removed from the wound. Furthermore, although a cursory application in many instances will suffice to hasten coagulation, where such does not prove to be the case, the hemostatic should be held in close contact with the bleeding surface for some minutes. From time to time cases have been encountered in which attention to this detail has checked hemorrhage which had seemed uncontrollable. For example:

Case 4.—Nov. 1, 1915. Bleeding in young adult following tonsillectomy. Tonsils had been excised twenty-four hours previously and the patient had bled ever since. He looked pale; the red blood count was two and one half million. Emetin had been applied locally, as well as pressure. Salt solution had been given intravenously. Thromboplastin solution was applied locally and was thought to be of no avail; applications were being made every minute or two at the time the patient was seen. When, however, the swab, saturated with the solution, was left in contact with the bleeding surface for from ten to fifteen minutes (so that a firm clot should have time to form) the bleeding stopped permanently.

It seems unnecessary to cite further instances of the efficacy of this hemostatic when applied locally. In a very few cases it has failed, although the reason has not been clear.[3] As was emphasized in the previous report, it must be regarded almost as a specific in the bleeding of true hemophilia, a disease characterized by a prolonged coagulation time. This is as we should expect when we consider the remarkable coagulative power of this preparation when added directly to blood or to plasma. Further clinical experiences have served only to strengthen our reliance on thromboplastin solution in this hemorrhagic condition, so that we believe that those who suffer from this disease would do well to have a preparation of tissue juice at hand in case of emergency. It is the general experience that these "bleeders" frequently die, not from a sudden loss of blood, but from a persistent oozing from the tongue or mouth which gradually drains their vitality. Hemorrhages of this type yield promptly to thromboplastin.

There have been many inquiries as to the advisability of using this preparation in gastric or intestinal hemorrhage. It is very difficult to judge of the success of any therapy in cases of this kind, and it will require a trial in many more such cases before a definite opinion can be formulated. It has hardly seemed that it would be efficacious in bleeding from the ileum or from the large intestine, as much of it would be digested by the proteolytic ferments and destroyed by the time it reached this part of the intestinal tract. However, we may find that if large amounts are taken by mouth or if it is given in a form which will protect it from disintegration, or, perhaps, if it is poured directly into the intestine through a duodenal tube, it will prove of value in bleeding from the lower bowel. As far as we are

TABLE 2.—EFFECT OF FILTRATION, CENTRIFUGATION, ETC., ON POTENCY OF THROMBOPLASTIN SOLUTION

Preparation of Thromboplastin Solution (2 per Cent. Dilution)	Drops of Thromboplastin	Coagulation Time (5 Drops of Old Oxalated Plasma) Minutes
Control plasma (no thromboplastin)............	..	24
Untreated solution..................................	1	10
	2	8
	3	8
	4	6
Boiled (1 minute).....................................	1	8
	2	6
	3	6
	4	6
Filtered..	1	10
	2	8
	3	8
	4	6
Centrifugalized (supernatant fluid)..............	1	10
	2	8
	3	8
	4	6
Filtered and boiled..................................	1	14
	2	12
	3	10
	4	8
Centrifugalized and boiled.........................	1	14
	2	12
	3	10
	4	8

In a similar test, plasma which coagulated in thirteen minutes clotted in one minute on addition of 1 drop of undiluted thromboplastin solution; in one and one half minutes when the solution had been boiled; in three minutes when the supernatant centrifugalized fluid was used, and in two minutes when this fluid had been previously brought to the boiling point.

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[3] These intractable hemorrhages have almost invariably followed circumcision, and all local measures have failed, so that transfusion had to be resorted to.

vare, it is nontoxic when given by mouth; 60 c.c. ave been given in the course of twenty-four hours d have produced no untoward effects, and we ould not hesitate to give double this quantity. In stric or duodenal hemorrhage it has seemed of value, d should certainly be given an extended trial. It ay also be used locally in rectal bleeding by means f a proctoscope. The following four cases, Case gastric hemorrhage from ulcer, Case 6, gastric hem- rrhage in hemophilia, Case 7, duodenal hemorrhage an infant, and Case 8, rectal hemorrhage in a hemo- iliac, illustrate these several conditions:

ABLE 3.—COMPARATIVE TESTS OF ACTIVITY OF THROMBOPLASTIN SOLUTION PREPARED FROM BRAIN CORTEX AND FROM MEDULLA

One per Cent. Thromboplastin Solution (1 drop)	Coagulation Time Old Sheep Plasma, Minutes	Coagulation Time Old Horse Plasma, Minutes
ntrol plasma (no thromboplastin)............	22	14
dulla..	3	2
rtex...	3	3
dulla (solution boiled)....................	6	6
rtex (solution boiled)......................	4	5

CASE 5.—April 26, 1916, man, admitted to Beth Israel Hos- tal, had severe gastric hemorrhage. Thirty c.c. of thrombo- astin solution were given in 6 ounces of water, and three c.c. doses diluted in 4 ounces of water during the following y. There was no further hemorrhage.

CASE 6.—Jan. 3, 1916, hemophiliac boy who had been under servation for several years vomited a considerable quantity blood. He was sent to the hospital, where he vomited blood ice. He was then given 10 c.c. of thromboplastin solution luted in 2 ounces of water; this dose was repeated in three ours. There was no further hematemesis.

CASE 7.—April 17, 1916, baby born the previous day at Belle- e Hospital, in Dr. Austin Flint's service, that evening vom- ed blood at 5:30, and twice again before 10 o'clock. Throm- plastin solution was given by mouth, 2 c.c. in a tablespoon- l of water. There was no vomiting for twenty-four hours. ematemesis recurred, with bloody stools, and death followed.

CASE 8.—Dec. 28, 1916. Typical hemophiliac, a brother of e patient in Case 6. Blood had been noted in the stool nce December 6, and had increased until five days previously, hen pure blood was passed. He was sent to the hospital, here proctoscopic examination showed an ulcer in the rec- m. Thromboplastin solution was applied on strips of gauze, d bleeding ceased. This treatment was repeated on the llowing day. There was no further bleeding while the tient was in the hospital.

It may be of advantage to note a few other condi- ons in which our records show that thromboplastin lution has been used successfully. In this connec- on may be mentioned the nasal hemorrhage associ- ed with toxic conditions, more especially diphtheria, r which it has been employed extensively at the 'illard Parker Hospital for Contagious Diseases; and kewise for nasal hemorrhage complicating the pri- ary blood diseases, for example, in acute leukemia; rthermore, at operation for hepatic bleeding, in eeding from the urinary bladder, in operations volving the spinal cord, in prostatic operations, and bronchoscopy in connection with the removal of iphtheritic membrane or old foreign bodies with eeding granulation tissue.

As my preliminary paper contained nothing what- ever regarding the action of thromboplastin solution vitro, it may be well to report some tests showing its action on plasma, and to illustrate how this activity is affected by various manipulations, boiling, dilution, centrifugation, etc. Table 1 demonstrates the marked clotting power of 1 drop of thromboplastin solution on 5 drops of plasma; it also shows that a 1 per cent. dilution of this preparation acts almost as well as the undiluted fluid. This has frequently been observed in similar tests, where it required a dilution even greater than 1 per cent. to diminish the coagulative efficiency of the thromboplastin. This phenemenon is probably to be explained by the fact that in the undiluted state it possesses a great excess of coagulative power. It may be added that it has been found to possess some potency even when diluted 5,000 times, and that 1 drop of a 1:500 solution has lessened the coagulation time of plasma by one half. Table 1 also illustrates that a cursory boiling serves to weaken the preparation only slightly, and does not radically impair its power.[4] It may be pasteurized without affecting its potency (Table 4).

When thromboplastin solution is filtered, it becomes a clear, transparent fluid which possesses considerable coagulative power. Table 2 shows the efficiency of the filtrate of a 2 per cent. dilution; it likewise shows that this weak filtrate even after being boiled is able to cut in half the coagulation time of plasma. The fact, which is also brought out in the table, that coagulative potency resides in the supernatant fluid obtained after centrifugation, shows that we are dealing with a substance which is active in a clear solution as well as in turbid suspension.

Table 3 is included to demonstrate that the coagulative potency of the gray and of the white matter of the brain is practically the same. In view of this test and of similar results in other tests, we have made use of the brain in its entirety in preparing thromboplastin solution.

Thromboplastin may be desiccated at a low temperature and then used as a hemostatic. We have prepared a powder of this kind, diluted with a large quantity of lactose, and preserved by means of boric acid. This powder was able to hasten coagulation in vivo as well as in vitro, and was found of clinical value under certain conditions. Neither boric acid nor the tricresol made use of in the fluid preparation lessened the potency of thromboplastin solution.

TABLE 4.—EFFECT OF HEATING THROMBOPLASTIN SOLUTION FOR ONE HOUR AT 55 C.

Preparation of Thromboplastin Solution	Drops of Thromboplastin	Coagulation Time (5 Drops of Old Oxalated Plasma), Minutes
Control plasma (no thromboplastin).....	..	20
Thromboplastin solution, unheated........	1	2
	2	1
	3	1
Thromboplastin solution, heated....... ...	1	2
	2	1
	3	1
Thromboplastin solution, heated and centrifugalized	1	2
	2	2
	3	1

We have also made considerable use of weak dilutions of thromboplastin solution for intravenous, subcutaneous and intramuscular inoculation, where the bleeding was inaccessible to local treatment. Although it is too early to report on this aspect of the subject, it may be stated that when proper dilutions are employed, this mode of therapy is without danger.

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[4] Occasionally, as may be seen in Table 2, a brief boiling enhances rather than weakens the efficiency of the preparation.

There is quite another aspect of this subject which is of interest. In the course of the use of thromboplastin solution as a hemostatic, it was noted that it stimulated the healing of wounds and of raw surfaces. This was first called to our attention by a patient suffering from hereditary telangiectasis of the nasal mucous membranes, who, in addition to frequent attacks of epistaxis, suffered from superficial ulcers in the anterior nares. He noted that the thromboplastin solution not only checked the hemorrhages, but healed these ulcers, which had been of long standing. Prompted by this experience, thromboplastin solution has been employed for the past six months or more as a dressing of wounds and of ulcers of long duration. These observations have been carried out for the most part at the Central and Neurological Hospital of the Department of Public Charities, where inmates remain for months or years and therefore can be observed for long periods. This work was kindly undertaken by Dr. Harold Neuhof, who makes the following report:

> Between eighteen and twenty cases have been treated with thromboplastin solution for a sufficiently long period to gage the results. Twelve were chronic ulcers of the leg, eleven varicose and one syphilitic. All showed that the fluid thromboplastin is an active stimulant, aiding healing. Several ulcers of long standing were healed completely; one recurred subsequently, to heal promptly with further treatment. One case of broken down laparotomy wound responded well to the fluid, also a sluggish ulcer of the neck following operation for carbuncle in a diabetic patient. A case of ulcer in the axilla following burns did very well, as did an ulceration about the umbilicus following infection. In none of the cases was thromboplastin solution used until it was evident that we were dealing with sluggish, chronic lesions that did not respond to the usual treatment. Leg ulcers of long standing (Central Neurological Service) cleaned up very nicely, but these very extensive lesions, of many years' standing, did not progress to healing. The lesions were put in such condition, however, that further (operative) measures could be considered advisable, whereas heretofore they were out of the question.[5]

In this report a fluid thromboplastin is mentioned in contradistinction to an ointment which was also used for healing purposes. To this end one part of brain substance was ground up with three parts of lanolin, which had been heated to a fluid state; 3 per cent. boric acid was added as a preservative. It was found, however, by Dr. Neuhof as well as by others that the ointment applied to raw surfaces did not bring about as prompt response as did the fluid preparation. When used as a local application in eczema, especially in some cases in infants, the ointment seemed to show a marked curative effect. Finally, it may be added that we have received a favorable report on the use of the fluid thromboplastin as a drip in conjunction with the application of skin grafts to wound surfaces.

CONCLUSIONS

Tissue juice made from brain (thromboplastin solution) has proved itself of practical value in controlling hemorrhage wherever it can reach the site of bleeding. In cases of true hemophilia it may be regarded almost as a specific hemostatic. It is to be recommended for local use in the bleeding of the newborn, in nasal hemorrhage, and in the parenchymatou bleeding associated with various operations, etc Where local applications fail, it should be injected int the site of hemorrhage, as in bleeding from the gum following tooth extraction. This method can readil be resorted to, as thromboplastin solution loses bu little of its potency as the result of dilution and cursory boiling.

Further clinical experience is necessary before it value can be determined as a hemostatic in connectio with hemorrhage of the gastro-intestinal tract. However, it is innocuous when given by mouth in considerable dosage, and would seem to be indicated in bleeding from the stomach and from the upper intestine.

In addition to its hemostatic action, this tissu extract has been found to possess healing properties actively stimulating granulation tissue and hastenin epithelization. It is therefore applicable as a dressing for torpid ulcers and for sluggish wounds.

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ITCHING AS A SYMPTOM *

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For every peripheral impression there is a corresponding psychologic phenomenon which we call sensation. One of these is itching. The nature of th sensation depends on the cerebral interpretation; wer the acoustic fibers to end in the optic centers, and th optic fibers in the acoustic centers, we would hear th lightning and see the thunder. A sensation may b perceived without any stimulus. This is a hallucination, and just as seeing things or hearing things, s may feeling things — even feeling itchy — be hallucinatory. This is pathologic, but there is a physiologi analogue. *Nihil est in intellectu quod non erat priu in sensu* is axiomatic, and because thought and sensation are identical in seat, and similar in nature, it follows that itching, like any other sensation, and state of mind are closely related.

A potent factor in itching, wholly apart from th cutaneous changes it occasions, is the habit of scratching; to scratch one's ear for a mild itching, today, i to have to scratch it tomorrow for a severe itching Itching may be a symptom of skin disease. Quit often the disease is a product of the itching: eczema frequently, prurigo generally, lichen simplex always are the cutaneous reactions of scratching.

Our comprehension of qualitative difference in sensation is obscure and hypothetic. From a neurologic point of view I refuse to admit the existence of the so-called sensory dissociation, and the whole diagnostic edifice built thereon. There is neither reliable anatomic basis nor convincing experimental proof for the notion that there are different fibers or terminals, or spinal tracts, for the perception, or transmission, of different sorts of general sensation, as touch, pressure, pain, heat or cold. They are all due to varying stimuli of a similar nerve, no more different from one another than are those troubles of sensation, called paresthesias, admittedly deviations of normal general sensibility.

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[5] In treating ulcers the surrounding skin should be protected from irritation by petrolatum or some bland ointment. Its beneficial effect is possibly due to its ability to remove infected or unclean sloughs from the surface of the ulcers, possibly in part to the direct effect on the tissues with which it comes into contact.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June 1916.

Variation in wave length gives variation in sound; d we need no further explanation for the variation the perception of colors. Disease of the auditory rve will cause loss of perception of one pitch of und, the perception of another pitch being conrved, and we need no further explanation than this ggests for the phenomenon of colorblindness; and st as reasonably can we accept that variation in the nse of touch is a different stimulus of the same rve. The senses of taste and smell present many culiarities. No mechanical stimulation of the nose ll give a sense of smell. No material, however, agrant, applied to the nose gives an odor — the subance must be in vapor; but stagnant vapor in the se, without breathing, gives no odor. The vapor ust move, and must move from without inward. halation of a fragrant vapor through the mouth and halation through the nose gives a scarcely perceple odor, though markedly so to another, this being e chief explanation of the onion phenomenon.

A peculiarity of the sense of taste that I would like emphasize, for its later application, is that very cold d very hot things lose most of their flavor.

Arguments in favor of sensory dissociation are und chiefly in considering syringomyelia, the supsed syringomyelic dissociation being loss of the sense pain and of temperature, with conservation of the nses of pressure and touch. But all such observans are so relative, and the results so discordant as be of little value. They can be explained as dulled, disturbed sensation. No sensation is so unreliable our sense of temperature, for this is not a therometric but a calorimetric sense, not a measure of at but of radiation. The piece of metal and the ece of wood, of the same temperature, do not seem the same temperature, because the one is a better at conductor than the other; warm water seems hot the cold hand, and cold to the hot hand.

The different causes that bring about itching are in rmony with the theory that itching is only a varian of the sense of touch or pain. All conditions, cal or general, that, in one degree or one individual ve pain, give, in a different degree or in a different dividual, itch. I scarcely need allude to the alterting, or coincident, pain and itching in dermatitis. many forms of burn, in Duhring's disease, in phletis, in zoster. The itching of the latter, as well as many deep seated inflammations, disproves the tion that itching has its seat in the epidermis. I ve found frequently that itching antedates, or accomnies the pain of sciatica; itching of the lower abdoen is a common symptom of prostatic trouble; mild fections of the sacro-iliac joint often cause itching the lumbar region; hemorrhoids cause itching more ten than they do pain. The author who formerly ught that itching was due to a disproportion between e pressure of the tissue fluids and the counteressure of the epidermis, and that, hence, relief came en scratching drew blood (which is not so, for the hing often grows worse with the drawing of blood), s recently given, as an explanation of general pruus, the irritating effect of circulating toxins on the dothelial branches of the vascular nerves. This is tting the seat of itching in the sympathetic, where cquet put it long ago, both without proof. It is, deed, very improbable that the vascular nerves carry y sensory fibers. The indolence of arsenobenzol travenously, which is so painful elsewhere, almost sproves it. The suggestion, made several years ago, in an address to this society, that itching was a sort of aphrodisiac remnant of a period when sex sensation was not specialized, and that scratching gives sensations of a voluptuous nature, has, perhaps, the negative merit of not being as bad as freudism.

All the toxic states that lead to rheumatism or neuritis are also causes of itching — obesity, Bright's disease, diabetes, jaundice and every infection. The pruritis of old age is senile only indirectly, senility being prone to toxemias; the pruritus of the menstrual period and the menopause, especially artificial menopause, is increased sensitiveness or toxic; the itching that follows the removal of pressure is a reaction akin to the sensation that follows one's foot being asleep; the itching of cold weather is a vindication of the ancient truth, doubted of moderns, that cold is an inflammatory agent.

And with our therapeutic measures, too, those that give relief add proof to the theory that itching is a variety of pain. Diet, rest, salicylates, eliminants, things whose worth has been proved in gouty states, are effective in relieving itching. Probably pyramidon and sodium bromid should be put at the head of general antipruritic agents. The successful local applications are those that benumb; the ethyl chlorid that causes local anesthesia will, in milder application, relieve itching; all cold benumbs, and hence the benefit of ethers, alcohols or menthols. Heat benumbs, too, and the antipruritic influence of very hot water is a matter of common knowledge. Heat and cold are applications for relief of pain also, and I have mentioned their benumbing influence on gustatory keenness.

Nor is there anything mysterious, anything rudimentary, anything atavistic in the act of scratching. We do it because it dulls the terminals. It is analogous to rubbing a painful joint, stroking the aching forehead or squeezing a bruised finger.

In these remarks I have wished merely to emphasize the essential simplicity of a symptom that gave evidence of becoming abstruse.

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ABSTRACT OF DISCUSSION

Dr. A. Ravogli, Cincinnati: This paper is not only interesting but very important to the dermatologist, who, aside from those cases in which the itching is severe and distressing, sees many cases in which it is an important symptom and the one from which the patient is most anxious to be relieved. I would not, however, call pruritus a sensation, but rather a perversion of sensation. The patient is compelled to scratch until he produces excoriations with the accompanying pain which in turn relieves the itching. The itching sensation is due to an acute effusion or infiltration on the papillary layer, and, as Hebra said, you might as well tell a man not to cough as not to scratch when the necessity arises. The itching sensation accompanies all the parasitic affections, and is one of the most stubborn symptoms. We may cure a case of scabies in a few days, but the patient returns, still complaining of itching, which is due to the irritation of the papillae of the sensitive nerves of the skin. In eczema and many other diseases we have this symptom of itching, and it is necessary to try to relieve it. I find that an alkaline bath, with bicarbonate of soda, often eases the sensation; also the application of a solution of phenol (carbolic acid). I have not had good effects with menthol or anesthesin, which both have increased the irritation.

Dr. Michael Leo Ravitch, Louisville: Itching, as headaches is a symptom of disease: search for and relieve the cause and you will relieve the itching. There is so much latent pathology in pruritus, that we must take more time and patience to study it. Without going into the pathology and etiology of pruritus we are bound to treat it empirically.

THE PROBLEM OF DIPHTHERIA CARRIERS *

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Up to the present time, the problem of the diphtheria carrier remains unsolved; and the variety offered in the way of treatment, and the conflicting results reported, all bear evidence that no specific method has yet been discovered. One is impressed, furthermore, in reviewing the literature, by the fact that the interpretation of the results of treatment is subject to wide variations.

Our experience with diphtheria carriers, while not presenting new methods, may be of interest from the standpoint of their care and treatment when occurring among a large group housed under one roof. The problem became acute last winter during an outbreak of diphtheria at an institution which cares for about 400 children under 5 years of age. All the children had been subjected to the Schick test in a routine way previously, so that we had a record of susceptibles and nonsusceptibles. Several cases of diphtheria occurred among the children, as well as among the attendants. These patients were promptly isolated, and efforts were made to protect all children who showed a positive Schick reaction, by the administration of antitoxin. At the same time, nose and throat cultures were taken of every one in the institution, adult attendants and nurses as well as children. In view of the fact that the immunity conferred by the antitoxin is only temporary, lasting about three weeks, our efforts were directed to the prompt elimination of carriers, as we realized that at the end of this period of acquired immunity, the susceptibles would again be exposed to infection.

To begin with, the carriers were either isolated or placed in dormitories with children shown by the Schick test to be immune. Only those patients were considered carriers who had two successive positive cultures. Local treatment was rigorously carried out, and with almost every method there were some cases that became negative; but the problem resolved itself to the group of resistant cases which continued to show the bacilli over a long period of time. What made it the more difficult to judge the results was the fact that in some of these cases the cultures would show a diminishing number of bacteria and become negative, but, after cessation of treatment for a few days, would again be positive. We have therefore continued to follow up discharged patients, and have now observed them for periods of from two to six months.

In relating our experiences, I shall state briefly the results obtained with each method. At first simply the silver preparations were used in the form of silver nitrate in strengths of from 2 to 10 per cent., and argyrol in strengths of from 20 to 50 per cent. Weak solutions of formaldehyd and of tincture of iodin (1 per cent.) were used with about the same degree of success. With a view to replacing the diphtheria with less virulent organisms, emulsions of *Staphylococcus pyogenes-aureus, Bacillus bulgaricus,* and *Bacillus acidi-lactici* were used. In a number of instances, these gave some temporary results; but as soon as treatment was stopped, in the majority of cases, the diphtheria bacilli returned.

The use of iodized phenol, as reported and recon mended by Ott and Roy,[1] did not give very satisfa tory results in our hands. The U. S. pharmacopei preparation was used and applied to the mucous men branes of the nose and throat on alternate day These applications were followed by severe sloughir accompanied by profuse, foul-smelling discharg Among a group of twenty-five cases treated by th method, five showed negative cultures after three trea ments, and one after five treatments. In all tl remaining cases, six applications were given, but tl nature of the local reaction and the attendant di comfort to the patient was such that we did not fe justified in continuing further.

Our next step was to divide the carriers into tw groups, one of which received no treatment, the othe receiving the following: Fullers' earth[2] was blow into the nose three times daily with a powder blowe according to the method suggested by Rappaport an Hektoen.[3] In this group, which included twent adults, the results obtained in the adults were ver satisfactory. Fifteen out of twenty showed negativ cultures within a period of from one to two week the remaining cases lasting about ten days longer. I the twenty-five children of this group, only four, c about 15 per cent. of the cases, showed negativ results within the same period, this being about th same percentage obtained with other methods. I the second group, as I have stated, no local treatmer was given. During the same period of time, pract cally the same percentage, four out of twenty-thre became negative.

It was finally decided to remove the tonsils and ade noids in all cases in which the organisms persiste Arrangements were made for taking small groups a time, and pending operation cultures continued t be taken up. The operations were performed by D Milton J. Ballin. Up to the present time, we can repor only a small group, ten in all, but the results are s promising that we feel justified in proceeding with thi mode of treatment. The patients run the usual cours following tonsillectomy. After the membrane whic forms at the tonsillar incisure has disappeared, th cultures invariably become negative, our results bein similar to those recently reported by Ruh, Miller an Perkins.[4]

In the group of cases studied, there were five chi dren in whom examination of the nose revealed shoebutton. After the removal of the shoebutton, th cultures became negative.

CONCLUSIONS

1. In the group of eighty diphtheria carriers whic were studied, it was found that a certain numbe became negative, irrespective of the treatmer employed. No better results were obtained wit iodized phenol or with fullers' earth, than with th silver preparations or other antiseptics. Indeed, thos

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* From the Home for Hebrew Infants.

[1] Ott, W. O., and Roy, K. A.: The Treatment of Diphtheria Ca riers with Iodized Phenol, The Journal A. M. A., March 11, 191 p. 800.

[2] Fantus, Bernard: Fullers' Earth: Its Adsorptive Power, and I Antidotal Value for Alkaloids, The Journal A. M. A., May 29, 191 p. 1838. Hess, Alfred F.: Fullers' Earth in the Intestinal Disorders Infants, ibid., Jan. 8, 1916, p. 106.

[3] Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remov Bacteria from the Throat and Nose, The Journal A. M. A., June 1 1915, p. 1985. Rappaport, B.: The Use of Kaolin to Remove Diphtheri Bacilli from the Nose and Throat: Further Observations, ibid., Marc 25, 1916, p. 943.

[4] Ruh, H. O.; Miller, M. J., and Perkins, R. G.: The Treatme of Diphtheria Carriers by Tonsillectomy, The Journal A. M. A March 25, 1916, p. 941.

cases which were not treated in any way did equally as well. An exception must be made only as regards the results obtained with fullers' earth in adults, which were fairly satisfactory.

2. The real problem of the carrier lies in the ultimate group in which the bacteria persist in spite of all local treatment.

3. The presence of a foreign body in the nose may provide a favorable environment for the growth of the diphtheria bacilli.

4. Removal of tonsils and adenoids seems to offer a safe and rapid method of eliminating diphtheria bacilli from the nose and throat of carriers, and should finally be resorted to where other methods have failed.

DISTRICT HEALTH ORGANIZATION *

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Every progressive state in the Union is now engaged in an effort to increase the efficiency of its public health administration. The strides of knowledge in preventive medicine are so great and so rapid that no state can be said to keep pace with the times unless it is actively forging forward looking for newer and better things.

In the rapid changes which have come within the past few years this fact has been conclusively demonstrated to us, that however powerful and efficient the central or state health organization may be, it cannot be effective unless it has some means of reaching out into every section of the state and, through its own representatives, coming in contact with all of the people and with their varying sanitary and health problems. The central organization, operating only at a single point in a large state, is not enough. Incidentally, local health departments, even when well conducted and adequately equipped, which is a very rare condition for them, are not enough. For the maximum of efficiency there must be the good central or state organization, the good municipal or local department and, further, a strong and effective link between the two. The connecting link is as important as the other agencies.

In Illinois, as in many other states, the local health authorities have gone pretty much their own way, the state board of health being regarded as a general educational organization, affording a certain amount of assistance to the health officers and the physicians of the state, but for the most part, as the agency to which appeal should be made in times of epidemics and calamity. Aside from its very general administrative functions, the state board of health remained largely the means of meeting emergencies, rather than being actively engaged in constructive public health work. The relationship between the board and the various local health officials has been cordial, but not intimate, the personal representatives of the board rarely visiting the various communities except in time of unusual public health upheaval.

As is doubtless well known to most of you, the last general assembly marked the closing and the beginning of eras in the sanitary history of Illinois. For many years Illinois has made little progress in public health legislation, lagging behind the other progressive states, which, on account of constant legislative enactment, had been able gradually to develop their public health forces. After twenty-five years of relative inactivity, the forty-ninth Illinois general assembly suddenly passed a group of upward of thirty laws bearing on social, civic and sanitary development, the largest number of salutary measures passed in any state during the year.

The passage of these progressive laws imposed enormous obligations and immense burdens on the state board of health and other state departments. Numerous measures, involving large administrative preparation, such as an entirely new method of birth and death registration, demanded immediate and sane action. Increased appropriations for the reorganization of the entire state health service involved the necessity of creating an entirely original plan, rather than merely developing methods already in operation.

The situation in Illinois was, in a way, quite unique. An old state, with a once efficient health department now fallen to decay, finds itself authorized to lay its foundations and build from the ground up, with very little of the old machinery worthy of use, very little of it that has to be retained and very little of it to point the direction which development would take. It seemed a splendid opportunity to build the ideal health organization. Certain very real difficulties stood in the way of this.

While quite free rein was given in the reorganization of the health organization plan, the appropriations had been increased only to a very moderate extent, making it impossible to complete any form of structure. It was consequently necessary to make the plan, to construct the skeleton and then to determine which of the many needed departments were the ones needed most imperatively, leaving to the future the completion of the system.

Another impediment to immediate establishment of ideal conditions was that during the twenty-five years in which Illinois had no progressive and constructive policy there was being created very little popular interest in sanitary affairs. The local health organizations were, as a rule, operating with most niggardly appropriations and with very little public cooperation. The people, as a rule, and particularly the municipal and county governing bodies, were not ready for radical changes or for decided activities in public health reform. It is not necessary to remind this audience of the difficulty in forcing sanitary activity far in excess of the public knowledge or the public desire.

Under the circumstances it was quite out of the question to secure the creation of county health officers employed by the individual counties and, even if this could have been attained, it did not answer what the state board of health regarded as the most important thing in the earlier stages of reorganization. The essential thing was a closer personal supervision of the various localities of the state, but this intimately connected with the central state organization.

In the drafting of the original plan it was not known what the appropriations would be, and the method of hitching up the various communities with the state board of health had necessarily to be an elastic one, which could be altered from year to year as available means permitted.

The plan adopted was the division of the state into sanitary districts, with the employment in each district

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

of a full-time medical health officer in the employ of the state. Such officers were to be selected by civil service and were to be required to reside at convenient points in the districts assigned to them and each district health officer was charged with a general supervision over the health conditions of his district and with certain specific duties.

Acting as chief sanitary officer, having general supervision throughout the state, the plan contemplated a state epidemiologist, who should perform the usual functions of an epidemiologist, but who would likewise keep in general touch with the health officers in their several districts.

When the appropriations were finally completed, it was found that the state could be divided in but five districts. For a large state like Illinois, this was a very modest beginning; but it paves the way for future development. The districts are outlined at the discretion of the state board of health and their boundaries may be made very elastic. With larger appropriations and with the employment of more health officers, the state may be redistricted without resulting complications and, even under the present conditions, readjustment of boundaries may be made, guaranteeing that no one officer will be idle part of his time while another will be overworked with the demands of his district.

It is the avowed aim of the state board of health to secure a full-time medical health officer for each county of the state. Whether such an officer will be paid by the county or by the state will depend on future legislation. However that may be, the present small quota of district health officers will pave the way for the desired end.

It is possible that county health officers will be finally attained by the division and subdivision of the present districts until the county unit has been attained as a part of the state organization. In this event, the creation of these first districts is a direct step toward the end.

On the other hand, the present district health officers, in coming in close contact with the various communities, are demonstrating the value of trained and efficient guidance, conducting, if you will, an educational campaign which will tend to make all of the counties of the state more favorable to the employment of full-time medical officers of their own.

Further, in the condition of relative disorganization prevailing in most of the local communities, the district health officers are assuming a direct supervision which will grow in force and effectiveness and which will very naturally continue over the county health officers if they are appointed. It has appeared to me that it is far easier to assume a lasting, rigid supervision on the part of the state at this time than it would be if the full-time county health officers were fully established before the creation of the state districts.

In this way we feel that the small group of district health officers now employed in Illinois constitutes a long step toward efficient local health supervision. To us it seems more logical to have the sanitary supervisory forces within the state ramify out from the state board of health and to extend unbroken to the very doors of the cities and villages than to have the health organizations develop in their own way in the various localities and center in toward the state board of health. The former plan promises much greater uniformity in local methods and a much greater influence of the state board of health over the various communities in time to come.

In a way, the district health officer is the general representative of the state board of health in his district. He is more than a mere sanitary officer or epidemiologist. His duties and his functions are practically as broad as those of the state board of health itself. He is supposed to represent, in his community, every departmental or bureau of activity of the board. He is the means of communication between the outlying state and the central state health organization.

Primarily, he is supposed to familiarize himself with the sanitary conditions of his district and he is expected to abate insanitary conditions. In this he does not act alone. He is in close communication with the new state bureau of sanitary engineering and that bureau cooperates with him in every way.

He is expected to take action in the suppression and prevention of communicable diseases and to settle mooted diagnoses in such diseases. In this, however, he has ever available the services of the state epidemiologist and the cooperation of all of the state diagnostic laboratories.

In his relationship with the diagnostic laboratory system of the state, he will see to it that the laboratory stations in his community are efficiently managed, that laboratory containers are always on hand, and he will supervise the distribution of free supplies of typhoid vaccine, diphtheria antitoxin and other curative and preventive serums and agencies through the stations in his district.

In addition to this the state board of health has established in each sanitary district a branch diagnostic laboratory so that each district health officer has a laboratory near at hand on which he may call to meet his special needs.

In putting in operation the new Illinois Birth and Death Act, involving the employment of 2,896 local registrars, many of whom are quite inexperienced in their duties, the district health officers prove of inestimable service in giving instruction to the registrars, and it will be their further duty to see that the provisions of the act are fully complied with in their districts. Hence the district officer becomes the connecting link between the local registrars and the Bureau of Vital Statistics.

In the selection of district health officers under civil service, ability as public health educators was given definite consideration. The district officer is supposed to cooperate with local public and private agencies, with women's clubs, commercial associations and medical societies in every form of public health publicity and education, and it is through the district officer that arrangements will be made for the various exhibits, motion pictures, and educational publications supplied by the board and for the public speakers who are available for public meetings.

As far as possible the people of the various districts are made to feel that their district health officer is the one to whom they will look for advice, guidance and assistance and the officer himself is made to feel that he is personally responsible for the well-being of his district and that he has at his command every facility of the state board of health. Reports of communicable disease, formerly made direct to the offices of the board, will now pass through the hands of the district officer, that he may receive first-hand information relative to those conditions in the control of which he is especially charged.

This does not mean by any means that the several district health officers are to be left to bear their own responsibilities and to shift for themselves in their more or less isolated communities. It means that information relative to the various localities will be brought together and will be given some intelligent significance instead of being dumped into the central offices of the board from a thousand and more different sources. It means that instead of everything going to the central offices of the state board of health in a hit or miss fashion, the board is extending itself throughout the state. It means that there are convenient centers throughout the state where an agent for the state board of health, fully empowered to take immediate steps in the name of the board, may be readily reached.

The district health officer is expected to maintain an intimate relationship with all of the local health officials in his district. He is expected to visit them as often as possible, whether an emergency exists or not, and to advise with them not only in regard to the abatement of the existing insanitary conditions, but in regard to a constructive sanitary policy for their communities. I think that you will agree with me that a great many reasonably intelligent physicians and laymen serving as health officers are inefficient because they do not recognize the essentials of good public health administration. By a close, friendly relationship the district health officer should be able to elevate the standards of health administration in his cities and towns and this should be further brought about by health schools or health conferences to be held at a central point in each district at least twice a year. As a result of these district conferences it is expected that the district health officer will be able to stimulate interest which will contribute to the usefulness of the sanitary and public health conference or school to be conducted each year for the state at large.

Particularly in the line of constructive sanitation and educational endeavor it is believed that this group of health officers, each with his own particular district, may develop among themselves a friendly spirit of rivalry and competition which will result in a considerable amount of good. It will be comparatively easy to determine the amount of constructive work done in each district and thereby to establish standards of what constitutes average efficiency on the part of the individual officer.

The group of health officers, while normally confining their activities to their own districts, will constitute a mobile force, which may be concentrated in any section of the state in time of emergency, giving to the state board of health a staff of thoroughly experienced men who have been accustomed to meet the problems of all classes of communities.

After having the district health officer plan in operation only a short period of time, we feel in Illinois that it is the logical basis for the development of an extensive and intensive public health system and we are impressed that whether or not county health officers are employed in the state, the district health officer will remain an important factor, keeping in close touch between the state board of health and the people in the communities whom it strives to serve.

ABSTRACT OF DISCUSSION

Dr. H. M. Bracken, St. Paul: A connecting link between the state and local boards of health is most important. The local board of health is too often out of touch with the state board of health, and too often does not even know what it can expect from the state board of health. The doctor has spoken in favor of the district rather than the county health officer. In this I agree with him. If we try to establish competent county health officers throughout an entire state we would at once be in trouble because we could not find enough competent men. If you can find five good men for five districts you will be doing well at the beginning. You can then easily divide your districts as you have funds and men and finally you may get down to the county as the sanitary district unit. Dr. Drake speaks of a state epidemiologist. Every district health officer should be an epidemiologist. If you are going to depend on a central organization for these experts, there really should be a division of preventable diseases in the state board of health with a group of epidemiologists, not a single epidemiologist. The district health officer should be acting under the authority of the state board. He should be an adviser. He should be in close touch with the various local health officers. District conferences should be held each year. Nothing can be of greater value in an educational way than these practically local conferences, for with them you come in direct contact with the people who need education in matters relating to sanitation. The civil service examination is possibly a necessity. It is fortunate that the U. S. Public Health Service is willing to help out on this. I belong in a state where we have been able to select good workers without political interference, and therefore we have not needed the civil service examination.

Dr. B. Franklin Royer, Harrisburg, Pa.: Those of us who have watched from a distance, and occasionally from closer range, the public health work in Illinois have appreciated the need of the new scheme of organization. In fact, as much as six years ago several persons from Illinois, medical men who were members of the legislature of that state, had long conferences with us looking toward some scheme of reorganization and drafting of new legislation. The scheme of district health organization seems to have been planned with more thought in Illinois than in most states. Possibly Massachusetts was the first to utilize the district method. It was provided for in the Pennsylvania law and never put in practice; and is provided for, I believe, and in practice in the state of New York and in Maryland. After having watched the operations in Pennsylvania for a period of eight years, operating with a county representative in each county, paid by the state for such portion of his time as he gives to the work, I am not as enthusiastically in favor of districts as are some persons. I feel that the district scheme adds very materially to the central office organization. It is not essential that the supervisor actually reside in the district. It is essential that you have enough medical men connected with your central office to properly supervise field work, to properly supervise the county officers and through them the local boards of health in each county. Some of these central office men will certainly be in the field but without residence in the district. The state of Pennsylvania in 1907 made a somewhat radical departure. The first step made by the legislature was to wipe out boards of health in townships having a population of less than 250 to the square mile, and the state department took complete supervision over those townships through the county inspectors, appointing local health officers for the rural district under them. Sometimes one health officer covers several townships, and sometimes only one township, depending on the population. These are called sanitary districts. These officers are under the county inspector, and the county inspector in turn under the central office organization. Later in 1913 the law was amended, giving more specific methods for taking control. At the present time if a borough does not maintain an efficient board of health, if for any reason the local board resigns, or if the work is done in any way that is a danger to the outlying community, the state department sets aside the board and administers the laws in that municipality, the same as it does in the township all around it, and this work is done at the expense of the local treasury. Today we are doing the work in 150 such communities. Nearly every week some additional small community having trouble to maintain a local board of health asks us to take over the administration at their expense. We shall certainly come more and more to the point of centralizing our public health administration, and these small units of population that organize as boroughs, in order to indulge themselves in various municipal improvements, waterworks, street paving, and what not, and are organized chiefly for that purpose, will let their health administration remain under the responsible county authority or state authority or district authority. Few municipalities having a population under 10,000 will do their own public health work well. Probably most public health workers will even place the population higher than that.

Dr. J. N. Hurty, Indianapolis: What salaries are paid these five district officers? Does the State Board of Health of Illinois expect or desire to increase this number of district inspectors until finally, perhaps, every county as a unit would have its county health officer?

Dr. W. J. Denno, New York: In 1913 a complete reorganization of the state department of health was provided for by what is called the Model Public Health Law. It provided that the commissioner could establish certain divisions: administration, child hygiene, communicable diseases, sanitary supervision, vital statistics, sanitary engineering, and additional ones if necessary. It also provided that he could divide up the state into as many sanitary districts as he saw fit, not to exceed twenty. The state was divided in 1914 into twenty sanitary districts, and twenty district supervisors were appointed. They were appointed by civil service examination. It has developed cooperation with the local health officers, and by the way, there are about 1,100 local health officers in New York state controlling about 1,400 health districts. Each sanitary supervisor has approximately fifty-five health officers under his supervision, and establishes close and cordial relations with them, gets to know them personally, knows the problems of the district, and is able by cooperating with them to obtain results that the local men cannot obtain, because they are restricted not only by local conditions, but by fear of pushing matters that they know should be pushed. But, with the backing of the state representative by throwing the responsibility on the state, the health officer is able to get results. The supervisors are valuable in the routine work, and even more valuable in emergency work. Through the sanitary supervisor, it is also possible to bring to the local health officers a knowledge of the assistance that can be obtained from the central organization.

Dr. L. R. Williams, Albany, N. Y.: A year ago we had introduced into the legislature a bill providing for the appointment of county health officers. The 1,100 odd health officers promptly saw that that was an attempt to remove a certain number of them, and they objected very strongly. Through their organization, known as the State Sanitary Physicians' Association, the bill was tabled. We then put in a substitute bill which passed the legislature, and that was to give the different towns and villages the authority to join into a consolidated health district. We have endeavored during the last year to consolidate a number of health districts, so instead of having 1,443 health districts, we now have about 1,350. Perhaps we may finally get a district large enough to have a whole time health officer, and five districts may be consolidated into one county unit. That has seemed to us a great deal better than establishing the county system at once where we have a large number of counties and where we find it impossible to get suitable men to fill those positions.

Dr. Hurty: What salary do you pay the district officers?

Dr. Williams: We pay $3,000. The local men get paid 10 cents per capita per annum for the people they serve in their local districts.

Dr. C. St. Clair Drake, Springfield, Ill.: I have felt that the district plan is better adapted to state health administration than any of which I have knowledge and, in addition to considerations of greater efficiency, I am sure it offers better hopes of easy attainment than does the county health officer plan. As in Illinois, you can begin in a modest way, with five or six districts and gradually work up to an organization which will give you a full-time, well-trained health officer to a district equivalent to two or three ordinary counties. About forty-five health officers could properly perform the service for the 102 counties in Illinois.

Dr. J. N. Hurty: Then you feel that one officer for every two counties would be about right, instead of one for every county.

Dr. Drake: Yes, about one officer to every two or three counties, depending largely on the area and population of the counties embraced. The selection of district health officers is of course a matter of great importance. Governor Dunne of Illinois readily acquiesced in the suggestion that the officers for this important service should be selected through competitive tests conducted by the Civil Service Commission with the assistance of competent health authorities. In approving the suggestion he said: "Let us have the best the country affords, the welfare of the people demands it and, furthermore, what better political asset can any administration have than an active, efficient health department absolutely divorced from politics."

Dr. Hurty has asked about the remuneration provided for district health officers. In Illinois we have started these men at $1,800 per annum, but in my recommendations to the Civil Service Commission I have indicated that it is desirable to permit a range of increase to $2,800 per annum without the requirement of further examination. Beyond that point I believe a promotional examination or an efficiency test should be required.

Some one has questioned the necessity of having an epidemiologist when the service is organized as I have outlined, the argument being that all district health officers should be qualified to act as epidemiologists. In a measure this is true, but I am of the opinion that the whole service is greatly strengthened by having a man of unquestioned ability in epidemiology, a man whose skilled services are available on call of any member of the field medical service. The district health officer is more of a general health officer, the epidemiologist is a specialist. I very much doubt the possibility of securing any considerable number of men of the desired quality if skill in epidemiology is made a preeminent requirement. Another point raised in the discussion relates to the requirement that district health officers shall reside in their districts. This requirement is, I feel, vital to the success of the district organization. Availability is a most important consideration. Then, again, an officer who is a resident of his district is more likely to be looked on with favor than is one who comes into a district only to discharge official duties. A resident officer will have more influence with the people of his district than will a nonresident; he will have greater pride in his district and doubtless will have better acquaintance with its needs.

THYROID DISEASE IN RELATION TO RHINOLOGY AND LARYNGOLOGY *

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Clinical medicine has stamped forever an indelible impression on our specialty. The trend of modern education with demand for higher standards, a longer curriculum, better teaching and more hospital work has forced on us a special training that carries us more and more into special surgical fields remote from internal medicine.

It is imperative that our training as special nasal, oral, pharyngeal and laryngeal surgeons shall not rob us of a keen interest in the problems of diagnosis in relation to general medicine.

A few decades ago our ranks were filled by the general practitioner alone, while the higher standards of today require the development of special surgical technicians. This differentiation of specialism has progressed so rapidly that we find among us a few who devote their time exclusively to one subject, such as intubation, bronchoscopy or hay-fever.

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The anatomic position of the thyroid gland, its functions, and correlations with other ductless glands places it necessarily among the subjects of great interest to the laryngologist.

As our problems of disease in the nose, throat and ear, whether surgical or medical, are dependent fundamentally on problems of immunity, infection, the action of the vasomotor centers and the influence of a balanced biochemistry of internal secretion, it is necessary that these principles of physiology and pathology, as applied to our specialty, should be constantly before us.

My particular interest in a study of the pathogenesis of internal secretion in this special field arises from the fact that the State of Michigan is within a well-defined geographic belt where thyroid disease is observed in an increased number.

Goiter, thyroid disease and the various manifestations of pathology in the ductless glands may be classified within the selected sphere of many specialties, yet it is the ophthalmologist or laryngologist who is called on for his opinion in many incipient forms of ductless gland disturbance.

The fault is no doubt ours that we fail to recognize as a syndrome the earlier signs of excessive or deficient secretion. The findings and symptoms in relation to the upper respiratory tract are of sufficient interest to attract our attention and lead to further investigation. In this connection it is frequent to find the atypical forms overlooked or passed into that graveyard of diagnoses, psychasthenia, neurasthenia, catarrh, indigestion, anemia or a run-down condition.

Scientific diagnosis and therapeutic selections of great value to the patient may be offered in appropriate atypical forms of disease.

The comfort and welfare of the patient suffering from symptoms referred to the upper respiratory tract may depend daily on the amount and character of secretion from the ductless glands. The example of hyperthyroidism with excessive secretion of the iodized protein thrown into the blood or lymph stream and the attending phenomena elicited are common observations.

Under the marvelous regulating functions of the vasomotor centers, the various ductless glands may undergo a compensatory hyperemia or hypertrophy, singly or in harmony with two or more corelated glands. The thyroid in particular is frequently disturbed in ratio with the suprarenal. The simple goiter of girls at puberty, with disturbed emotional states attending an insufficient iodin feeding, is an example of transitory influence.

The exacerbation at the menstrual period with hysterical or neurotic throat symptoms is frequently called to our attention. While this condition is usually passing and remedied by rest and outdoor life, the simple goiter is occasionally a forerunner of serious thyroid trouble in later life.

It is manifestly obvious that the physiology of the thyroid and other ductless glands is profoundly affected by toxic disturbances in general and especially by those that enter the tonsillar chain of lymphatics.

We are familiar with the increased consumption of oxygen in thyroid or suprarenal feeding and the effects on the heart centers and metabolism. The average amount of iodin in the normal thyroid is estimated at 3 mg. per gram of gland substance; to utilize it is not to destroy it, as iodin is reabsorbed in a process of auto-activity. It is especially our function as laryngologists to realize the direct and definite physiologic and pathologic relation of the tonsils to the thyroid and to establish a routine investigation of the effects of tonsillitis, quinsy and other infections of lymphoid tissue on the upper respiratory tract. My attention was called to this subject by the beneficial results of a series of tonsillectomies for the relief of recurrent tonsillitis and quinsy, attended by incipient typical and atypical exophthalmic goiter. The prompt, permanent and prophylactic value of enucleation in this class of cases adds another definite indication to surgical procedure which is given no attention in the literature. As acute and chronic tonsillitis and peritonsillar abscess are recognized as important etiologic factors in incipient exophthalmic goiter, tonsillectomy may be classified then as a prophylactic measure in our new and fashionable department of preventive laryngology.

While it is the purpose of this paper to limit discussion to the thyroid gland and its relation to the upper respiratory tract, a fascinating and scientific field of research is developing in contributions to the interrelation of the tonsils with the suprarenals, pituitary body, thymus and ductless gland system in general.

The diagnostic signs of differentiation according to the degree of hyperthyroidism or hypothyroidism established have been definitely classified by Beebe and Rogers as follows:

Hyperthyroidism.—More common in young women from 18 to 30 years. Onset may be slow and gradual or sudden and acute. Tachycardia from 128 to 180; pounding beat felt over a wide area; often a loud systolic murmur over apex, base and along the great vessels. Irregular form, and very susceptible to the effects of exercise. Blood pressure variable, generally low, pulse soft and full, marked dyspnea on slight exertion. Marked edema of legs.

Nervous System.—Fine tremor affecting nearly all the muscles, twitching and occasionally spasms. Patients are abnormally irritable and excitable, apprehensive, mentally very active and physically restless. Muscular weakness prominent.

Eye Signs.—Exophthalmos generally present, although it is not invariable. Occasionally unilateral, corresponding to the side having the enlarged thyroid lobe. Various symptoms arise in consequence of the exophthalmos. No pupillary changes.

Gland.—Enlargement varies from nothing to very large goiter. The blood vessels over the gland are generally much enlarged and pulsate markedly. Right lobe generally the larger.

Nutrition.—Severely disturbed; in most cases there is a loss in weight which may progress to extreme emaciation. Appetite variable; vomiting and diarrhea frequent complications. Patients drink a great deal of water.

Skin.—Profuse perspiration, erythema, urticaria, dermographia; pigmentation, which may occasionally be so marked as to suggest Addison's disease. Hair falls out, but is not coarse and dry. Patients prefer thin clothing and cold rooms. They are more comfortable during cold weather. Temperature may be only slightly elevated, 99 to 100. In severe acute cases it runs often to 102 or 104.

Urinary Findings.—In most cases normal in volume; glycosuria not unusual; polyuria often observed in later stages. Nitrogen proportions show a very much decreased creatinin excretion, while creatin is present in large amounts. Nitrogen is marked during the period of emaciation. Blood: Hemoglobin low. Leukopenia in severe cases, with a marked relative lymphocytosis. Menses very irregular or completely suppressed.

Hypothyroidism.—More common in advancing years from 35 to 50. Onset slow and gradual, in many cases engrafted on an old Graves' disease. Heart, rarely above 100, may be irregular, with heaving impulse. Pulse generally shows high tension and the blood pressure is above normal. Nervous system: Patient may have some tremor and muscular weakness is likely to be very pronounced, but there is not the same restlessness and jactitation. Patients are occasionally irritable, but they are generally dull and apathetic; mentally slow; memory defective. Pains in joints frequent, and referred to as rheumatism; there is a marked tendency toward sudden giving way of the legs when walking.

Eye Signs.—Exophthalmos is unusual, although it may have been present at one time. Gland: Often no enlargement can be made out; when there is a goiter it has an elastic, rubber-like consistence, occasionally cystic and nodular, but very distinctly different from the active pulsating gland of exophthalmic goiter.

Nutrition generally not seriously disturbed; patients hold their weight and in most cases gain slowly; constipation, rather diarrhea and flatulency are a troublesome habit. Patients do not drink much water. Skin dry, may be scaly; patients do not perspire on exertion; hair and nails dry, brittle, and scalp scaly. Pigmentation not common. Patients prefer thick, warm clothing and are cold most of the time. Much more comfortable during hot weather. Temperature subnormal, may reach as low as 95. Urinary findings: Albuminuria is not unusual. Nitrogen proportions do not show so marked a disturbance in creatinin and creatin ratios. In large number of cases urine practically normal. Blood: Hemoglobin low, white blood count normal. Menses generally regular but scanty.

While the degree of hyperfunction is in no relation necessarily to the size of the thyroid, it is interesting to note that the family tendency, as brought out in the hereditary story of thyroid, cardiac or nervous disease, is frequently an important influence. The history of infection, shock, fright, overwork, great fatigue, mental strain, worry, or accident, will often mark the onset of an atypical or severe exophthalmic goiter.

As laryngologists, we are ever alert to the influence of systemic disease on the structures within our chosen fields of observation, yet we are prone in the hurry of routine office work to thrust aside deeper investigation. The unstable vasomotor nervous system, gout, rheumatism, neurasthenia and autointoxication, especially, render the subject liable to annoying symptoms in the nose, throat or ears.

Some of these cases may be classified and identified as thyroparathyroid insufficiency and appropriate treatment may be given with relief. We recognize marked cases of cretinism, infantilism and exophthalmic goiter or senility, for example, without difficulty, but the considerable number of atypical forms of disease of the ductless glands with perverted secretions and attending pathologic change and discomfort in the nose and throat pass frequently without further investigation.

Attending enlargement of the thyroid, the rhinologist is called on to recognize or suspect tumor of the hypophysis or change in the anterior or posterior lobes. As Sajous has stated, it is not alone in acromegaly that typical signs of impaired functions of the posterior pituitary appear, but in other syndromes directly ascribable to the suprarenal system, as myxedema, cretinism, Graves' disease, and Addison's disease, which include in the aggregate the majority of organic changes of a morbid kind to which the system is liable, besides nervous phenomena.

The effects of thyroid toxemia and deficiency on the nervous, muscular and cardiovascular system are so serious that we may find special and early symptoms in the upper respiratory tract.

When the routine examination of the nose, throat and ears includes the cervical and postcervical glands, thyroid and thymus, it may be possible to abort an incipient case of Graves' disease or of pulmonary tuberculosis. These conditions are frequently associated with low resistance to infection.

Our observation may include the size of the hypertrophy, consistence, shape, one or both lobes, diameter of the neck, pulsation, or bruit. We may verify our suspicions before referring the case to the internist for diagnosis. The pulse will be observed as to rate, quality, arterial tension and effect of exercise. The nervous symptoms especially are those of tremor, twitching, jactitation, insomnia, dreams or disturbed mental condition. We may also find dry or moist skin, dry, dead, or falling hair, brittle nails, pigmentation, eruptions, dermographia, dyspnea, fatigue, nausea, and fever.

Again we may return to the symptoms and signs in detail, as observed in our special field.

In moderate or severe thyroid insufficiency we may find a dry mouth and throat increased with excessive dyspnea on exertion; voice, husky or thick, muscles of throat tire more easily; defects or changes in speech. The mucous membrane of the lips, mouth, tongue, pharynx or larynx may be swollen and dry. The laryngeal muscles may show insufficiency.

Matthews has reported 289 cases of laryngeal paralysis in 1,000 cases of goiter, seventeen of which were bilateral. In my experience a number of cases have exhibited slight motor insufficiency, according to the size of the goiter and the varying degrees of pressure. It would seem to me that as many of these cases have passing insufficiency it is scarcely tenable to term this condition laryngeal paralysis. It is quite remarkable that a change in voice is not necessarily in proportion to the degree of insufficiency.

Perversion of taste may occur. Howard observed six with abnormal taste in a series of thirty-two cases. Hume and Prudden report as high as one third abnormal after a careful testing of the sense of taste. Those occur usually in hypothyroidism.

In exophthalmic goiter taste, smell and hearing are rarely affected. In severe deficiency of thyroid secretion, hemorrhages from the nose, throat or gums are common. The amount of dyspnea may simulate cardiac or pulmonary disease of severe type. This modification of the oxygen supply due to the suprarenal insufficiency may bring about a marked effect on the hair, nails and skin.

Dyspnea in hyperthyroidism occurs after damage to the heart muscle has occurred. In myxedema we occasionally observe an infiltration of the nasal mucous membrane followed by thickening and occasional obstruction by a gelatinous, waxy, or yellowish secretion. This may be attended by symptoms of a cramped and swollen feeling in the throat. Pharynx and larynx may assume a bluish tinge or earlier a pale, yellowish color. Angioneurotic phenomena occur with relaxed or elongated conditions of the uvula. The interarytenoid fold may be transparent.

The dry and husky throat of Graves' disease may be attended by symptoms of cough, fever, unilateral bruit, loss of weight, precordial pain, apprehension and anemia, which may lead to a suspicion of mistaken diagnosis of pulmonary tuberculosis, and call in proper differentiation. In exophthalmic goiter hyperemia of the pharyngeal, bronchial and pulmonary mucosa is common.

The thyroid gland under hyperfunction is often hard, and in this condition gives rise to greater pressure, which is frequently the exciting cause of tracheal cough. This may be modified by change of position nd improve with a softer consistency of the gland. Some of these cases exhibited periodicity in their inter-als of exacerbation and quiescence.

The abnormal psychic condition of the individual n his discovery of an enlarged thyroid gland imme-iately assumes a serious phase of apprehension unless e is managed with great care and foresight.

As apprehension is one of the predominating symp-oms, it is often possible, without very great care, to larm these individuals and produce a serious hypo-hondriac condition.

In considering the therapy of thyroid disease in gen-ral, it is understood that the great majority of drugs re entirely useless except when occasionally indicated or the control of special symptoms. An enormous umber of therapeutic measures have received the ndorsement of many splendid physicians. It is, herefore, a question of serious consideration to know hat we can do for these patients that offers something f value.

The therapeutic measures which we adopt at the resent time are those selected by elimination after a tudy of these patients for many years. Rest and ften a change of environment are absolutely essential o the ultimate control of thyroid disease. Psychic ontrol and management, together with sedative thera-eutic suggestion, is of untold value. The question of uccess in the treatment and recovery of incipient xophthalmic goiter will frequently depend on these wo essentials.

In myxedema, and particularly in the atypical forms, reat relief and permanent improvement are usually ttained by a careful plan of administration of thyroid xtract and iodin in carefully selected dosage of care-ully selected preparations. The action of the thyroid rotein is specific and within the realm of prompt bservation. The secretions of the myxedematous hroat and nasal passages become greatly improved, nd the combination of the thyroid proteins of Rogers, he proteins of pancreas or suprarenals and iodin will requently bring about striking improvement. Proper se of the galvanic cautery, the anode electrode applied long the cervical sympathetic and the cathode applied o the neck, with a 1 ma. current gradually increased, s often attended by an improvement in the consis-ency and size of the thyroid.

Operative interference, either ligation or enuclea-ion, should not be postponed in cases in which medical reatment does not show improvement after a reason-ble time. The results depend greatly on the skill of he surgeon, as a number of serious results may tes-ify. The use of hypodermic iodin or the green citrate f iron is often of great service in rendering the vaso-otor system more stable. Many cases of the myx-edematous type improve greatly under the administra-ion of pure iodin. The study of the individual cases lone can definitely determine this problem.

The internal secretions and their relations to patho-enesis, physiology, and therapeutics deserve our most erious study. The rôle which they assume as oxygen arriers and active principles of stimulation to the lood cells of the body deserve our interest. Their ôle as immunizing and sensitizing agents is worthy f increased scientific interest. Their influence as overnors over the vasomotor centers and regulators f harmony in the functions of the lymphoid tissue of he throat is indeed significant.

We are unable as specialists to unravel many of hese great mysteries of biochemistry. We must call on our laboratory colleagues with the spirit of research and untiring devotion to scientific investigation to solve these problems for us. Individually we can offer only our clinical mite. Yet it would seem that the laryngologist and the otologist have sufficient interest in the newer fields of organotherapy and pathology of the ductless glands to demonstrate that the thyroid and the tonsillar ring are involved in such a delicate and complex interrelationship that our special opinion in this field of research may, we hope, soon prove sufficient to call the attention of the internist, the neurologist, and the general surgeon to the fact that an examination of the nose, throat, ears and larynx is at least, in all modesty, worth the effort.

AUTOGENOUS COLON VACCINES IN THE STUDY, DIAGNOSIS AND THERAPY OF CHRONIC INTESTINAL TOXEMIA *

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Chronic intestinal toxemia, commonly and erroneously termed chronic intestinal stasis, has always been a widespread and frequent complaint. It has had a variety of names, but one of the earliest is by Robert Burton[1] in 1676. It was characterized by him as "windie melancholie," a name that could scarcely be bettered today.

What the ancients did not know about pathology they made up in therapeutics. Pliny,[2] in speaking of this disorder, said: "Simple diet is the best; heaping up of several meats is pernicious, and sauces worse; many dishes bring many diseases." As to cause, Burton[3] says: "In the first rank of these, I may well reckon up costiveness, and keeping in of our ordinary excrements, which, as it often causeth other diseases, so this of melancholy in particular." Celsus[4] said: "It produceth inflammation of the head, dulness, cloudiness, headache, etc." "In Skenkius' Medicinal Observations there is a story of a young merchant going to Nordeling fair in Germany, who for ten days' space did not go to stool; at his return he was grievously melancholy, thinking he was robbed, and would not be persuaded but that all his money was gone; his friends thought he had some philtrum given him, but Cnelius, a physician, being sent for, found his costiveness alone to be the cause, and thereupon gave him a clyster, by which he was speedily recovered."

Our modern conception of chronic intestinal toxemia is that of a chronic diffuse toxemia of intestinal origin, the result of aberrant biochemical conditions, usually, but by no means always, bearing a measurable ratio to the delay in the onward passage of the intestinal contents as visualized by the Roentgen ray (Lynch, Draper, Satterlee[5]).

The colon bacillus has its normal habitat in the large bowel, where it probably plays an important part in the end of digestion. Researches[6] show that

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Burton, Robert: The Anatomy of Melancholy, Vol. 1.
2. Pliny: Book 2, Chapter 52.
3. Burton: The Anatomy of Melancholy, i, 308.
4. Celsus: Book 1, Chapter 3.
5. Satterlee, G. R.: Chronic Intestinal Stasis, New York Med. Jour., June 12, 1915, cl, No. 24.
6. Conradi, H., and Kurpjuweit, O.: München. med. Wchnschr., 1905, lii, 1762; ibid., 1905, lii, 2165.

the colon bacilli elaborate materials which exert marked inhibitory influences on the putrefactive bacteria in the intestine, particularly the *Bacillus putrificus-coli,* and in this way prevent the origin of intestinal autointoxication. Carbohydrate oxidation and fat decomposition; fermentation, not putridity, are caused by the *B. coli* action. Under normal conditions it lives a saprophytic existence and is not only harmless but beneficial to the host. We will see, therefore, that it is probably for this reason that results from sterilization of the intestinal tract have no lasting effect on the intestinal toxemia when the toxemia is thoroughly rooted in the system. When the colon is diseased, however, the colon bacillus is distinctly harmful, either in the walls of the colon or when lodged in other parts of the body, as the peritoneum, genito-urinary or respiratory tract, etc. It is then capable of becoming pyogenic and its intracellular poison is set free and can then act on the body of the host. Vaughan[7] says the bacterial cell must die to liberate the poison. Deaver[8] states that the *B. coli* isolated from the intestine in case of disease of that structure is more virulent than that from the normal intestine. We quote Adami,[9] who says that under ordinary circumstances the *B. coli* is incapable of forming ectotoxins, but when the intestinal mucosa is affected by traumatism from within or without, the *B. coli* may wander and cause inflammation and thus liberate toxins. It is necessary under these circumstances that bacteriolysis take place through a breaking down and liberating of the resulting split products.

In order to weave the net around the colon bacillus still closer, let us study colon bacillus infections of the genito-urinary tract.

It is the belief of the author that a severe gastro-enteritis or a severe acute disturbance of the gastro-enteric functions is often the starting point and causative factor for the biochemical changes in the intestinal epithelia and the *B. coli* that occur later on in the disease. The condition of chronic intestinal toxemia is not altogether unlike that of intestinal obstruction, in which the intestinal epithelia probably play an important part, as shown by J. W. Draper's[10] experiments of causing the symptoms in animals by feeding heterologous jejunal and ileac epithelial cells. Murphy and Brooks[11] also caused symptoms of intestinal obstruction and death in animals by injecting intravenously epithelial cells of isolated loops of the small intestine. They consider the symptoms and cause of death to be due to absorption of a toxin which is formed by bacterial growth and does not pass through a normal mucous membrane.

From the clinical study of my cases, I believe that after an intestinal toxemia is once established, the effect on all the body cells may be of long duration and that it is not merely a local condition, but a general one. As examples of this, two case histories are of interest.

A man, 35 years of age, felt perfectly well up to five years before coming under observation. After eating some scallops he had a sudden attack of nausea, weakness and cold sweat. He then developed a nervous exhaustion, with peculiar obsessions. After that he had great fear of entering strange places, of traveling and of entering into company, and on this account was about to give up business. He had no appetite, had convulsive retchings at the thought of eating, and constipation and flatulence. He was markedly enteroptotic, and radiographs showed residue in the appendix at the end of seventy-one hours. A diagnosis of chronic intestinal toxemia with secondary nervous system involvement was made. Treatment along these lines brought about improvement, slow at first, but after two months good results and at the end of a year the nervous symptoms had nearly disappeared. During this time the diet was strict and the administration of the colon vaccines in small doses was continued.

The other patient is a married woman, 33 years old, who gives a somewhat similar history of becoming suddenly ill and vomiting on a street car. She attributed this to eating canned salmon the night before. She was also enteroptotic, and developed from that time extreme nervousness, with apprehensions and a peculiar fear of traveling, especially on a street car, which she has not entered since the first illness.

Severe abdominal pains, vomiting, abdominal bloating and insomnia were marked for eight years. These somewhat subsided, but the nervousness and apprehensions still continued. The treatment was to improve the enteroptosis and intestinal toxemia. Autogenous colon vaccines were given weekly, but in four months the results were unsatisfactory, principally because the patient lived out of town and could be controlled with difficulty. Family duties prevented a proper sanatorium treatment.

McWilliams[12] gives the frequency of the colon bacillus in cystitis, as found by Krogius, Morelle, Denys, Melchior, Douglas, Brown, Schmidt and Rostoki, as being a total of 255 out of 370 cases, or 69 per cent. In infections of the whole urinary tract, Escherich found colon bacilli in fifty-eight out of sixty, and Brown thirty-eight out of eighty cases, a total of ninety-six out of 140 cases, or 68 per cent.

Reports of abscesses of the kidney due to ascending colon infections of the urinary tract are very numerous (Barnard[13]). Colon bacilli in the urine are very frequent and harmless unless there is some trauma, irritant or congestion.[12] Enlarged prostates may become infected, due to absorption of colon bacilli from the intestine as a result of constipation.

Chronic appendicitis is a good example for us to study on account of the close relationship and similar construction of the appendix to the large intestine. John Deaver[8] has found that the colon bacillus was the important bacteriologic factor in 90 per cent. of his cases of chronic appendicitis and in 60 per cent. of the cases of acute appendicitis. In these cases it was found in pure culture, much less frequently in conjunction with staphylococcus and streptococcus. It is not difficult to find other authorities for the frequency of the colon organism in the production of acute and chronic appendicitis. Among them are Dacosta,[14] Joyce,[15] Kelly and Noble,[16] Richard Warren,[17] Battle,[18] Mumford[19] and Rose and Carless,[20] in their textbooks on surgery. On the other hand, we have experimental appendicitis caused by the injection of strains of streptococci produced by Edward C. Rosenow,[21] and also numerous other organisms found in the inflamed organ. Among these other organisms might be mentioned the proteus, *B. subtillis, B. capsulatus, B. fusi-*

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[7] Vaughan, Victor, Jr.: The Journal A. M. A., April 29, 1905.
[8] Deaver, John: Appendicitis, Its Diagnosis and Treatment, 1905.
[9] Adami, J. E.: Col. Med. Jour., Denver, 1914, xi, 34 to 49.
[10] Draper, J. W.: The Journal A. M. A., Sept. 26, 1914.
[11] Murphy, F. T. and Brooks, B.: Arch. Int. Med., 1915, xv, 393.
[12] McWilliams, Clarence A.: Med. Rec., New York, 1906, lxx, 7.
[13] Barnard, H. L.: Lancet, London, 1905, ii, 1243.
[14] Dacosta, John: Modern Surgery.
[15] Joyce, C. C.: A System of Surgery.
[16] Kelly and Noble: Gynecological and Abdominal Surgery.
[17] Warren, Richard: Text Book of Surgery.
[18] Battle and Corner: The Surgery of the Diseases of the Appendix Vermiformis, and Their Complications.
[19] Mumford, James G.: Practice of Surgery.
[20] Rose and Carless: Manual of Surgery.
[21] Rosenow, Edward C.: The Journal A. M. A., Nov. 13, 1915, p. 1687.

ormis, diphtheria-like bacillus, glanders, tetanus, *occus conglomeratus,* actinomycosis, pneumococcus nd tuberculosis. The pathology of diseased cecums nd diseased appendixes differs only on account of the eculiar anatomic structure of the appendix and liability o strangulation and abscesses. The colon bacillus, I elieve, is the principal causative factor in the chron-cally inflamed colons of chronic intestinal toxemia. n our own experience, we have isolated the colon acillus in pure culture from mesenteric lymph nodes emoved with the colon in an operation for reconstruc-ion of the colon. The case was one of long-standing hronic arthritis with severe intestinal toxemia. This ase is not included in the case reports of this article, ecause no colonic vaccines were given. Vaccine treat-nent would have been given, but unfortunately the atient died four days after the operation from septic eritonitis. She was bedridden from the arthritis and he operation was justified.

The virulence and pathogenicity of the colon bacillus nd its frequent occurrence as a cause of chronic intes-inal disorders being proved, we must look for means o combat their influence. Diet and proper emptying f the bowels has always been the recognized treat-nent. Surgery, except in the case of appendicitis, and mmunization are new. Among the operations most n vogue are short circuiting, partial or complete emoval of the colon, appendicostomy, colostomy and leostomy. The latter has been shown by Dr. J. M. ynch[22] to be of great value in selected cases. It was uccessful in one of the cases reported in this paper.

There has been much said and written about the liet and various methods of stimulating the bowel to roper action. It is a short cut to say that each indi-idual has a separate successful therapy of his own. he diet question needs careful supervision for each ndividual, and we should take at least as much care f our own human race as we do of our hogs and cat-le when we want efficiency and wealth. Whether to eed or starve the patient should be decided for each articular case. We meet many individuals who claim hey feel better when their bowels do not move freely; hat is like getting accustomed to living in a dirty ouse; but the real truth of the matter is that these oor creatures have not been free from toxemia for o long that they have forgotten how to live at all. s to diet, I will merely mention that meat and white lour and polished rice should be eliminated. In some nstances in which patients do badly on meat-free diet, neat diet is resumed. As to drugs, there are none. his is a place to leave out drugs, save for temporary xpedients only. Cathartics are useful at times; laxa-ives, very infrequently. Liquid petrolatum is a com-romise, and we all have to use it; frequently it is the ause of keeping up a toxemia on account of its impur-ties. After diet, hygiene and habits, we have left two hings, immunization and surgery. I place immuniza-ion first, as some day it may diminish the number of ecessary abdominal operations.

If the colon bacillus does play so important a rôle n this trouble as we think it does, the logical thing to lo is to supplement our routine therapy by vaccines or erum. The serum so far is not very practical on ccount of the extreme toxicity the colon bacillus has n animals. This is, moreover, a chronic process and ime can be given to the body to form its own anti-odies.

Autogenous colon vaccines have not been used very extensively. They have been given in colon infections of the genito-urinary tract with more or less success. Stock colon vaccines are used extensively, but are of little value on account of the large number of types of the colon bacillus. Chvostek[23] has given colon vaccines by mouth. Living cultures of the colon bacillus have been given into the lower bowel by Bassler[24] with reported good results, but the rationale is uncertain. Turck recommends the subcutaneous injection of autogenous colon bacillus vaccines as of the greatest value. The cultures should be taken from the feces or colonic washings. Turck's[25] technic is to give subcutaneous injections of from 50 to 100 million bacteria and run the dosage up in ten days to 500 million or even to 1,000 million. Turck also mentions a modified vaccine method by injecting the autogenous colon bacillus culture into a fetal pig. After incubation of twenty-four to forty-eight hours the serum is pressed out of the fetal pig, centrifugalized and the micro-organisms destroyed by fractional sterilization and the serum thus obtained injected in small quantities. He does not, however, give any case histories or statistics.

Vaughan[26] immunizes guinea-pigs and rabbits by first splitting up the cellular substances of the colon bacillus into a poisonous and nonpoisonous portion by means of dilute sodium hydroxid. He then injects the nonpoisonous substance into the animals and immunizes them to at least eight times the fatal dose of the living germs. The serum thus obtained might be of use in immunizing human beings. Turck mentions thyroid substance as being of use in treatment to increase the antibodies against the colon bacillus. This has helped in some of my cases, but there is danger in reducing the weight of the patient.

For the control test in the diagnosis of colon bacillus infections, the serum agglutination test would be very valuable if it were reliable. Bennett, in his work with us on this subject, has found that the serum of other individuals not suffering from toxemias of colon origin agglutinate also the colon bacillus. Dudgeon[27] found that the blood serum of a patient who has a hemic infection with the *B. coli* may not agglutinate the colon organism. In a long series of cases, Dudgeon found that it was extremely rare to obtain a well-marked agglutination reaction. For this reason, agglutination tests have not been continued on my cases. The opsonic index is also unreliable and difficult. Leukocyte and differential counts were done on a number of the early cases, but were discontinued, as no change after the vaccines was demonstrable. The conclusion is that the index of improvement is the patient's general improvement in the color of the skin, abdominal symptoms, the disappearance of crepitation, tenderness and splashing, the disappearance of the headache, neuralgias and myalgias, and above all, the mental improvement.

The finding of colon bacilli in the blood is not necessary for the diagnosis of infection by this organism; if we had to wait for that we might never make a diagnosis, because it is very infrequently found. What we have to contend with is not the number of colon bacilli, but the virulence of the organism, and the degree of resistance of the individual.

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[22] Lynch, J. M.: Personal communication to the author.

[23] Chvostek: Wien. klin. Wchnschr., April, 1908, xxi, 453.

[24] Bassler, A.: Med. Rec., New York, Sept. 24, 1910, lxxviii, 519.

[25] Turck, Fenton B.: International Clinics, 1911, xi, 45.

[26] Vaughan, Victor, Jr.: Jour. Med. Research, Vol. xlv, No. 1, 67.

[27] Dudgeon, Lancet, London, 1908, 1, 616.

TECHNIC OF ADMINISTRATION OF VACCINES

The initial dose is from 10 to 25 million of the dead bacteria subcutaneously, depending on the amount of toxemia in the individual. This dose is repeated at intervals of every four to seven days. The dosage is gradually increased by 25 million each time until the maximum of 200 or 300 million bacteria is reached. Relief of symptoms is not usually obtained until three doses have been given. Occasionally quick response is seen and sometimes two months are necessary. In most uncomplicated cases three months of treatment gives permanent relief.

In those patients who have a relapse, quick response to vaccine injections is usually seen. In very obstinate cases it may be necessary to continue the vaccine treatment for a year or more.

A reaction after the injection of the vaccine usually occurs. This consists of a local redness, the size of a fifty-cent piece, pain and swelling at the site. In a severe reaction this swelling spreads until the whole upper arm is involved. This local reaction begins in six to eight hours and lasts twenty-four to seventy-two hours. At the same time a general reaction takes place. A brief description of this is that there is an exaggeration of all the symptoms: headache, malaise, vertigo and occasionally nausea. A decided increase in the severity of neuralgic or myalgic pains and of pain, soreness or discomfort in the abdomen, if these symptoms had been present. This reaction is followed by decided relief of all the previous toxic symptoms.

In markedly toxic cases if an active colon organism from the diseased part of the colon has been obtained, early reactions are severe. The reactions have usually been severe in most cases in which excessive doses, such as 300 to 1,000 million bacilli, have been administered.

In those cases in which no reaction is obtained the cause may be (*a*) attenuation of the organism from which the vaccine has been made; (*b*) previous immunization of the patient, as after prolonged dosage of vaccine; (*c*) mild degrees of toxemia, or (*d*) absence of colon bacillus toxemia in the body. In the last-stated cause the vaccine becomes of value in diagnosis.

In no case of profound intestinal toxemia, as yet, has there been a complete absence of reaction following the administration of the vaccine. The converse also holds good, that in no case in which a sharp local and general reaction has taken place could we exclude chronic intestinal toxemia.

Loose bowels and intestinal evacuation have occurred in quite a few instances, following the vaccine injections, and improvement continued. For the diagnostic value of focal reactions following vaccine injections, I refer to Noble P. Barnes.[28]

The following classification for the use of autogenous colon vaccines has been suggested by the author's success in the vaccine therapy: (1) mild chronic toxemias which do not respond to diet; (2) all severe chronic toxemias; (3) operative cases, (*a*) before and (*b*) after operation; (4) doubtful cases, as an aid to differential diagnosis.

It is essential to make a thorough study of every case, which includes a radiographic gastro-intestinal investigation. Symptomatology is very important, but we should not take any one's word or personal opinion about the state of his bowels. In numerous instances "absolutely regular bowels" are proved to have large residues. It seems pretty certain to the writer that all patients with chronic intestinal toxemia have had a constipation at some time and that this is a very strong etiologic factor, and also that the laxative habit does not cure, but rather aggravates the toxemia. To prove this we find many "residual cecums," "sigmoids," etc., in patients who have regulated bowels by taking cathartics or laxatives weekly. But these patients have symptoms of toxemia, which are frequently not recognized. Nature often finds its own best relief, so we hear often that "the osteopath has given me most help, but has not cured me." On account of the predominance of nervous and mental symptoms, these people frequently consult the neurologist, who, if thoroughly up to date, should recognize the trouble and institute proper diagnosis and treatment. There are undoubtedly many cases of primary nervous system lesions in which the gastro-intestinal toxemia is secondary. There is every reason that these patients should have the proper care of the toxemia, even if it is a secondary complaint. The insane asylums claim their share of chronic intestinal toxemias. As examples, three of the patients under consideration for this paper had been declared insane and are now well. One patient, an old lady of 76, with the diagnosis of senile dementia, has had the mental symptoms cleared up for weeks at a time by means of dietetic measures and autogenous colon vaccines, which have had remarkable and lasting results.

CASES AND RESULTS

There are sixty-four patients with chronic intestinal toxemia considered in this presentation in whom autogenous colon vaccines have been administered. Forty-seven of these had medical treatment and seventeen operative, seventeen being male and forty-seven female. Among the medical cases, twelve were considered as mild, twenty moderately severe and sixteen severe cases. In all the operative cases, the toxemia was severe. A history of regularity of the bowels was present in eight, of diarrhea without constipation in three, of alternating diarrhea and constipation in four and of constipation in the remaining forty-nine.

Indicanuria was marked in eight (and probably more, as it was not possible to examine the urine very frequently, most of the cases being ambulatory), moderate in twenty-one, normal in twenty-four and there were no records in six. It is noted that in those cases in which indican was a marked feature, the amount found in the urine could be considered as an index as to the change in the patient's condition. Its presence or absence is of no diagnostic import.

In the forty-seven medical cases, thirty-seven showed tenderness and crepitation over the cecum. This symptom, as Coombe describes it, is a feeling as of crunching snow, and often disappears after catharsis and treatment. This sign may extend over the whole colon and I consider it a very valuable symptom of chronic intestinal toxemia and, when present in a chronic condition, it is of diagnostic importance.

I shall not take up your time in enumerating all the symptoms which may be present in this disease, but merely mention the most constant ones found in this series of cases. They were flatulence, abdominal discomfort, and soreness, especially in the right iliac region, headache, mental dulness and inefficiency, and disturbances in bowel movements. Myalgias and neuralgias were very prominent symptoms, occurring in thirty, or nearly 50 per cent. of the cases.

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[28] Barnes, Noble P.: Paper read before the American Therapeutic Society, June 10, 1916, to be published.

In the sixty-four cases studied for this paper, four ere very severe, twenty-two severe, twenty-five modrately severe and thirteen mild toxemias. The cases ave also been studied with reference to the degree of eactions after administration of the vaccines. There ere seven severe toxemias with severe reactions; ve severe toxemias with moderately severe reactions; ourteen severe toxemias with mild reactions, and two nild toxemias with severe reactions. Severe toxemias ith severe reactions followed excessive dosage of the accine, from 1,000 to 1,500 million bacteria being sed. In four cases the original vaccine had to be disontinued on account of the severe reactions, and sensized vaccines were given instead.

Of the sixty-three cases in which the colon vaccines ere used, sixteen had successful terminations or ere cured, twenty-one gave satisfactory results, four howed doubtful efficiency, and there was one absoite failure, probably on account of a very incompetent eocecal valve. In two cases the vaccines were disontinued, one on account of cardiac palpitation and ie other on account of persistent headache. In one atient with a very severe toxemia and a large hernia ie vaccines gave satisfactory results for one year nd were of no assistance the next year, probably on ccount of the advanced and incurable condition.

In one patient with a chronic gastritis the colon acillus was isolated through the stomach tube, and accine therapy was very successful. In six patients ho needed operative procedures, marked improveient was obtained, although a cure could not be xpected. Four albuminurias and one severe nephritis f intestinal origin cleared up under vaccines.

Acid secretions in the oral cavity, urethra and vagina re frequent in these patients and improve under treatient for the toxemia. The urine is always acid.

OPERATIONS

In seventeen cases operation was an essential part of ie treatment. There were eight "reconstructions of ie colon," or removal of the ascending colon, with o mortality. Results were very satisfactory in five. one case with a serious condition of adhesions from umerous former operations, fistula formed and secndary obstruction, all of which cleared up. In one atient with long-standing severe migraine and volvus, the bowel condition was relieved, but the migraine eturned and the diagnosis at the present time is still oubtful. In another patient, persistent headaches nd vomiting were relieved by the end of a year and ie patient is at business, but he has returns of his ormer trouble three or four times during the year. ere was a condition of apparent nephritis with high ood pressure relieved by removal of the colon. In nly one of the eight operative cases, therefore, has the sult been unsatisfactory.

There were four suspensions of the colon. The sults were satisfactory except in one very advanced se in which a reconstruction of the colon should ve been done. The patient is now lost sight of. eostomy was performed in one patient with a very evere, long-standing ulcerative colitis with delirium d semiconsciousness for two years. A preliminary ourse of colon vaccines for four months brought the tient into a condition for operation. The result was wonderful mental change, which lasted for a year, eath resulting from the ulcerative process, which was own at necropsy to be very extensive throughout the lvic region. The similarity in results from colonic vaccines and relief of toxemia by opening the ileum is remarkable.

Appendectomy as the only operation was done in three cases. In one carefully selected case the colon was not badly diseased, and the appendix alone, being considered enough of a cause, was removed, followed by a postoperative course in vaccines with great benefit. In another patient there was no choice of operation, as there was a large acute appendiceal abscess. An attempt to remove the appendix was unsuccessful; but there was a later recurrence of the abscess and the appendix was then removed. Colon vaccines were given faithfully between the operations and have been given since, and apparently they have helped to clear up the toxemia. Their actual value in this case has been classed as doubtful. The third appendectomy operation was performed outside of my control. It was a case of ulcerative colitis, and I had planned more extensive operation. The relief has been only temporary. Six months previous to operation the vaccines gave relief.

CONCLUSIONS

1. The predominating factor in the symptomatology of chronic intestinal toxemia is the colon bacillus.
2. In diseased conditions of the colon, the colon bacillus may become very harmful to the human organism by forming and liberating toxins, thus causing a toxemia.
3. This toxemia gives a definite symptomatology called chronic intestinal toxemia.
4. Putrefactive organisms often play an important part in intestinal toxemias, but the lasting effects are due to the colon bacillus.
5. In the study and treatment of all long-standing or severe chronic intestinal toxemias, autogenous colon vaccines should be administered in proper dosage.
6. Autogenous colon vaccines are helpful in the diagnosis of chronic intestinal toxemia.
7. The method of action of the colon bacillus vaccine is probably an immunization and sensitization of the body cells.

125 West Fifty-Eighth Street.

A NEW DEVELOPMENT IN SANATORIUM TREATMENT *

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In a multitude of cases the therapy of the ancients was as successful as that of today. The mute bas-reliefs on the walls of the health temple of Epidaurus portraying the recovery of individuals or of great groups of citizens are striking proof of the efficacy of ancient methods of cure. The Chaldeans, the Egyptians, the Greeks, the Arabs, peoples to whom we owe much of what we know in medicine as well as in astronomy; who devised the signs of the zodiac and mapped the heavens into constellations; who knew the divergence of the north star from true north; who invented the lever and the screw; who, fascinated with the power of higher mathematics, called it "al-gebra," the mighty; it is fair to suppose that such individuals really knew when they were cured and that their written records are at least as trustworthy as our own. When they recite that whole cities were relieved; that

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

arms, legs and heads were cured, that minds and bodies were restored; should we not accept it? If so, what is the conclusion other than that, with few and striking exceptions, cure was just as frequent and treatment just as effectual then as today?

If our ratio of cure is higher, as doubtless it is, what is the reason? Not better brains, surely, nor better facilities for treatment, but just one simple thing, *better diagnosis!*

Without more than touching on the results of this in terms of improved public health or in the decrease of infectious disease, let us consider what has been the course of events in the past decade as to the results of sanatorium treatment in the chronic lesions in which a high proportion of correct diagnosis should now be made. Preventive medicine and improved sanitation, controlled and fostered by organized cooperation, are the direct results of industrialized therapeusis based on diagnosis. Now this industrialization of medicine, which is a natural outcome of the spirit of the day, is further encouraged by the results obtainable in modern sanatoriums. These are comparable to mills, in that the raw human material enters, is sorted and ultimately grouped under separate diagnostic heads. Just as no single milkman can produce and peddle as wholesome milk as can a business corporation, so no single physician can produce a diagnosis and apply the therapy based on it as thoroughly as can a company of physicians working cooperatively with all the costly appurtenances necessary to diagnosis and therapy in the hands of specially trained workers.

It is therefore more necessary than ever that modern sanatoriums have a competent body of visiting consultants in addition to their own staff. As to the necessity of sanatoriums, no one has spoken more emphatically and convincingly than Stewart McGuire of Richmond: "The surgical operation never cures a patient, only puts him in the way to get well. It often takes months and even years for the patient to get back to his normal." From whatever viewpoint, from whatever angle, the image is the same; there is greater economic value to the restoration of a life impaired by the presence of a mechanical defect than in the improvement, greater or less, in so many syphilitics or arteriosclerotics. For the one, proper sanatorium treatment means the actual permanent removal of the cause and consequent return of normal efficiency; for the other, equally careful treatment means often health without work. It is as if the individual were thrown into a scale in the opposite pan of which lay work plus disability. What, then, is the true function of the modern sanatorium? Obviously, to remove from that scale the disability. For often in the past nothing more than the work has been removed, no systematic search having been made for the disability.

Analysis of seventy-five patients coming to Idylease Inn, all of whom complained of chronic constipation, congenital and acquired, showed that more than four fifths suffered from disorders of the alimentary canal, either reflex or organic. The remaining one fifth presenting troubles apparently quite remote from the abdomen, as neuralgias, myalgias, neuritides, nephritides, increased blood pressure, etc., were also finally proved to be suffering reflexly from a primary disturbance of the alimentary canal. A classification of the entire group shows it to be divisible into three types, as follows:

Type A, those suffering from a toxemia which will yield to the ordinary medical therapeusis, as devised by the ancients, namely, rest, diet, massage, hot-air treatment and hydrotherapy.

Type B, a very small, but seemingly distinct group, in which the toxemia is so pronounced that the treatment just mentioned gives only temporary and inconclusive results, but in which great benefit is derived from autogenous colonic vaccines. The degree of injury to the intestinal epithelium, referred to later, is probably the determining factor in this type.

Type C, a small but rapidly increasing group in which there is either congenital or acquired dysmorphia, tumor, injury or disease of the canal or associated viscera. Here are found the chronic appendix inflammations, gallstones, kidney stones, duodenal ulcers, occasional gastric ulcers, varices, bands, twists and other mechanical derangements.

Before discussing these types critically it will be well briefly to consider the question of what is meant by chronic autointoxication. It has been defined by Satterlee[1] as a "chronic diffuse toxemia of intestinal origin, the result of aberrant biochemical conditions, usually, but by no means always, bearing a measurable ratio to the delay in the onward passage of the intestinal contents as visualized by the Roentgen ray." There are two main theories as to the source of the poisons concerned in producing the well-known symptoms: first, that they are of bacterial origin; second, that they are derived from the cells of the intestinal epithelium itself. The former view originated with Metchnikoff and has been furthered by the researches of Combe and by the energetic writings and the work of Lane. The latter view is a product of the American and French schools of experimental surgery. Draper[2] in 1906 presented his conclusions before the Johns Hopkins Medical Society, based on a six-year research at his surgical research laboratory in Columbia University. This work was corroborated by Roger of Paris, working independently. It has taken fifteen years for this pioneer work to be accepted and applied clinically. It is evident, then, that this condition known as intestinal toxemia is usually dependent on a preexistent mechanical or functional intestinal obstruction. Obviously this cannot be complete, but the incomplete form undoubtedly causes symptoms analogous to the complete but less severe.

Draper[2] in 1906 showed that the poisons probably originated in the cells of the duodenojejunal epithelium, rather than from bacteria. Roger[3] in 1907 proved it probably to be a proteose, and Whipple[4] has recently confirmed this deduction by isolating what appears to be a proteose from the contents of loops of obstructed intestines. To the general student of this subject it is significant proof of the nonbacterial origin of the toxin that small doses injected from a loop, made by occluding both ends of a duodenojejunal segment for from forty-eight to sixty hours, will kill a dog in from thirty-six to forty-eight hours, whereas those from a similar loop in the colon or terminal ileum will not kill for more than a week. Yet what is the relative bacterial count? Every one knows that the duodenal area is nearly sterile, whereas the ileocolonic region is crowded with bacteria. The impornt studies on the duodenum and stomach by Barber[5] ive here a direct bearing, as well as those of Sweet[6] id Frazier.

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[1] Satterlee: Chronic Intestinal Stasis, New York Med. Jour., June 12, 1915, ci, 1204.

[2] Draper-Maury: Observations Upon a Form of Death Resulting from Certain Operations on the Duodenum and Jejunum, Surg., Gynec. and Obst., May, 1906, ii, 502.

[3] Roger: Pathologie des intoxications, Paris, 1914.

[4] Whipple: Proteose Intoxication (Later Studies), Jour. Exper. Med., Jan. 1, 1916, xxiii, 123. Proteose Intoxication, The Journal A. M. A., Aug. 7, 1915, p. 476.

Evidently, as Lynch and Draper[7] find, the toxicity of e alimentary canal varies directly with its digestive tivity; the stomach and colon, having no digestive ower worth naming, are correspondingly lacking in xicity. These authors aptly liken the stomach to a ment mixer. Indeed, the more carefully one studies astro-intestinal cases and hears of "bilious attacks," e more convincing is the clinical evidence that the xperimental viewpoint is right, namely, that the stom- h and colon have no function save that of *storage* id *motility*. No fact in modern medicine deserves reater publicity than the seeming paradox that of ery hundred "dyspeptics" only ten have any demon- rable lesion in the stomach itself.

In summarizing this résumé of laboratory studies the obstructions we may conclude for clinical pur- ses that the toxin is derived primarily from aberrant llular activity of the enteric epithelium due to inter- rence with the normal intestinal flow; that the elimi- ation of this toxin is chiefly done by the terminal lon; that this results in hyperemia, injury and lodg- ent of bacteria and other parasites; that often there llows a vicious cycle due to superimposition of toxins bacterial origin. It is evident that the value of imal experimentation to applied medicine is incal- lable.

Needless to say, no case should be put in Groups or B except after the most exhaustive study, for is fundamental that there must be a discoverable use for every ailment. The writer's experience is iformly at variance with the psycho-analytic hypoth- is as to the etiology of disease. Every proof from e evolutionary doctrine, now universally accepted, flects the human creature as a healthy animal, if rn with an unimpaired body and accorded fair vironment, and points inquiringly at those devotees the cult who would base our shortcomings on cadences inherited from prehistoric simian ances- rs of doubtful morality.

Illustrative of the ease with which chronic intesti- l toxemia may cause symptoms referable to the men- l state may be cited a few cases:

Case 365.—Sk., an electrical engineer, aged 36, sent to Inn 1905. Family history negative, had been well and ong until 22 years of age, when he had typhoid. He had erworked for fourteen years. He had suffered increasing nstipation. He suddenly became exhausted mentally and ysically, fell in street, suffered great mental anxiety, with reasing dread of being left alone. Tachycardia was present d persistent insomnia, all symptoms of toxemia. This patient me under Type A and was treated ten weeks. A permanent re was effected in eleven weeks.

Case 561.—Woman, aged 28, with a negative family history, s well and strong until 16 years of age, when she had pneu- nia. Her menses were regular, but she was always con- pated. Her chief complaint was intense worry and fear of pending trouble. She had a marked religious obsession and s constantly at prayer. She suffered from loss of weight d insomnia, and was unable to eat because of "stomach uble." She was treated as is appropriate for type A, and s cured in twelve weeks, and has been well to date, after ee years.

Case 781.—A., a man, aged 60 years, with a negative family history other than one brother who had appendicitis and one sister who had had nervous prostration, had always been constipated and had had "bilious attacks" and "stomach trouble" after he was 10 years old. At 16 he had to give up school for two years, and suffered from depression, which alternated with exhilaration and religious fervor. At 18 he entered college, where he worked very hard and finally graduated, but, owing to conditions described he was able but partially to fill the position in life for which he was fitted, being constantly treated for "dyspepsia and liver trouble." An attack of depression beginning in 1907 lasted nearly fourteen months. The longest period of exhilaration was four months. I first saw the patient in April, 1914. He was then emaciated, irritable, very restless, sleeping only two or three hours at night. His systolic blood pressure was 190 mm. of mercury. His bowels were obstinately constipated. I classed him in Type A, and gave him treatment for six weeks. He greatly improved and remained normal until about the middle of November the same year, which exceeded any normal period for several previous years. Then followed a short period of depression, from which he quickly recovered under treatment. A Roentgen-ray study made at this time showed a large distended cecum and a distinct ptosis of the transverse colon. He returned for further treatment and after six weeks his bowels began to move normally. The blood pressure gradually dropped to 148 mm. of mercury, his weight increased 18 pounds, and to all appearances he is now normal. While it does not seem fair to call this a complete cure, it does show the benefits of Group A treatment over persistent use of medicines in cases of this nature.

Returning now to a further analysis of the three groups into which Idylease Inn patients have been grouped, I would say that in Group A the intestinal toxemia is probably due directly to inattention to regular evacuation; to the mechanical neuromuscular and vascular injury of the intestine wall by the masses of hard feces; to a flaccid abdominal wall; to a toxic interference with the normal secretions of the intestine, notably the mucoid; indirectly to the habits and customs; the pressures of modern life. It takes from two weeks to three months to cure these people. That not all of them would be cured by ordinary rest and medical treatment in double this time is instanced by the history of the following:

Case 482.—S—y, woman aged 25, stenographer, with a negative family history, complained chiefly of "stomach trouble"; she had been treated for "dyspepsia" for one year. As there was a recurrence of the symptoms, she came to Inn at expiration of this period, in May, 1909. There were marked symptoms of hysteria and mental depression. Group A treatment was given and in eight weeks the woman gained 17 pounds. A permanent cure was accomplished.

Group B embraces those cases in which there is probably a mild mechanical basis for the development of the toxins, but one not definitely susceptible to Roentgen ray or other proof, or possibly a subinfection of the type described by Adami. The subjects of this group tend to relapse very persistently after resuming the workaday load. Whatever may be the explanation, it is clinically certain that not a few are greatly benefited by autogenous colonic vaccines, if these are skilfully prepared. Hektoen,[8] speaking of the action of autogenous vaccines, says:

> "In subacute and chronic localized infections, the results appear to indicate that specific vaccines properly and skilfully used have value, quite likely, because they increase the production of specific antibodies, as demanded by the theory, but probably also because they stimulate leukocytic and other activities."

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[5] Barber: Dilatation of Duodenum, Ann. Surg., 1915, lxii, 433; Dila- ion of Stomach, Med. Rec., New York, May, 1915, lxxxvii, 718.

[6] Sweet: High Intestinal Stasis, Ann. Surg., June, 1916, lxiii, 720.

[7] Lynch and Draper: The Protective or Esoteric Symptoms of Alimentary Canal, Virginia Med. Semi-Month., March, 1916, xx, .. Frazier: Experimental Colonic Stasis, Ann. Surg., June, 1916, i, 729.

[8] Hektoen: The Journal A. M. A., May 20, 1916, p. 1591.

Illustrative of this group are the following histories:

CASE 1002.—S—s, a woman aged 32, had chronic constipation caused by the mechanical pressure of a fibroid uterus. There was good postoperative recovery from hysterectomy, but the functional improvement was slow, although hydrotherapy and massage were used freely. There was immediate and continued improvement under regular injections of colonic vaccines.

CASE 660.—W—b, a woman, aged 28, with a negative family history, as a child had had measles and whooping cough severely. She had always been constipated, and cathartics were continually necessary to move the bowels. She had always had sick headaches, and in recent years these were accompanied by vomiting. Her last illness was brought on by shock and grief two years before. Her chief complaint was tension in back of the neck and down the spine, with a sensation of the head being drawn downward. There was marked depression, insomnia, and emaciation; she had a tired, anxious expression, and the skin was dry and sallow. The tongue was coated and the breath was foul. There was no thyroid enlargement, and the heart and lungs were normal. The abdomen was slightly distended by gas. The cecum was enlarged and, with the transverse colon, was tender under pressure. Under Group A treatment improvement was very slow until colonic vaccines were added and the patient then made a remarkably rapid recovery. Treatment was continued one year.

CASE 980.—R—c, a woman, aged 34, with a negative family history, as a child had been very nervous and always constipated. She menstruated at 14 and suffered severe pain. She had an operation at 20 for appendicitis. She was married and had two children. For the past ten years the patient had been a complete wreck. She had been treated for hysteria, gastric ulcer and excruciating pain in the lower left quadrant of the abdomen. She had threatened suicide unless some relief was given her. I first saw the patient in January, 1915, when she was extremely nervous, unable to sleep, had no appetite, was very hysterical, and had lost several pounds in weight. On examination I found the uterus was retroverted and the left ovary tightly bound down with adhesions. A Roentgen-ray study showed the stomach to be normal, but there was a kinking of the duodenum from adhesions, a band of adhesions involving the terminal ileum, and adhesions about the transverse colon. Operation was performed in December, 1915, and the adhesions were broken up; the uterus was suspended and left ovary liberated. After operation hydrotherapy, massage and vaccines were continued; at the expiration of three weeks the bowels acted normally. She has gained in weight 30 pounds and is entirely free from former symptoms.

Group C comprises the most interesting class of cases, and shows what can be done by preventive and physiologic surgery. Further, it demonstrates the importance of the stomach as an organ which reflects disease in other organs; the "protective or esoteric symptomatology" and the danger of misunderstanding this most salient characteristic. What a salutory change has come over our crude conceptions of five years ago, when we were treating "hypochlorhydria" and "hyperchlorhydria," for example, as clinical entities instead of utilizing these reflex symptoms to diagnose the fundamental lesion. Until recently we certainly have failed to interpret the lesson which the stomach has had to give.

CASE 1202.—T—r was treated for years by some of the best gastro-enterologists in the country for "dyspepsia" and "stomach trouble," based on analysis of stomach contents. After diagnosis, a large gallstone and a chronic adherent appendix were found to be the mechanical cause of the gastric inhibition. Both were removed, and cure was accomplished after prolonged hydrotherapy.

CASE 1232.—M. J., bank clerk, aged 21, had eight years' treatment by a prominent internist for "dyspepsia" and "bilious attacks." Many gastric analyses were made. A typical history of kidney stone was proved by the Roentgen ray. There was a gain of 20 pounds in weight in the two months following operation, because the stomach was no longer reflexly inhibited.

By far the most interesting, however, is a subgroup of Type C, which has been made of those patients requiring the operation well called "developmenta reconstruction" of the colon. This operation, as its designation implies, consists in the removal en masse of the terminal ileum, appendix and cecocolon as far beyond the hepatic flexure as the right colic artery It was done in ten cases. It was practiced on patients suffering from a great variety of lesions, and on whom every form of medication had been essayed withou result. Not the least conspicuous in the symptomatology of this group was mental incoordination, progressive deficiency and in some cases suicidal mania. The technical studies, the indications and the sequelae following this type of operation have been given in detai by Bloodgood, Lynch and Draper,[9] Mayo,[10] Martin and others.[11] It is here opportune to cite that in my experience speed of recovery from the toxemia has been directly proportional to the extent of preoperative and postoperative hydrotherapeutic treatment, with, in many cases, the diligent use of autogenous colonic vaccine; for it is in this group that one finds the skin lesions due to toxemia most marked.

It is of great therapeutic interest to note that in each of our patients requiring this operation there was found marked congenital dysmorphia of the cecocolon which consisted of a long common mesentery to the cecum and terminal ileum; a diseased and usually misplaced appendix, and Lynch's "elbow deformity" of the colon at the hepatic flexure, where dense adventitiou bands bound it down, with partial obliteration of the lumen. A high percentage of these patients had suffered from bloody diarrhea, and microscopic examination of the excised intestine showed its origin to have been at the point of these adhesions.

Summarizing these data, it is clear that the new element in sanatorium treatment is based on diagnosi and on a recognition of physiologic truths as opposed to old medical beliefs.

Clinically, as well as experimentally, the stomach is not a digestive organ any more than is the colon, but like it, a storehouse; the one rhythmically supplies th churned food to the small intestine, in which all digestion takes place; the other at intervals removes the ash

The symptoms of intestinal toxemia are protean They are caused by the absorption of a substance perhaps a proteose, which takes origin primarily in the epithelium in the small intestine itself and secondarily from bacteria. The symptoms are rarely in evidence unless there is chronic constipation or diseas somewhere in the abdomen. Toxins are eliminated chiefly by the terminal colon. This is an argumen against the removal of the entire colon and in favor o frequent irrigation.

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[9] Lynch and Draper: Developmental Reconstruction of Colon Base on Surgical Physiology, Ann. Surg., February, 1915, lxi, 166. Th Infected Colon and Its Surgery, Med. Rec., New York, June 12, 191 lxxxvii, 983; Contribution to the Surgical Physiology of the Colon Ann. Surg., 1915, lxii, 441; Anastalasis and the Surgical Therapy c the Colon, Am. Jour. Med. Sc., December, 1914, cxlviii, 828; Th Surgical Treatment of Intestinal Toxemia, New York State Jour. Med 1916, xvi, 362.

[10] Mayo: W. J.: Resection of the First Portion of the Large Inte tine and the Resulting Effect on Its Function, THE JOURNAL A. M. A Aug. 8, 1914, p. 446.

[11] McGlannan, A.: Intestinal Obstruction, THE JOURNAL A. M. A Aug. 21, 1915, p. 673. Snow, I. M.: Intestinal Obstruction, New Yor State Jour. Med., 1916, xvi, 359. Bloodgood, J. C.: Dilatation of th Duodenum, THE JOURNAL A. M. A., July 13, 1912, p. 117.

Not being a surgeon, but a physician, interested in 1e future rather than in the past, and having had more 1an a decade of experience in sanatorium developnent and management, I regard these rapid changes 1 our knowledge of very great importance. In many ays our nimble American public leads our profeson, and people are crowding to the sanatoriums in 1e expectation of getting what too often cannot as yet e given them, because of lack of preparation and quipment. The ancients equaled us in treatment; in iagnosis only do we surpass them. Let us all be preared to make that diagnosis.

CONCLUSIONS

1. Diagnosis is the all-important factor in sanarium administration. Sanatoriums, in addition to quipment, require a competent body of visiting onsultants.

2. The relative values of diagnostic findings in rder of importance are as follows: 1, history; Roentgen ray; 3, physical examination. Chemical xamination of the stomach contents is of little or no iagnostic value.

3. The cause of "dyspepsia" is found in the stomach self in but 10 per cent. of all cases.

4. Constipation in seventy-five cases dated from the venteenth to the sixty-eighth year. The group to hich a patient belonged was determined by the cause nderlying the constipation.

5. Intestinal toxemia is a vague definition of a efinite clinical entity. It is caused primarily by toxins om the cells of the epithelium of the intestine itself; condarily by bacteria.

6. There are three distinct types into which intestinal xemics may be grouped, dependent probably on the egree of permanent injury done the mucous memane of the cecocolon and on the presence or absence mechanical intra-abdominal abnormalities.

7. Autogenous vaccine therapy is often useful as a agnostic aid and may give brilliant results in chosen ses.

8. The group requiring surgical therapeusis, in addion to the usual sanatorium care, is rapidly growing in ze and importance.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SATTERLEE AND DRAKE

Dr. E. S. Bishop, New York: What Dr. Drake has nphasized and that which I feel is most important is the equate environment and restful care and diagnostic care ceived in the sanatorium.

Dr. Fenton B. Turck, New York: The so-called intoxitions due to colonic stasis have not given up the secret the toxin, its nature or manner of elaboration. Certain ods give anaphylactic symptoms; hence, acute symptoms of toxication may be induced by ingestion of alien proteins, parently independent of the concentration or virulence of testinal flora. Many conditions of chronic alimentary toxnia are favorably influenced by diet, exercise and cleansing the bowel without specific bacterial therapy. No evidence s been brought forward that cultures of the aerobic colon oup of intestinal bacteria evolve a true toxin. At the same ne, we must recognize the probability of at least a contribury rôle of bacteria in the formation of split proteins. My rsonal experience convinces me that selected cases show specific and remarkably favorable reaction to vaccine therapy. My cultures were made from feces high in the bowel insure activity of the flora, cultured in bouillon, led at 57 C., sensitized against the serum of the patient d injected subcutaneously in doses of from 50,000,000 100,000,000. In building up the systemic immunity by vaccines we are not combating a true infection. The bacteria, under favorable conditions, permeate between the cells of the mucosa and penetrate the submucous tissue of the intestinal wall, where they rapidly undergo lysis, apparently from the action of antibodies in the tissue. Under such conditions experimental animals show typical anaphylaxis. In this research, factors favoring bacterial migration from the lumen were found to be chronic stasis with splanchnic stagnation and acute shock. Less favorable were starvation, violent catharsis and slowing of peristalsis by morphin. In the majority of cases, it would seem rational to attack directly the stasis and thus cut short exposure to bacterial immigration, whether or not autogenous vaccines are administered. Two conditions that can be demonstrated definitely as requiring correction are the atony of the muscle wall and the stagnation of blood in the veins of the splanchnic area. The indications are for treatment of the colon by irrigation with water at a temperature of 125 F., which at once corrects the venous congestion, relieves spasm and stimulates formation of protective antibodies in the wall of the gut. Cold water may be alternated with the hot to improve vascular tone; and the muscle walls may be influenced directly by rhythmic alternation of tension by vibrations of a column of air introduced through the colonic tube by a Politzer bag. With postural exercise and hydrotherapy the diet should be controlled to give a minimum of protein residue and a minimum amount of meat extractives; bulk is afforded the bowel by bran, Irish moss and agar-agar. Besides the laxative influence, liquid petrolatum, as well as kaolin, seems to inhibit the migration of intestinal bacteria to a considerable degree.

Dr. G. R. Satterlee, New York: These discussions remind me of the definition of the gastro-enterologist as one who disagrees in treatment with everybody else. Each one may have a different method and yet obtain the same results. I do not wish to claim that the autogenous colon vaccines are the only form of treatment for chronic intestinal toxemia, but that they are extremely valuable in the study and treatment of these cases. Dr. Turck spoke of the flora of the gastrointestinal tract. I have made no long series of studies on the flora in these cases, as I do not believe that the intestinal flora has much to do with the toxemia. Dr. Turck did not speak of the injuries to the mucosa and ulcerations that are found in the colon. These are frequent and may account for the adhesions covering the colon in these toxic cases and caused probably by the altered colon bacilli. Dr. Turck spoke of the venous congestion of the bowel wall. All of the toxic colons which have been seen at operation show marked venous congestion and many of them marked adhesions. Except in severe cases of intestinal toxemia, I do not believe that the *Bacillus coli* is found frequently in the upper gastro-intestinal tract. I have been taking cultures from the stomach in my cases and this bacillus is an exception. To obtain active organisms, it is my custom to give a cathartic and wash out the colon, in order to get cultures from the upper bowel, where the trouble lies in about 90 per cent. of the cases. Bacteria obtained from the cecum will give a strong reaction and good results. The attenuated bacteria may give poor results or fail. Improper diet can cause fermentation and proper diet the reverse; it is also possible to get rid of the fermentation, in certain cases by autogenous colon vaccines, without change in diet.

The Fascination of Notoriety.—It has been my experience, sir, that the normal person enjoys seeing his or her name in print, irrespective of what is said about them. I have an aunt, sir, who a few years ago was a martyr to swollen limbs. She tried Walkinshaw's Supreme Ointment and obtained considerable relief—so much so that she sent them an unsolicited testimonial. Her pride at seeing her photograph in the daily papers in connection with descriptions of her lower limbs before taking, which were nothing less than revolting, was so intense that it led me to believe that publicity, of whatever sort, is what nearly everybody desires. Moreover, if you have ever studied psychology, sir, you will know that respectable old gentlemen are by no means averse to having it advertised that they were extremely wild in their youth.—P. G. Wodehouse, *Saturday Evening Post.*

INSTITUTIONAL TYPHOID EPIDEMIC COMBATED BY VACCINATION *

PHILIP B. NEWCOMB, M.D.
MOUNT PLEASANT, IOWA

That typhoid fever is practically endemic in many state hospitals for the insane is a fact hardly to be controverted. That it is occasionally epidemic is also a matter of public record, and of late has been well illustrated in the acute outbreaks of this disease at the institutions at Danville, Pa., and Osawatomie, Kan. Likewise it is true that the source of the infection is often difficult to discover and more frequently is never ascertained with any degree of certainty.

The success of typhoid vaccination in the military organizations of the world has caused similar attempts at immunization to be made from time to time by different state institutions. But in many instances these efforts have been sporadic, and the literature of the subject in this country, exclusive of the army reports, is meager in the extreme. The earliest record of typhoid vaccination en masse in institutions is that of Hachtel and Stoner[1] in 1912. They report 2,000 cases. Recent reports are those of Burlingame[2] of 2,000 cases and Weston[3] of 3,500 cases. The latter covers a period of four years, from 1912 to 1916.

In the spring of 1916, the complete and compulsory immunization of 1,498 individuals comprising officers, employees and their familes and patients of the state hospital, Osawatomie, Kan., was employed to stop an acute outbreak of typhoid fever. The circumstances encountered and procedures inaugurated differ from previous reports in some particulars, and the main points of divergence seem worthy of mention.

The majority of recorded inoculations were made with some degree of leisure, usually by the routine method over a long period of time, and rarely as a protective measure in the face of imminent danger. The series of inoculations here reported was carried out in the midst of an acute epidemic and for the express purpose of stopping that epidemic as soon as possible.

During the late summer of 1915, the town of Osawatomie, situated 1 mile from the hospital, suffered an epidemic of typhoid fever comprising twenty-five cases. At this time no cases appeared in the hospital. During November and December of the same year, four typical cases developed in the institution. In addition to these were several atypical cases, and one of these patients, F. J., to be mentioned later, was confined to his bed but a few days. His was the first suspicious case seen at the hospital.

In January and February, 1916, other suggestive cases of illness occurred which conformed neither to the ordinary conception of influenza, which was then rampant over that section of the country, nor to typical typhoid fever, and no positive Widal reactions were obtained. At this time, however, the patient F. J. gave a positive Widal. The feces and urine were examined and no typhoid bacilli found in any case.

From early autumn I had urged the advisability of immunizing the attendants and patients, but the procedure was unfortunately not inaugurated until an epidemic had manifested itself. The disease can be said to have been endemic in the hospital from November until March, when an epidemic occurred, the latter consisting of forty-one well defined cases.

During the latter part of March, a number of the officers and employees voluntarily subjected themselves to typhoid vaccination. April 5, twenty-one persons had been stricken, among whom was the superintendent of the institution. There was imminent danger of a very extensive and disastrous spread of the infection Authority was obtained from the board of control to enforce general immunization on officers, employees families resident on the grounds and patients alike Very few objections were raised to this arbitrary order and no refusals, resignations or dismissals occurred in consequence. Inoculation was begun the day after the order was issued. The bacterin used at this time was the ordinary serial package from a reliable pharmaceutical house. It was foreseen that the amount of bacterin which would be required for complete immunization for the entire hospital population, if furnished at the market price, would be almost prohibitive. A quantity of bulk bacterin was therefore prepared from the same strain of bacillus as that used by the army The suspension was made so that 0.5 c.c. contained one-half or one billion bacilli as required for the initial and two subsequent doses. About 150 doses of the commercial bacterin were given, and the remaining 4,378 doses were from the bulk laboratory preparation Much the same technic was used as that described by Weston,[4] although differing in some minor points. All inoculations were made at night. Patients of the better class and those of a chronic demented type were ranged in line on their ward corridors. This arrangement saved much time, and was far more convenient than going from room to room. Nurses had the patients' arms bared, and the assistant, preceding the physician, applied iodin at the insertion of the deltoid With resistive patients and those in seclusion, the application of iodin and the subsequent injection were made at the most accessible part, usually the leg or thigh. No abscesses followed the injections. The average time required for inoculation was twelve seconds per subject among the acute and eight seconds among the chronic patients.

No severe reactions were noted, although a few patients experienced mild chills. Agglutination tests following immunization have not been made.

Every effort was made to locate the source of the infection. Carriers were looked for, but none found The food supply came from ten different sources. The water supply for all buildings was the same, a drilled well, 165 feet deep. Water from this well was held in high repute in the hospital community because repeated analyses failed to show any contamination. Suspicion was directed toward this well because of its proximity to an unlined reservoir which was supplied from the Marais des Cygnes River, a stream which overflows its banks with every heavy rain and which is little less than a drainage ditch for several counties. This reservoir was about 100 feet from the well. The water in it was used for washing. Water from the well was drunk by the officers and patients, but it was impossible to prevent some of the patients from drinking the reservoir water direct from the taps in the toilet rooms. Among

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* From the records of the State Hospital, Osawatomie, Kan.

[1] Hachtel, F. W., and Stoner, H. W.: Inoculation Against Typhoid, The Journal A. M. A., Oct. 12, 1912, p. 1364.

[2] Burlingame, C. C.: Journal-Lancet, 1915, xxxv, 165.

[3] Weston, P. G.: Typhoid Vaccination, The Journal A. M. A., April 8, 1916, p. 1089.

[4] Weston, P. G.: The Immunization Against Typhoid of Eight Hundred and Ninety-Eight Patients in an Institution, The Journal A. M. A., Oct. 26, 1912, p. 1536.

ie latter there was practically no typhoid fever. It as necessary to direct attention in another direction. was found that a kitchen drain from Cottage B ran ithin about 15 feet of the well. On suspicion the well as accordingly closed, April 10, the day on which the ocation of the drain was found. Thereafter all water sed in the hospital was boiled river water.

Exhumation showed the drain to be an open-joint rthen pipe laid many years ago, and honeycombed ith leaks. The drain was crossed above by a sewer f poor construction which also drained a portion of ottage B. Near the intersection was found an area f seepage from the sewer above to the kitchen drain eneath at a point where it ran nearest the well and oward it. No area of seepage was found from the eservoir mentioned above and the well. It is interest-g to note that the employee F. J., the first suspicious ise to appear at the hospital, was cook at Cottage B., here he resided. He had visited the town of Osa-atomie frequently during the time that typhoid fever as epidemic there. The patient D. F., who was the rst case in the acute outbreak at the hospital, was an mate of Cottage B. Examination of the well water iowed the presence of *Bacillus coli.* No typhoid acilli were found.

COMMENT

The most preferable way of ealing with institutional typhoid idemics is to prevent their oc-urrence by means of a general nmunization whenever typhoid is the vicinity, or on the advent f the first suspicious resident ise.

Routine inoculation of new pa-ents and recently installed em-oyees at stated intervals would nduce toward safety, and should made the rule in any institution ith a large resident population. his routine inoculation with bac-rins can be made compulsory ithout serious objection on the rt of patients or employees, and n be carried out speedily, effectively and with perfect fety.

It is impossible to determine absolutely whether the ecking of the epidemic mentioned was entirely due the use of typhoid vaccine or to the closure of the ispected well. From the recorded experience of hers in the use of typical vaccines, and from the cts here reported, however, one is inclined to believe at the vaccine played at least a very important part the control of the epidemic.

In any epidemic, all sources of food and water ipply should be under suspicion and examined most refully, no matter what their previous reputation ay have been.

The Normal.—When we look broadly at biological phe-omena, it is evident that they are distinguished by one uni-rsal characteristic. The structure, activity and life history an organism tend unmistakably to maintain a normal. ccident may destroy an organism, or even a whole species, it within limits of external environment, which are the ider the more highly developed the organism is, the normal e history of each individual is fulfilled.—J. S. Haldane: 'he New Physiology," *Science,* Nov. 3, 1916.

STREPTOCOCCUS INFECTION AS A CAUSE OF SPONTANEOUS ABORTION *

ARTHUR H. CURTIS, M.D.
CHICAGO

The belief that infection is a cause of recurrent spontaneous abortion and stillbirth is not original; in fact, the theory that it is the essential factor in many instances of "idiopathic" fetal death has a considerable number of adherents.

Study of the *Spirochaeta pallida* has already demonstrated one infectious organism which is directly responsible for death of the fetus in the later months.

That other varieties of bacteria should likewise possess the power of interrupting the course of pregnancy is to be anticipated. Conclusive evidence that such infections occur, demonstration of the characteristics peculiar to the invading organisms, and discovery of the foci from which reinfection develops in subsequent pregnancies, should do much to stamp out hitherto inexplicable cases of stillbirth. The object of the present report is to produce evidence which is helpful in the solution of this problem.

In the study of scurvy in guinea-pigs, streptococcus infection of the placenta was observed by Jackson and Moody. This reawakened interest in the old question of infection of the offspring through the placenta, and for the past year we have attempted to secure material for bacteriologic study from patients with spontaneous nonsyphilitic stillbirths. Such material is difficult to obtain; aside from some abortion cases in which criminal interference was evidently the source of infection, only the two cases herewith discussed have thus far been available.

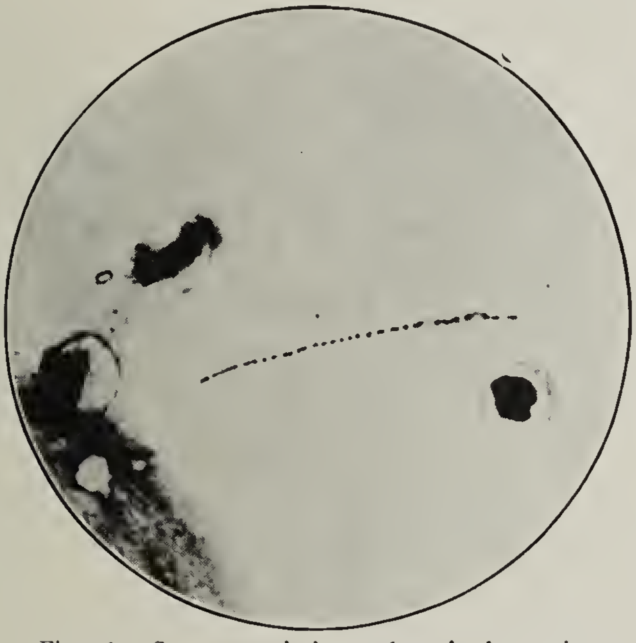

Fig. 1.—Streptococci in catheterized specimen of urine from patient with spontaneous stillbirth; Gram stain.

REPORT OF EXPERIMENTS

Case 1.—A patient, whose tonsils had previously been removed because of yearly recurrent tonsillitis, developed pyuria late in pregnancy and gave birth to an ill nourished child which died within twelve hours. Late in the following pregnancy, which occurred two years thereafter, pus again suddenly appeared in the urine. There was associated aching and a feeling of fulness in the region of the right kidney. A few days later, after spontaneous labor, a well formed stillborn child was delivered. The patient passed through an uneventful puerperium and was afebrile when I first saw her, two weeks subsequent to delivery.

Despite the mild nature of the vesical symptoms, catheterization was performed to determine the character and extent of the infection. Scattered pus cells and numerous cocci in pairs and chains (Fig. 1) were found in every field. In culture, hundreds of colonies of hemolytic streptococci developed.

This streptococcus produces hemolysis and grows freely in plate cultures. The microscope reveals a strongly gram-positive coccus, characteristically of rounded form, and of good size. Always in pairs, it often forms small clumps; on broth, and in condensation fluid, chains of considerable length occur. Litmus inulin is not acidified.

Injection of the patient with a small dose of autogenous vaccine (10 millions) was followed by a recurrence of lumbar aching and fulness, this time bilateral and most pronounced in the region of the left kidney.

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* From the Pathological Laboratory and Gynecological Service of St. Luke's Hospital.

A rabbit in the earliest palpable stage of pregnancy (from eight to twelve days) was intravenously injected with 2.5 c.c. of a washed ascites-broth culture. After an apparently normal course for six days, this animal was subjected to necropsy. Over 100 c.c. of clear fluid, such as Dick and I[1] found almost pathognomonic of early pregnancy in rabbits, were present in the abdominal cavity.

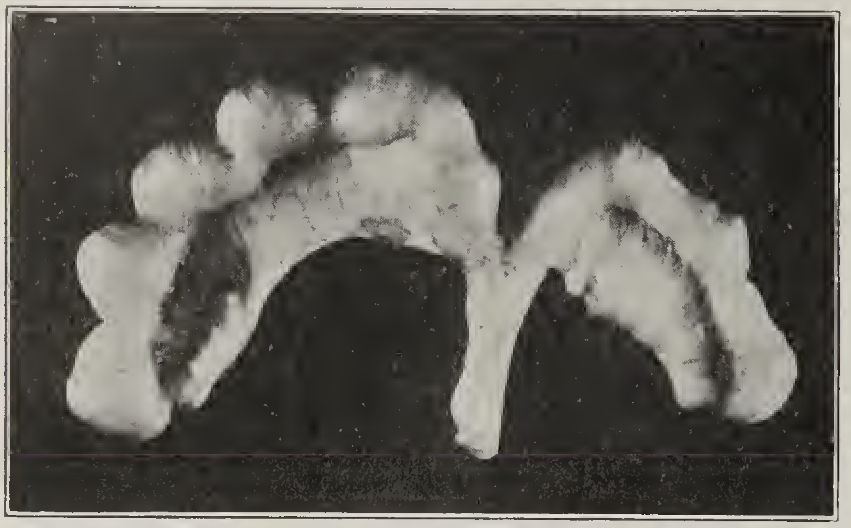

Fig. 2.—Bicornate uterus of a pregnant rabbit, containing fetuses undergoing absorption. Embryos less than one-half the size attained at time of intravenous injection, one week previously.

The uterine vessels were enormously distended. Two nodules were found in the right uterine horn, and at least two less distinct ones were present in the left horn. To Dr. Jackson, Dr. Moody and myself, the evidence was convincing that absorption of fetuses had occurred. The other viscera revealed no changes. Mediums inoculated with the ascites fluid remained sterile; from the heart's blood were obtained a few colonies of streptococci; from the kidney innumerable colonies of streptococci developed. Smears from the uterine cavity contained moderate numbers of the same organism. Histologic study of the uterus and other viscera will be subsequently reported by Dr. Jackson.

A rabbit two and a half weeks pregnant was intravenously injected with 2.5 c.c. of a washed ascites-broth culture of the streptococcus. The fetuses dwindled, in a period of seven days, from nodules the size of the rabbit's kidney to masses less than one-half as large (Fig. 2). Necropsy revealed that these numerous embryos were undergoing absorption (Fig. 3).

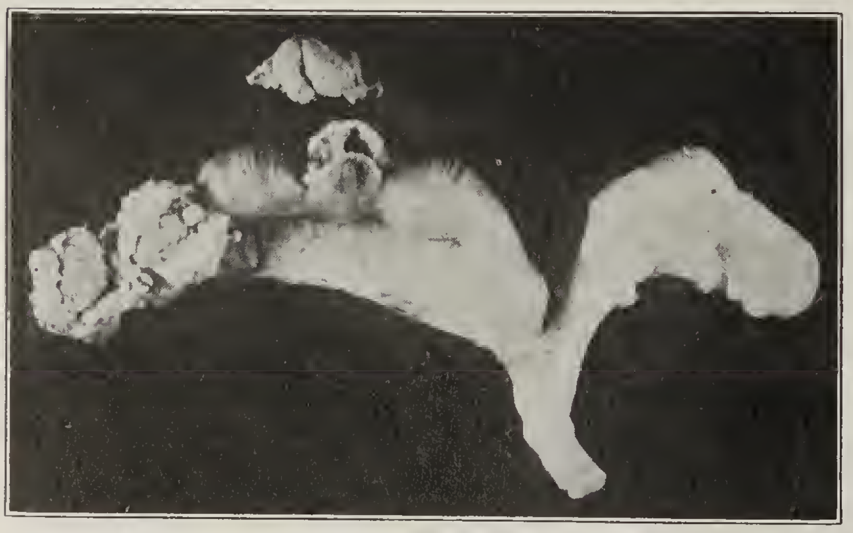

Fig. 3.—Uterus partially opened, with three necrotic embryos exposed to view.

Minute kidney abscesses, arthritis of the left knee joint, and an early lobar pneumonia were also present.

Fresh preparations and cultures from the uterine cavity and from the kidneys yielded the streptococcus in pure growth. Mediums inoculated with free peritoneal fluid remained sterile.

Case 2.—A patient of Dr. B. A. McBurney and Dr. De Lee, whose case was reported recently,[2] with history of a previous pregnancy with infection, gave birth to a stillborn fetus. At necropsy Moody found a streptococcus which he obtained in pure culture from the placenta and from the heart's blood. A subculture of this organism was used by me for further study.

Growth did not readily occur on plates, and hemolysis was not obtained on blood-agar slants. In other respects this organism is the counterpart of the streptococcus described in the preceding experiments.

A pregnant rabbit, near term, intravenously injected with 3 c.c. of a twenty-four hour washed ascites-broth culture of this streptococcus, gave birth to nine young on the following day. Of this litter four were dead and the five small remaining premature (?) young died within a few hours. The mother rabbit maintained the appearance of good health.

A month later, when two weeks pregnant, this rabbit was again intravenously injected with 3 c.c. of a twenty-four hour washed ascites-broth culture. After five days this apparently healthy rabbit was killed. In the uterus were found half a dozen retrogressing fetuses in varying stages of absorption. Smears from the uterus (Fig. 4) contained the streptococcus, which grew in pure culture in inoculated mediums.

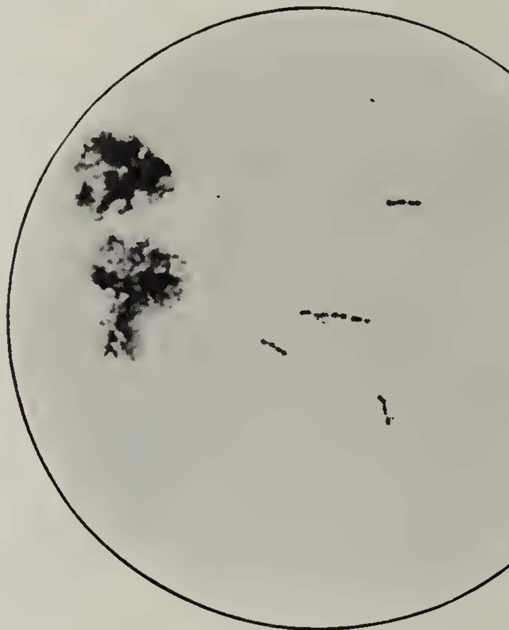

Fig. 4.—Streptococci in smears from the uterus of a rabbit containing fetuses undergoing absorption; Gram stain.

Another rabbit, slightly more than two weeks pregnant, was injected with 2 c.c. of a twenty-four hour washed ascites-broth culture. Five days later, palpation revealed evident retrogression of pregnancy. The rabbit seemed in good health, but was killed. At necropsy the uterus contained seven dead fetuses undergoing absorption. Smears from the lining of the uterus contained large numbers of the streptococcus. In cultures a pure streptococcus growth was obtained. These pathologic specimens were preserved for study.

COMMENT

From the urine of a patient who gave spontaneous birth to a stillborn child were obtained large numbers of streptococci. Two pregnant rabbits were intravenously inoculated with cultures of this organism. Death of the fetuses followed. One mother appeared to be in normal health, the other became seriously sick some days after the death of the fetuses. Pure cultures of the streptococcus were obtained from the kidneys and from the uterine contents of both animals.

From a spontaneous stillbirth were obtained pure cultures of a gram-positive streptococcus. A series of three pregnant rabbits was intravenously injected with washed cultures of this organism. In each instance here was. premature labor or death of the embryos ,ith absorption. Serious maternal illness was not evient. At necropsy, pure cultures of the streptococcus ,ere recovered from the uterine cavity.

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[1] Dick, G. F., and Curtis, A. H.: Previously unpublished incidental findings in a study "Concerning the Function of the Corpus Luteum and Some Allied Problems," Surg., Gynec. and Obst., November, 1912, p. 588.

[2] De Lee, J. B.: A Bacteriologic Study of the Causes of Some Stillbirths, The Journal A. M. A., July 29, 1916, p. 345.

Whether organisms other than the streptococcus ossess the power of interrupting the course of pregancy does not materially influence these results. 'hese facts remain: Streptococci can be isolated from ,omen who give spontaneous birth to stillborn chilren; streptococci have been obtained in pure culture rom the placenta and from the stillborn fetus; intraenous injection of pregnant rabbits with cultures of hese streptococci is followed by fetal death; the strepococcus can be isolated in pure culture from the fetus nd from the uterine cavity of the mother rabbit.

The streptococcus encountered in these cases appears) be peculiarly adapted to infection of the genitorinary tract. Several closely related, probably idenical strains, have been isolated from patients with terine, tubal and kidney infections. Possessed of ertain variability in cultural characteristics, these trains have much in common. We may have here to o with a type of streptococcus especially modified by, nd with especial affinity for, growth in the genitorinary tract; it is characterized by persistence of ıfection, low virulence, and richness of growth on rtificial mediums.

SUMMARY.

From the urine of a mother whose child was born ead, also from the placenta and heart's blood of a tillborn child, smears and cultures yielded large numers of streptococci. Intravenous inoculation of pregant rabbits was followed, in every instance, by aboron or absorption of the fetuses with recovery of the treptococcus in pure culture from the maternal uterus.

106 South Michigan Avenue.

'HE TREATMENT OF CERTAIN DISEASES OF THE SKIN

BY THE INTRAVENOUS INJECTION OF A FOREIGN PROTEIN *

M. F. ENGMAN, M.D.
AND
R. A. McGARRY, M.D.
ST. LOUIS

It is, no doubt, a common experience to observe eneficial effects in certain chronic conditions from ıtercurrent infections associated with high temperaıre. This we have observed in connection with cerıin diseases of the skin. One has seen the nodules of ːprosy rapidly disappear after an intercurrent infecon associated with high temperature: the bite of a obra, as is well known, frequently causes a rapid esolution of the cutaneous lesions in this disease.)ne has seen psoriasis disappear during an intercurent pneumonia, or typhoid; also the lesions of mycosis ungoids, after an intercurrent infection; we have rtificially produced this in two cases by the injection f Coley's fluid (probably owing to the foreign proein). In one of them, the disintegration was so rapid ıat we fear it caused an earlier dissolution of the atient than would otherwise have occurred. A simiır retrogression of lesions during hyperpyrexia has een observed in syphilis, and tuberculin has been known to affect the efflorescence on the skin after a "test" injection.

Some years ago one of us suggested to a well known leprologist the injections of typhoid vaccine for the treatment of nodular leprosy, founded on the foregoing observed facts, with the thought that probably it was the hyperpyrexia which caused the resolution of the lesions, namely, that it was probable that the lepra bacilli did not thrive at a high temperature and that during a period of hyperpyrexia, though artificially produced, the organisms were killed, with subsequent involution of the lesions.

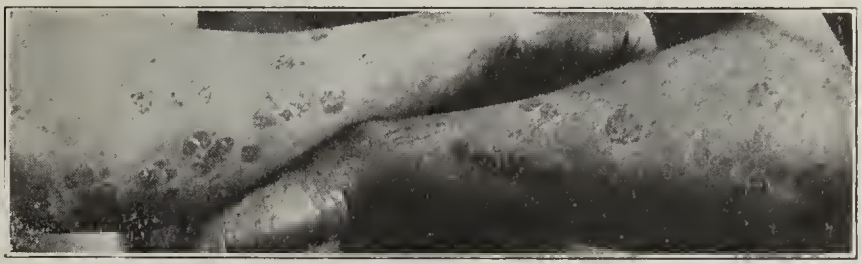
Fig. 1 (Case 1).—Condition of patient with psoriasis on admission.

The artificial production of high temperature as an experimental method of treatment for various diseases of the skin has occurred to us several times in the course of years, but our thoughts on this subject were crystallized on reading an article by Jobling and Petersen[1] in which they review the subject of specific therapy in its relation to the production of certain changes in disease. They particularly refer to the "common clinical experience that some diseases, among them subacute joint diseases, neuralgia, diabetes, pernicious anemia, certain dermatoses, sarcoma, etc.," seem to receive distinct beneficial results following intercurrent febrile conditions, and they ask the question, Is it possible that these varied agents influence the course of disease by the production of high temperature?

From their investigations made at former times, they come to the conclusion that it seems probable that the remedial effects apparently produced under such conditions are due to "colloidal dispersion, in that the injections probably bring about a less dispersed state, affecting not only the serum proteins but also the serum lipoids." They go on to say:

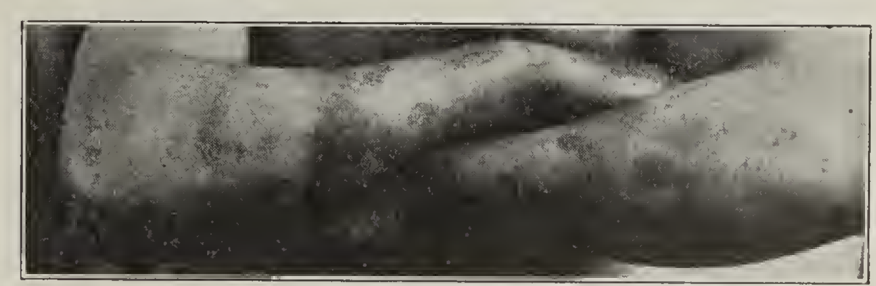
Fig. 2. (Case 1).—Condition after injection; deep pigmentation only.

> Such an alteration is sufficient to account for the fluctuations in the ferment-antiferment balance and in the coagulation mechanism, as well as in the opsonic and complement powers of the serum, although it does not at present explain the increased antibody titer. . . . With this as a basis we can understand that so many and diverse substances can bring about a reaction almost identical clinically and therapeutically.

In other words, Jobling and Petersen believe that the beneficial effects produced in typhoid and in other

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* Preliminary Report from the Barnard Free Skin and Cancer ospital.

[1] Jobling, J. W., and Petersen, William: The Nonspecific Factors in the Treatment of Disease, The Journal A. M. A., June 3, 1916, p. 1753.

diseases by the injection or accidental introduction of foreign proteins are due to the mobilization of ferments, as "in experimental animals the intravenous injection of bacteria, kaolin, protein-split products and trypsin is almost invariably followed by more or less marked mobilization of serum protease and usually of lipase." They state that in the patient a similar reaction occurs following the intravenous injection of vaccines and proteoses, but not to the same degree or with the same regularity as in animals. Every one interested in therapy, not only of skin diseases, but also in other branches of medicine, should read and meditate on this most important and suggestive work of Jobling and Petersen.

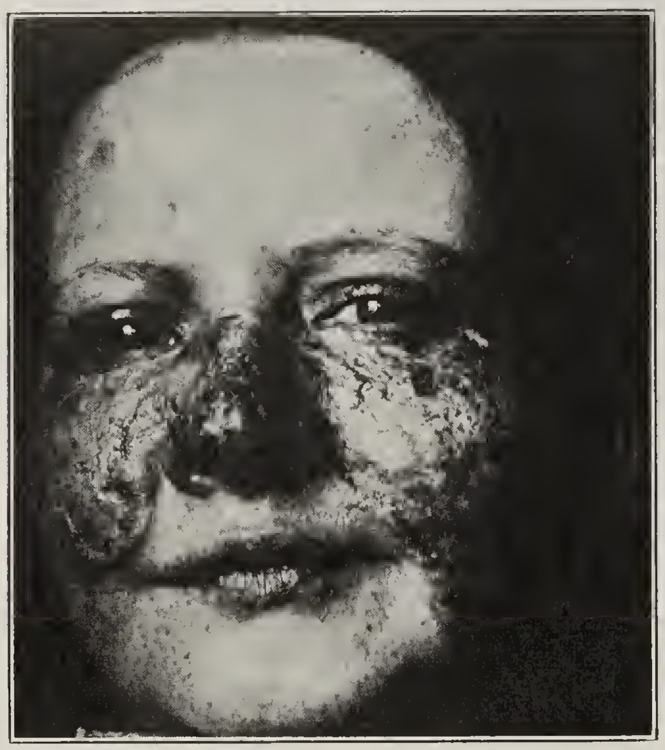

Fig. 3 (Case 3).—Condition of patient with lupus erythematosus before injection.

An article by Miller and Lusk,[2] an echo of the one by Jobling and Petersen, appeared in the same issue of The Journal. Miller and Lusk report the startling influence on typhoid fever by the injection of the proteose as prepared by Jobling and Petersen, and state that they obtained the same result with this agent in the abortion of typhoid fever as they did with the intravenous injections of typhoid vaccines. Their results were simply confirmatory of those already recorded by other observers, but they believe that the apparent sudden termination of the disease was probably not due to the specific action of the typhoid vaccine, as proved by these investigations, but to the introduction of a foreign protein. They, therefore, decided to apply the method to acute, subacute and chronic arthritis. The results in these conditions were equally startling and satisfactory.

An article by Louis D. Smith,[3] in the same issue of The Journal, on the value of anaphylaxis in the treatment of gonorrheal complications and gonorrheal rheumatism, was in the same train of thought as the two articles mentioned above. Smith, in his investigations, used horse serum in gonorrheal patients, feeling that the virtue of the antigonococcus serum in these conditions was due not to its specific effect, but to the anaphylaxis produced in the patient by the horse serum. His results were equally clinically striking and beneficial, owing, no doubt, to the introduction of a foreign protein and not to the anaphylaxis.

With the road thus boldly outlined by these investigators, together with our former thoughts along the same lines, we were encouraged to experiment with some foreign protein in the treatment of various skin diseases. For this purpose we selected the chronic conditions mentioned below, and herewith roughly outline our results. To carry on these investigations we decided on a typhoid vaccine as prepared by one of the reliable manufacturers as the most convenient for our use and one that could be obtained without a great deal of laboratory preparation. At any rate, it would be sufficient for a short preliminary study, which was begun in the early part of July.

The patients were taken at random as they entered the hospital, and those selected in which the etiologic origin was more shrouded in mystery or due to a known micro-organism. All the patients were kept in the hospital through the course of treatment and under close observation by the house staff. All of the injections, except with one patient, were intravenous, varying from 75,000,000 to 500,000,000 of the so-called "prophylactic" suspension of the typhoid bacillus.

In none of the cases was there any lasting inconvenience noticed. All the patients had chills accompanied by a sharp rise of temperature from 100 to 105 F. All showed a slight, but not marked rise in the number of leukocytes. In one case, after the second injection, a marked nephritis with some microscopic blood in the urine developed, but the patient quickly recovered under rest and a selected diet. In all, the local lesion, especially in lupus erythematosus, became much redder and sometimes itched and burned for from an hour to three hours after the injection. Herpes labialis was a common occurrence after the chills and fever.

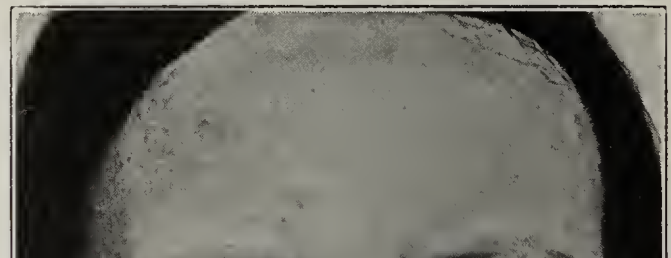

Fig. 4 (Case 3).—Condition after injection.

Case 1.—*Psoriasis.*—J. O., man, had previously been treated here for a general, superficial type of psoriasis which improved readily under autoserum and weak chrysarobin. The patient remained well a few months, but the condition recurred, the lesions appearing principally on the arms. On the extensor surfaces of the forearms large plaques with silvery scales appeared. The plaques were somewhat thickened and the scales tenacious (Fig. 1). Physical examination of the patient was negative. He was given an initial dose of 100,000,000. The leukocyte count was 6,850. He had a severe chill, two hours after the injection, and shook for fifteen minutes. The temperature went up to 102.4. The white cell count at six hours was 5,450. On the second day following the injection, the lesions had markedly changed in that the scaling had ceased; infiltration had disappeared, leaving a deep pigmentation, but in one lesion particularly there was left a slight scaly point in which some infiltration remained. The patient developed herpes labialis. On the third day a second injection of the same amount was given. The pigmentation of the lesions increased to darkish brown stains. The cell count previous to injection was 6,440; six hours after, it was 8,800. Five days after the second injection the lesions became slightly scaly again, so a third injection was given, when these areas again cleared up, remaining so for about a week. This result was also encouraging, but the scaling again recurred in the course of a week or ten days, and the patient left the hospital.

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[2] Miller, J. L., and Lusk, F. B.: The Treatment of Arthritis by the Intravenous Injection of Foreign Protein, The Journal A. M. A., June 3, 1916, p. 1756.

[3] Smith, L. D.: The Value of Anaphylaxis in the Treatment of Gonorrheal Complications, The Journal A. M. A., June 3, 1916, p. 1758.

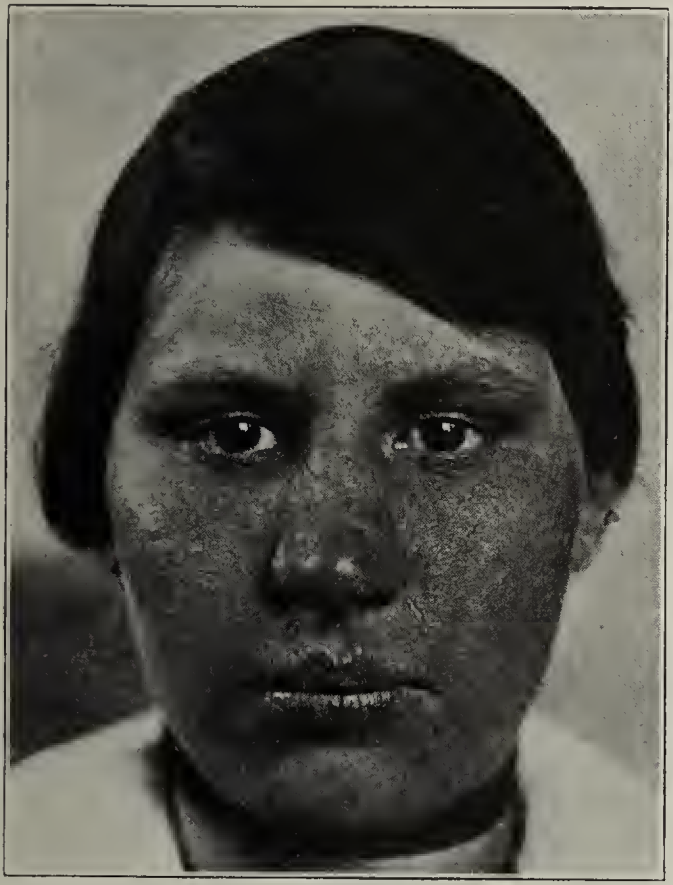

Fig. 5 (Case 4).—Condition of patient with lupus erythematosus before injection.

Four other patients with psoriasis have been given the same treatment, two answering the description of the case just cited, while the other two seemed to be slightly, if at all, benefited. It is to be noted in the investigation of this disease, however, that on the first or second day after the injection there is a marked blanching of the lesions, less scaling, and a slight disappearance of the infiltration; and even in the resistant cases, dark pigment stains can be seen where certain plaques have disappeared. However, in the most favorable cases, unfortunately, relapse has occurred within a short time. The lesion after involution showed unusually deep pigmentation (Fig. 2).

Case 2.—*Lupus erythematosus.*—In Mrs. F., the whole face was more or less continuously involved, the disease occupying an area from just in front of one ear, sweeping downward to the chin and upward to the forehead and across the face, from the right ear across to the left in a similar location. The disease had existed for eighteen years. It consisted of an invading border, rather hard and infiltrated, along the periphery of this large plaque. In front of the face there was some atrophy and more superficial scaling, but here and there deeper scar tissue could be seen. On the sides of each cheek, where the patch was much thicker, a more profuse scaling and some little hemorrhagic crusts were plainly outlined. Here and there rather deeper, atrophic scars were to be seen, from the frequent application of carbon dioxid snow in the last two or three years. This case had been treated by many methods, the Roentgen ray and carbon dioxid snow, besides by various external and internal methods. The patient was given 100,000,000. The white count was 6,780. She had a moderately severe reaction. The temperature rose to 101.8 F. The white count six hours after injection was 8,180. The next day the face looked paler and the next three days became smoother, tending to assume its normal color. The red, congested hue had almost entirely disappeared even in the more thickened parts of the lesions. On the fourth day a second injection of 250,000,000 was given. The white count was 10,040; six hours after injection, 14,840. The temperature rose to 103. In two days the face really looked almost normal. The sister of the patient remarked, on visiting her, that she had never looked as well since the face became involved. She was permitted to go home for a week, and returned presenting deep, reddened lesions which had developed in the areas previously frozen by carbon dioxid snow. These gradually crusted over. She was given another injection, but it did not seem to affect the points where the carbon dioxid snow had been used as it did the other parts of the face, owing, probably, to protection to the disease at this point by the scar tissue. Outside of these reddened areas the disease remained as it had been after her first course. The skin became soft and pliable and of normal, pinkish color, and was entirely free from scaling. The thickening and infiltrated border had entirely disappeared. Herpes labialis occurred also in this case.

Case 3.—*Lupus erythematosus.*—This case was one of an extremely chronic, thickened, discoid type (Fig. 3). The disease had existed for five years. The patient, a woman, had attended the clinic for several years. The initial plaque was over the bridge of the nose, the body of the butterfly type, and it gradually spread on each side to the cheeks in a batwing distribution. A few lesions were scattered over the forehead and in the postauricular region. The center of the lesions was cicatricial, and scattered here and there were thickened crusts of a yellowish-creamy tint. The borders

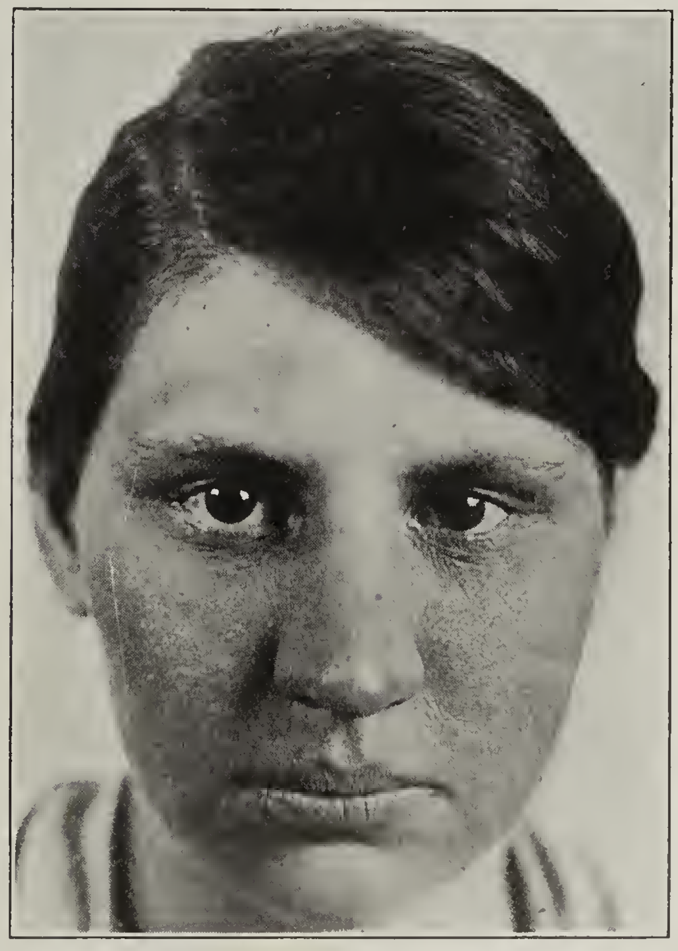

Fig. 6 (Case 4).—Condition after injection.

encompassing the whole diseased area were exceedingly thick, almost hypertrophic, the thickest we have ever seen in lupus erythematosus. They were raised above the surrounding skin, hard, infiltrated and rolled. This patient had also a positive Wassermann reaction, but the lesions on the face without doubt would be classed by any one as lupus erythematosus. After the first injection there was marked improvement. The redness markedly decreased, the borders flattened down, the crusting seemed to cease, and edema disappeared. This patient received two courses of three injections each, during and after which there was a progressive improvement. She also, unfortunately, has dropped out of sight and has not returned to the hospital as yet; and, although the symptoms of the disease had not entirely disappeared from the skin, yet the improvement was so marked that it was dramatic (Fig. 4). The hard, rolled border and deep color had disappeared and crusting ceased.

Case 4.—A woman, aged 20, had had a peculiar condition of the skin for fourteen years. In the early observation of the case no diagnosis was made (Fig. 5). The disease consisted of a peculiar thickening of the skin of the front of the face, including the nose and the vermilion border of the lips. It was slightly scaly and all the lines of the skin were much deepened, so much so that one would think of some peculiar degeneration or almost one of the type of nevi. The color was a deep purplish pink, the intensity varying from time to time. The diagnosis of lupus erythematosus had been provisionally made, and we decided to give the protein injections. The patient had been treated frequently during her various trips to the hospital by the Roentgen ray, without any marked improvement. Four injections were administered. The face became greatly improved in every way. The skin assumed a velvety feel (Fig. 6), lost its erythematous color, the scaling and edema disappeared, and the lines of the skin became normal. The patient was allowed to go home for a week, and returned somewhat worse than she was when she left the hospital. She is a large, rugged girl and does a man's work in the field. She received another injection of the protein, when the skin again became normal. She was dismissed, but returned a few days ago, having been absent from the clinic for several weeks. Her face at this time was in an excellent condition. There had been no relapse except two small areas about the size of a quarter-dollar symmetrically distributed on each side of the cheek. In other portions of the face there seemed to be no evidence of the former condition.

Case 5.—A woman had a peculiar type of lupus erythematosus, symmetrically distributed on the sides of both cheeks, always worse in warm weather. It had been known to disappear completely during the winter. The lesions were sharply circumscribed, symmetrical, and began as small papules which coalesced and formed patches the size of a half dollar. The latter condition existed when we first saw her The patches were raised, of a purplish red, very sharply circumscribed and somewhat infiltrated. The classificatio would probably be in the borderline cases, spoken of b English writers, between chronic erythema multiforme and lupus erythematosus. The condition has existed off and o for fifteen years. There is no atrophy or subjective sensation. The patient was given two intramuscular injections without apparent effect on the lesions, but they rapidly disappeared after one intravenous injection of 400,000,000. Th patient was seen a few days ago, eight weeks after th injection, and the site of the former lesions was marked onl by slight dots of pigmentation. They had entirely disappeared. The skin was soft, pliable and normal, wit the exception of the slight deposit of pigment.

Case 6.—A middle-aged woman had the batwing variet of the disease. Over both cheeks was an infiltrated, reddene area which joined a more advanced stage of the process o the nose. All the skin of the nose was involved in thickened, scaly, crusted, sharply defined patch of lupu erythematosus in which there were, here and there parchment-like areas of atrophy (Fig. 7). The disease ha existed for many years, and had been treated at the hospita by various methods, with the usual success and discouragement. This patient had three injections, one of 200,000,000 and two of 400,000,000. Each was followed by a sharp reaction with a chill and a rise of temperature to 102 or 104 F She was in the hospital ten days. Within four days th condition on the cheek was replaced by slight pigmentation the redness had markedly decreased, and the crusts on th nose began to desquamate (Fig. 8). The patient left th hospital, September 25, wonderfully improved. The skin o the cheeks was normal. The infiltration had disappeared and the area was marked by a slight, dirty yellowish pigment. Almost all of the scales and crusts had exfoliate from the skin of the nose, leaving a soft, pliable epidermi which still remained pinkish, but the hue was not that of lupus erythematosus. The filtration here had entirely disappeared (Fig. 9).

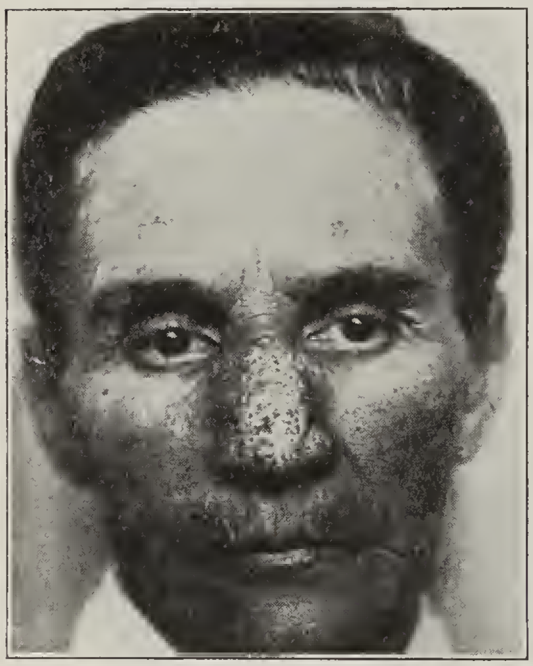

Fig. 7 (Case 6).—Condition of patient with lupus erythematosus before injection.

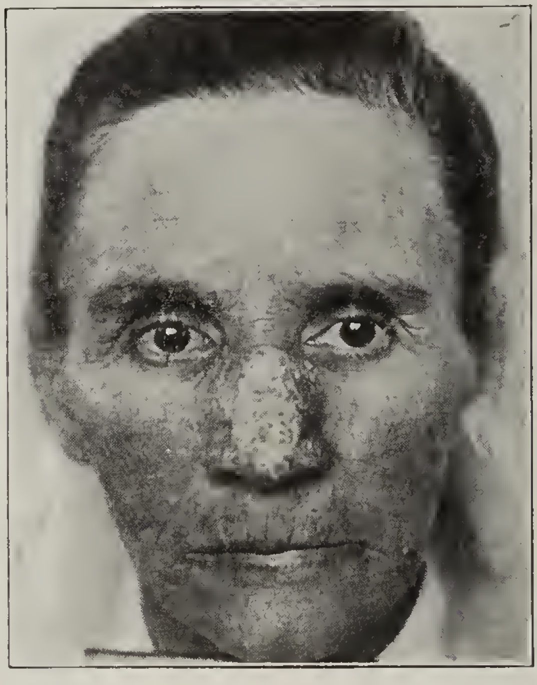

Fig. 8 (Case 6).—Condition after first injection.

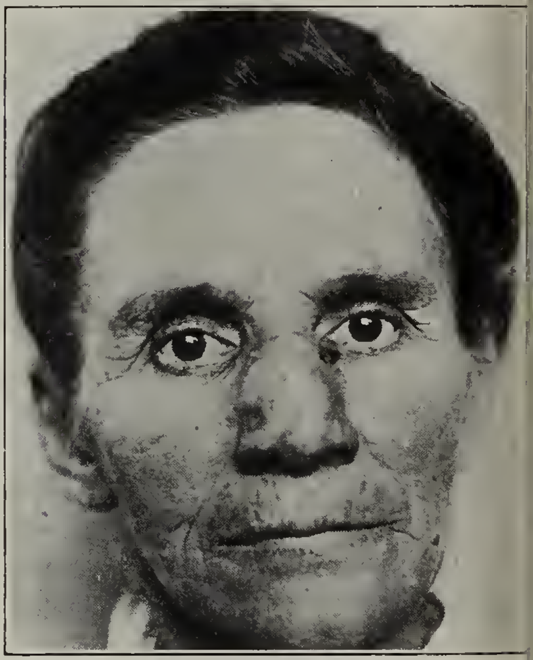

Fig. 9 (Case 6).—Condition of patient on dismissal.

Case 7.—A middle-aged woman had lupus erythematosu consisting of a crusted, scaly plaque about the size of silver half-dollar on the left side of the nose. The sharpl circumscribed borders were raised and scaly, with severa scaly points within the circular patch. This patient was i the hospital with Patient 6, and left September 26, the lesio having been replaced by some slight pigmentation with slight scaly point, as big as a millet seed, on the upper inner part of the lesion.

In an old woman a case of parapsoriasis of several years standing and of general distribution had been markedl influenced by the injections. The lesions are paler, less scaly, and the thickening is greatly decreased. The patient is still under observation, and will be given further injections.

A patient with dermatitis herpetiformis, involving and exacerbating, seemed slightly improved. Only two injections could be given, as the patient had to leave the hospital.

A patient with Darier's disease was given an injection which seemed to stimulate the formation of lesions.

Three patients with syphilis in various stages of the disease were given injections. An early, profuse, macular eruption faded somewhat, and some of the lesions were replaced by pigment.

A patient with a tubercular syphilid of the skin was given two injections, after which a rapid disappearance of some of the lesions occurred, leaving very deep, dark pigmentation.

A patient with acute, exfoliated dermatitis showed great improvement. There was a profuse, erythematous, exfoliating condition involving the skin from the neck down, accompanied by marked itching. There was also some exudation. The injections seemed to relieve the itching, and the disease became rapidly paler and finally disappeared. The most marked feature was the cessation of desquamation and the increase of perspiration; but as this condition frequently occurs without any treatment, it is very difficult to draw conclusions.

We report these investigations merely as a matter of general interest. To what the change in the lesions may be attributed, whether to hyperpyrexia, the mobilization of ferments, colloidal dispersion, specific effects in some way on the capillary vessels of the skin, the setting into operation of immunizing forces, whatever they may be, we are unable to say. But we are sure that the process awakened by the injection of this protein ("split products" of Vaughan) has to do with some fundamental principle which should be elucidated. This fundamental principle probably opens the way to more exact therapy in many diseases.

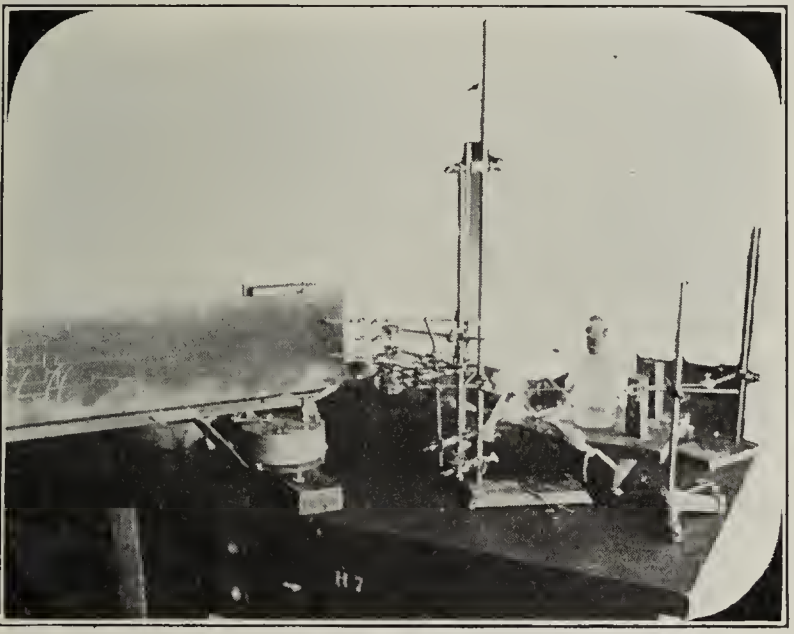
Fig. 1.—Apparatus for making myograms.

When one has observed from day to day the remarkable effects produced in some of the cases above cited, one cannot help but be impressed with the fact that one is dealing with a method which undoubtedly promises much for future investigation. To see a chronic patch of lupus erythematosus which has existed for years clear up or partially disappear after one or two injections of a small amount of foreign protein, such as the typhoid organism, is in itself startling. All these patients may have a relapse. In fact, one of them who appeared in the clinic recently has partially relapsed, but that does not change the fact that the condition was rapidly and markedly benefited by this method. We are now preparing to carry on similar investigations with nonspecific and nonbacterial proteoses.

The method is not recommended as a form of treatment for any disease. The report is made to stimulate study and further investigation, which should be done only under rigorous care in a well equipped hospital.

The Process of Thinking.—All thinking is a kind of wrestling between opponent thoughts.—G. Hauptmann.

CEREBELLAR LOCALIZATION

AN EXPERIMENTAL STUDY BY A NEW METHOD *

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Unlike the doctrine of cerebral localization, which was founded on direct experimental evidence, the motor responses being obtained on stimulation of the cerebrum,[1] the theory of cerebellar localization was evolved through studies in embryology and comparative anatomy. It was first formulated, in 1903, by the Dutch anatomist Bolk[1] who, from a study of the cerebellum in numerous types of mammals, deduced the theory that the developmental variations of its different lobules bear a relationship to the various muscle complexes in the body.

It is obvious that the theory requires for its verification experimental proof. The theory also presupposes that the function of the cerebellum is to coordinate muscle groups in their synergistic action. This is a supposition which is still subject to dispute, a point raised by Van Rynberk.[2]

PREVIOUS METHODS OF STUDYING CEREBELLAR LOCALIZATION

Stimulation Experiments.—The striking success that has attended the electric method of excitation in mapping out the various motor zones of the cerebrum has naturally led investigators to utilize the same method for the study of localization in the cerebellum. The first to study the problem by this method was Ferrier,[3] who tested the electric excitability of this organ in birds, fishes and mammals, including apes.

Among others who studied the problem in this manner were Wersiloff,[6] Pruss,[7] Negro and Rosaendo,[2] Clarke and Horsley,[8] Rothmann[5] and Uffenorde.[9] Their results, on the whole, were far from uniform and frequently contradictory. For example, Wersiloff obtained movements of the hindlimb on excitation of the vermis superior, Pruss on excitation of the lobus quadrantus, and Uffenorde, of the alae lobuli centralis, while Rothmann evoked such movements from the posterior part of the hemispheres and vermis exclusively, and then only in association with movements of the forelimbs.

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* From the Hull Physiological Laboratories, University of Chicago.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Bolk, L.: Das Zerebellum der Säugetiere, Jena, 1906. For other articles by Bolk, dealing with this subject, see Footnote 2.

2. Van Rynberk, G.: Ergebnisse der Physiologie, 1908, vii, 675, Asher-Spirós, Wiesbaden; ibid, 1912, xii, 536. Appended to these articles will be found an extensive bibliography bearing on the question of cerebellar localization.

3. Ferrier, D.: Functions of the Brain, Ed. 2, 1886, p. 186.

6. Wersiloff, N. M.: Neurol. Centralbl., xviii, 328.

7. Pruss: Abstr., Neurol. Centralbl., 1903, p. 268.

8. Clarke, R. H., and Horsley, Sir V.: Brain, London, 1908, xxxi, p. 121.

9. Uffenorde: München. med. Wchnschr., 1912, lix, 1279.

Extirpation Experiments. — Another method employed for the study of cerebellar localization, and one which has indeed furnished a number of valuable data in connection with this problem, is the method of partial exclusion, or the production of small, circumscribed lesions of the various lobules of the cerebellum followed by a study of such motor disturbances as resulted from them. This method, which has been employed by Luciani,[11] Van Rynberk,[2] Luna,[2] Lourié,[12] Hulshoff Pol,[2] André-Thomas and Durupt,[13] Rothmann[5] and others, has proved of great value, not only for the study of cerebellar localization, but also in extending our knowledge of the phenomena of cerebellar lesions. It disclosed a number of variations from the normal which had not been appreciated before, such as head astasia, the cock's gait and the "military salute," the animal when excited raising its forelimb to the level of the ear, first described by Van Rynberk. In general, these studies tended to confirm the theory of cerebellar localization as postulated by Bolk. They differed, however, as to the strict localization of the various centers. The reason for this is to be found in the fact that the disturbances resulting from very small and circumscribed lesions of the cerebellum are exceedingly slight, if detectable at all. In my experiments on the cat, after the production of small, circumscribed lesions in the lobules of the hemispheres such as are reported in this communication, no disturbances whatever were observed, either in station, gait or general motility of the animal. The animals, in my experiments, aside from their enfeebled condition as a result of the operation, which in the case of the cerebellum is always one of great severity, showed no deviation from the normal. They walked up and down an inclined plane, jumped from a height and stood up on their hind legs when food was held up in front of them in a perfectly normal manner. As is well known, Luciani, who had an extraordinarily rich experience with cerebellar extirpations, was opposed to the view of cerebellar localization. He maintained that the cerebellum is a homogeneous structure, all segments of which function alike, so that deficiency of one is quickly compensated by the remaining intact portions. This is in entire accord with my observations, so far as they relate the gross phenomena generally looked for.

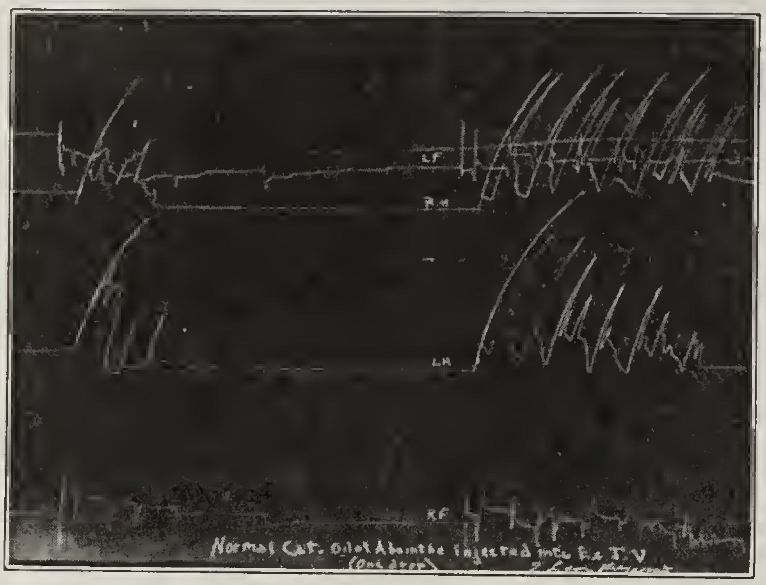

Fig. 2.—Myogram of an absinthe convulsion in a normal animal, based on a study of four normal cats.

From these facts it is clear that neither the stimulation experiments nor the extirpation experiments have furnished the undoubted proof of a functional differentiation in the cerebellum, that they furnished for establishing localization in the cerebrum. This, I believe, should point to a fundamental difference in the function of these two organs.

THE AUTHOR'S CONCEPTION OF THE CEREBELLAR FUNCTION

In a recently published communication[14] I advanced the view, based on experimental evidence which I obtained by galvanometrically determining the electric potential on the two sides of the body after unilateral oblation of the cerebellum, that the cerebellum does not, as is generally assumed, act motorially on the periphery, but that it acts primarily on the motor and tonus centers of the encephalon (motor cortex of the cerebrum, paracerebellar nuclei and possibly also the nuclei of the midbrain), its function being to inhibit or control and regulate the activity of these nuclei, and that the phenomena of cerebellar deficiency are therefore to be interpreted as phenomena of hyperactivity of the latter structures. The cerebellum, according to this view, is a purely afferent mechanism, bearing in a broad sense the same relationship to the motor (and tonus) nuclei of the encephalon that a posterior root ganglion does to the motor cells of the anterior horn of the cord.

If this conception of the cerebellar function is correct, our failure to obtain constant and definite responses on excitation of the organ at once becomes clear. The cerebellum being an afferent, sensory structure, the motor effects obtained on its excitation are obviously due to the transfer of the stimulus to the subjacent structures, and not to stimulation of the cerebellum itself, and are therefore vague and indefinite, just as the diffuse and ambiguous movements obtained on excitation of the central end of a divided posterior root are due primarily to the effects of the stimulus on the motor cells of the cord. The fact (and this is admitted by all observers) that a far more powerful current is required to evoke a motor response from the cerebellum than is required for a similar

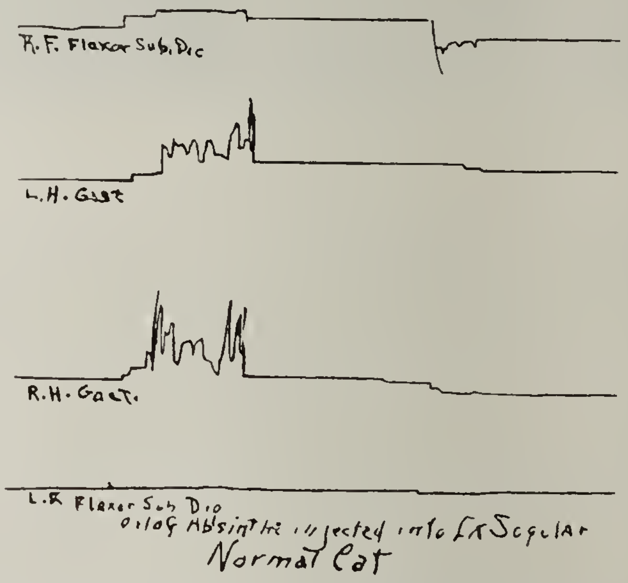

Fig. 3.—Myogram of an absinthe convulsion in a normal cat, in which the contractions of the flexors (of forelimbs and hindlimbs) exclusively were recorded.

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[11] Luciani, L.: Human Physiology, iii; Engl. Transl. by Frances A. Welby, New York, The Macmillan Company, 1915.

[12] Lourié, A.: Neurol. Centralbl., 1907, xxvi, 652.

[13] André-Thomas and Durupt: Neurol. Centralbl., 1914, xxxiii, 208 (ref.).

[14] Meyers, I. L.: Galvanometric Studies on the Cerebellar Function, The Journal A. M. A., Oct. 16, 1915, p. 1348.

response from the cerebrum also lends support to this view. It is well known that with powerful currents motor responses are also obtained from the sensory regions of the cerebrum, such as the parietal and temporosphenoidal lobes, the effects being admittedly due to the diffusion of the current to the neighboring motor zone.

To follow up this argument, if the conception of the cerebellar function as presented in my last communication is correct, the question of cerebellar localization should be studied through the medium of the motor cortex of the cerebrum, paracerebellar nuclei, etc., in order to determine whether or not after a circumscribed lesion of the cerebellum, the muscle group which, according to Bolk's hypothesis, is related to the site of the lesion, is in a state of functional hyperactivity, and also, if such hyperactivity is present, whether or not this is absent in other muscle groups.

To take a concrete example: The functional relationship of the musculature of the leg with the leg area of the contralateral hemisphere of the cerebrum is determined, after a lesion of the latter, by the spasticity (increased reflexes, muscular rigidity and clonus) of the leg affected; in other words, by phenomena of hyperactivity of the motor cells in the lumbar enlargement, due to their release from inhibition by the mutilated leg center in the cerebrum. Similarly, the functional relationship between the musculature of the leg and the homolateral crus secundum (Bolk's hypothetic leg center in the cerebellum) should be found in phenomena of hyperactivity of the leg center, and no other, of the contralateral hemisphere of the cerebrum caused by its release from inhibition by the mutilated crus secundum. Clinically, such hyperactivity of the cerebrum exhibits itself in disturbances of ataxia, the cerebellar gait, disturbances of equilibrium, hypermetria, etc.

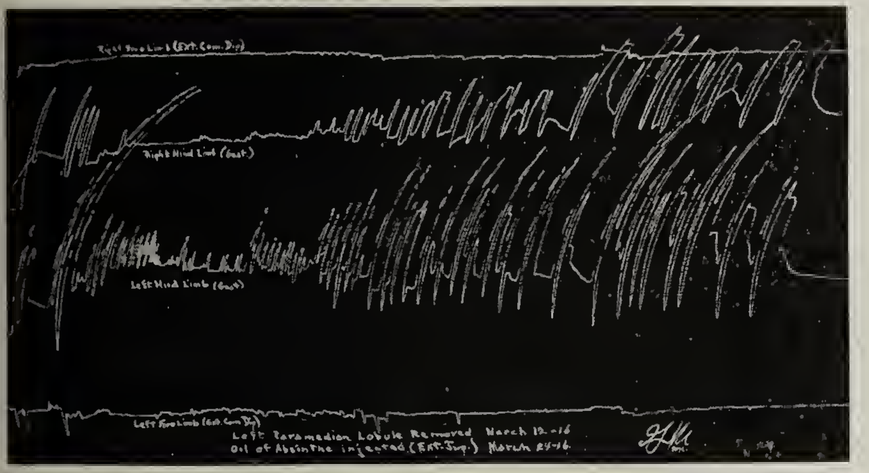

Fig. 4.—Myogram of a generalized absinthe convulsion in a cat with a circumscribed lesion of the left lobulus paramedianus.

The symptoms described do not appear in any but severe lesions of the cerebellum and are not therefore available for the study of cerebellar localization. The state of activity of the various motor centers of the cerebrum, and also that of the tonus centers in the medulla[15] (the paracerebellar nuclei, which Thiele[16] by his studies of decerebrate rigidity demonstrated to be the tonus centers for the musculatures of the body) might be studied, however, by another method, namely, by noting the effects of exciting these centers by oil of absinthe, a convulsant which is known to exert its influence on these particular centers. The poison, owing to this particular mode of action, which has been established by the researches of Magnan,[17] Bechterew,[18] Gotch and Horsley,[19] Rubert Boyce,[20] Leonard Hill,[21] Bouché[22] and others, has been extensively employed in studies of brain physiology. When injected into the circulation, this poison produces convulsions which affect all the muscles of the body, are accompanied by unconsciousness, are of both clonic and tonic character, and present an appearance strikingly similar to that of convulsions in idiopathic epilepsy. These studies demonstrated that the clonic convulsions, which, on direct excitation of the cerebrum, are obtained only from the motor cortex and not from the corona radiata or any of the subjacent structures, are due to the effect of the poison on that part of the brain. Excision of the motor cortex of one hemisphere eliminates or reduces to a minimum the clonic convulsions on the opposite side of the body. Leonard Hill beautifully illustrated this fact by varying at will the clonic or tonic character of the convulsions by alternately leaving open or clamping the arterial supply of the cerebrum. The tonic convulsions, on the other hand, are due to the effect of the poison on the tonus centers in the medulla. Section of the cord below the bulb promptly abolishes all convulsions, tonic as well as clonic, in all the muscles connected with it below the line of section (Boyce and others). The poison, introduced into the blood, is carried of course to all parts of the brain and acts simultaneously on all the centers that are influenced by it. The hyperactivity of a certain center should consequently be followed by a greater response in its corresponding muscle groups.

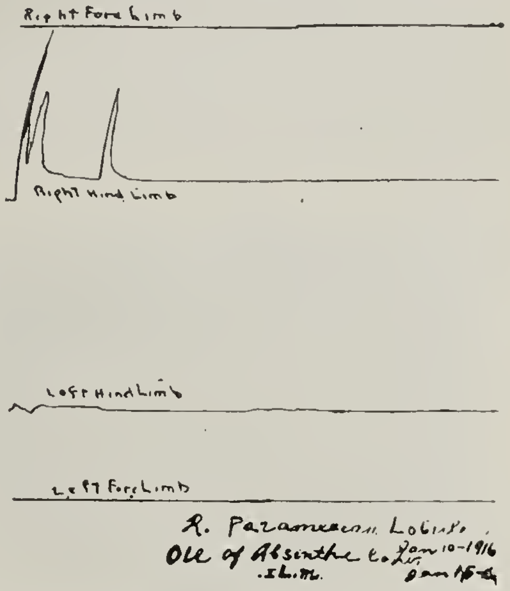

Fig. 6.—Myogram of a localized absinthe convulsion from a cat with a small lesion of the right lobulus paramedianus.

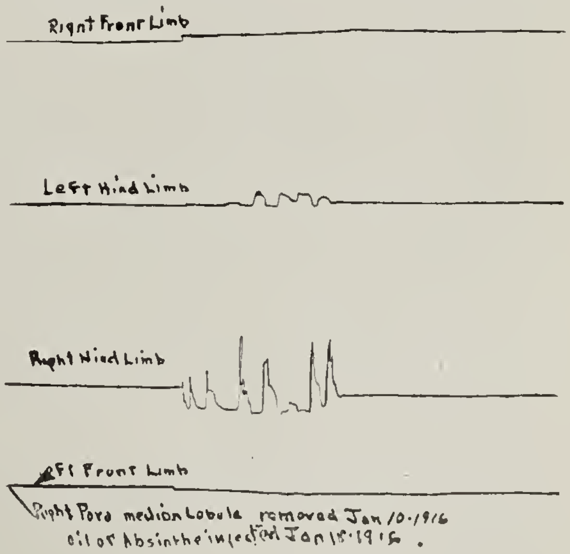

Fig. 7.—Myogram of absinthe convulsion from the same cat from which the myogram shown in Figure 6 was obtained, after the order of attachment of the gastrocnemii to their respective levers had been reversed.

I accordingly carried out my experiments as follows: I first produced small, circumscribed lesions of certain lobules of the cerebellum, using cats in all the experiments. The organ was reached by cutting the skin over the occipital region in the median line, severing the large mass of muscles on the posterior side of the neck at their attachment at the lambdoid suture, and, after retracting them downward and outward as far as possible, opening the skull by means of a small trephine one-third inch in diameter. I found that by this route only could I reach the lobulus paramedianus and the crus secundum without injuring at the same time the crus primum. An injury to the latter could, however, be produced by an opening just above the lambdoid suture. To produce a circumscribed lesion of the crus secundum I trephined the skull just above the foramen magnum, a few centimeters away from the median line. Caution should be taken in trephining here not to injure the medulla, which generally produces instantaneous death of the animal. The opening exposes a small part of both the lobulus paramedianus and the lobulus circumcludens or paraflocculus, and a lesion of the crus secundum can be made by injuring the area just above the latter lobule and external to the former. An injury to the lobulus paramedianus can generally be made without much difficulty after trephining the skull just above the area described for a lesion of the crus secundum, and an injury to the crus primum, after making an opening directly below the lambdoid suture. To make a trephine opening, at a considerable distance from the median line, which would expose the crus secundum or the outer part of the crus primum, is not, as a rule, a safe procedure, as it is accompanied by a hemorrhage too severe for the animal to survive. Therefore, only the lobulus paramedianus and the inner part of the crus primum can usually be brought to view.

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[15] The state of activity of the various motor centers exclusively could probably be determined also by direct excitation of the cerebrum, or the galvanometric determinations of their electrical potential.

[16] Thiele, F. H.: Jour. Physiol., 1905, xxxii, 355.

[17] Magnan, V.: Arch. de physiol. norm. et path., 1873, v, 115.

[18] Bechterew, V.: Neurol. Centralbl., 1895, xiv, 394.

[19] Gotch, F., and Horsley, V.: Phil. Tr. Roy. Soc. London, 1891, clxxxii, 511.

[20] Boyce, Rubert: Brit. Med. Jour., 1893, ii, 1097; Neurol. Centralbl., 1894, xiii, 466; Phil. Tr. Roy. Soc., London, clxxxvi, 363.

[21] Hill, Leonard: Phil. Tr. Roy. Soc., London, 1900, cxciii, 102.

[22] Bouché and Horsley: Brain, London, 1906, xxix, 453.

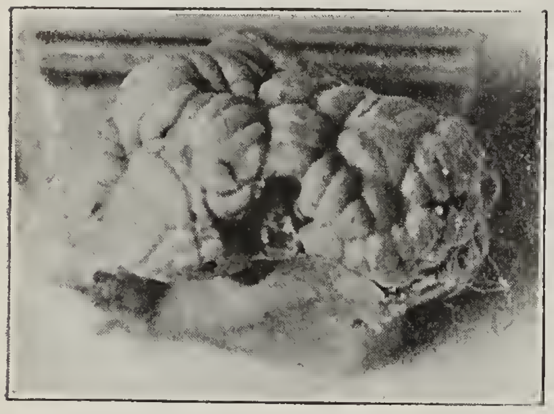

Fig. 8.—Brain of cat with lesion of right paramedian lobule (Myograms 6 and 7).

After I produced the desired lesions, I kept the animals alive for a period of time varying from a week to twelve days to make certain they would recover and that they were not suffering from meningitis. Only the general phenomena resulting from the operation, hemorrhage and shock from loss of cerebellar substance, were noted. When these phenomena subsided and the animals showed unmistakable signs of recovery, they were subjected to the action of the oil of absinthe as follows:

The animal was placed under ordinary surgical anesthesia by means of a tracheal cannula.[23] It was then placed on a board, the ventral surface down and the limbs tied to hooks at each side so that limbs as well as body were extended to their utmost capacity. The trunk of the animal was tied securely to the board by means of two strips of bandage, which encircled it, one at the upper part of the chest, the other at its posterior end. This arrangement effectually prevents the movements of the trunk during a generalized convulsion from being communicated to the limbs. It also prevents all possible voluntary movements. In a number of experiments added caution was taken by nailing the limbs to the board. This is unnecessary, however, if the limbs are thoroughly extended.

With the animal in this position, two symmetrical, representative muscles from the forelimbs, such as the extensores communes digitorum, and a similar pair of muscles from the hindlimb, the gastrocnemii, were cut at the points of insertion. These muscles had been separated, by means of the fingers, from the surrounding tissues as close to their origin as possible earlier in the experiments, and kept from drying and cooling by normal salt solution at the body temperature. Their lower ends were attached to silk threads, any one of which was made to pass over two pulleys, fastened to two ringstands as shown in Figure 1. The threads were then connected to muscle levers. The levers, which were weighted down by small weights of equal size (7 or 10 gm.) to keep the muscles under a fair degree of tension, and equally calibrated, were made to write on a revolving drum covered with smoked paper. In order to eliminate possible frictional difficulty, caution was always taken that the threads, except for contact with the pulleys, should be free throughout their course from contact with anything else in the apparatus. Similarly, in applying the salt solution to the muscles, care was taken that it be applied very gently in order not to disturb their tension. The oil of absinthe was then injected into the external jugular or popliteal vein, a drop at a time (from 1 to 3 drops are generally required to bring about convulsions in the normal cat; from 3 to 6 drops in the animal operated on and enfeebled), and the convulsions, whenever present, were noted both visually and by their records on the drum. They were found to correspond. Before proceeding, however, with a discussion of the results in animals with cerebellar lesions, it will be necessary to study a myogram of an absinthe convulsion in a normal animal.

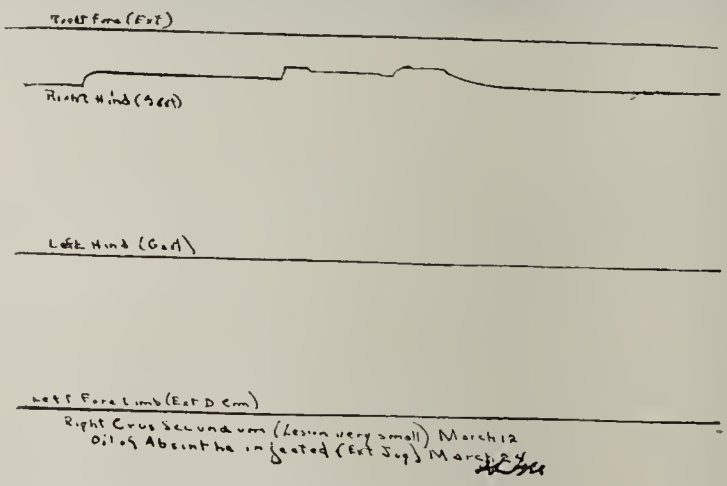

Fig. 9.—Myogram of a localized absinthe convulsion in animal with a lesion of the right crus secundum.

A study of this myogram (Fig. 2) reveals the following characteristics:

1. The effect of the poison exhibits itself simultaneously in all the muscles of the body. All the muscles are in convulsions whenever the intensity of excitation is sufficient to bring about this motor effect, and are quiescent whenever the motor excitation is not sufficiently intense. This is a rule to which, in my experience, there are no noteworthy exceptions.

2. The convulsions of a symmetrical pair of muscles, such as the two gastrocnemii or the two extensores

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[23] Profound narcosis generally prevents the appearance of convulsions, either because of the profound depression of the cerebrum or as a result of the low vitality of the animal. The latter view is probably correct.

communes digitorum, are of the same character and intensity. The contractions of the gastrocnemii, muscles much larger than the extensors of the forearm, are of course much greater than the contractions of the latter muscles, but there is, practically speaking, no difference in the contractions of the symmetrical muscles on the two sides.

3. The convulsions set in within from thirty seconds to two or three minutes after intravenous injection of the poison. They consist of a series, varying in number, of clonic, followed by tonic contractions. The first series, after a short period of relaxation, is frequently followed by another series, and this, in a similar manner, by another, each series having the same characteristics as the first. At the termination of the convulsive state the animal is quiescent, but now and then, even without the administration of an additional dose of the poison, another cycle starts up, similar to the first. The animal may collapse and die even before the appearance of the convulsions, or may live for a considerable time.

4. The myogram, which records the contractions of the gastrocnemii (flexors) and the contractions of the extensors, two pairs of muscles of an antagonistic function, also illustrates the law of reciprocal innervation of the antagonists as taught by Sherrington.[24] The innervation of the flexors, whether through reflex activity or excitation of the cerebrum, is, according to this law, associated with simultaneous inhibition and relaxation of its antagonistic extensors; and vice versa, the innervation of the extensors with inhibition and relaxation of the flexors. The inhibitory effect in the latter instance, however, is not nearly so marked as in the first, owing to the fact that the flexors are more powerful muscles than the extensors, and their active innervation is accordingly associated with a more pronounced reciprocal effect on the latter muscles.

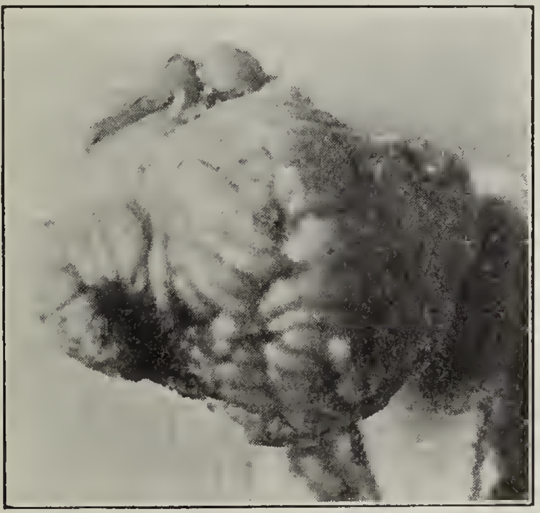

Fig. 11.—Brain of cat from which myogram shown on drum was obtained.

A study of the myogram shows that simultaneously with a clonic contraction of the gastrocnemii, there is a depression and relaxation of the extensores communes digitorum, and their levers go below the abscissae;[25] also that the contractions of the latter, when their levers rise above the abscissae, correspond with the relaxation of the gastrocnemii. This, as shown in the myogram, is repeated a number of times. Inhibition of the extensors is now and then noted (as shown in Figure 2) when the innervation of the flexors is not sufficiently intense to bring about their obvious contraction, a fact which has been observed also by Sherrington in his studies of inhibition through reflex excitation. The action of the oil of absinthe is thus essentially different from that of the spinal stimulants, such as strychnin or tetanus toxin which, as is well known, are destroyers of reciprocal innervation.[26]

These various phases of the absinthe convulsion should, I believe, in the light of well established physiologic facts, be explained as follows:

In accordance with the pharmacologic law of dissolution, drugs acting on the brain (alcohol, ether, chloroform, morphin, etc.) first affect the higher centers, the centers which in the process of evolution are the last to attain maturity. In like manner, this poison exerts its influence first on the motor cortex of the cerebrum. The excitation of this part of the brain which, as described by Sherrington, predominantly innervates the muscles that are concerned in "transient, phasic" movements (or "changing" movements, according to Hughlings Jackson[27]) produces a clonic contraction of the flexors with a simultaneous inhibition of the extensors. The poison next affects the lower centers, those that in the process of evolution mature early, the tonus centers in the medulla, which predominantly innervate the extensors, the set of muscles employed "in steady, tonic action and maintenance of attitude" (Sherrington), or in "continuous movements" (Jackson). This produces a contraction, chiefly tonic in character, of the extensors with a simultaneous depression of the flexors. The depression in this case is not nearly so pronounced, however, as that which is associated with the contraction of the more powerful flexors. The inhibition of the extensors in the latter instance is so great that their levers fall below the abscissa, while that of the flexors, which results from the comparatively mild innervation of the weak extensors, is but slight and their levers remain above that line. These phases of the myogram are repeated until the effect of the poison wears off.

In view of these facts, a lesion of the crus secundum, for example, should, in accordance with Bolk's theory of cerebellar localization, and the view of the cerebellar function presented in my last communication, result, after intravenous injection of absinthe, either in a greater intensity of the convulsions, both clonic and tonic, in the muscles of the homolateral hindlimb, or in the presence of convulsions in these muscles while the rest of the body is quiescent. A lesion of the crus primum should be followed by similar results in the muscles of the homolateral forelimb, etc.[28] The results in my experiments, as shown in the myogram, any one of which is illustrative of all others in the same type of a lesion, are, in general, confirmatory of both these suppositions.

It will be noted that the contractions of the left gastrocnemius were far greater than those of the right gastrocnemius, whereas the contractions of the extensors were practically alike, clearly indicating a relationship between the lobulus paramedianus with the homolateral hindlimb.

A generalized convulsion in the animal operated on, with its low state of vitality, is, however, very difficult to obtain, owing to the fact that the oil of absinthe.

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[24] Sherrington, C. S.: Integrative Action of the Nervous System, New York, 1906, p. 85; ibid., p. 282.

[25] It is, of course, understood that while the myogram records the contractions of the flexors of the hindlimbs, the flexors of the forelimbs, not recorded, are also in convulsions.

[26] That the depression shown in one group of muscles during the contraction of the antagonistic group is due to reciprocal inhibition is proved by the fact that in myograms of absinthe convulsions in which contractions of the flexors exclusively were recorded (the gastrocnemii as the flexores sublimes digitorum), all the levers rise and fall simultaneously (Fig. 3).

[27] Jackson, Hughlings: Med. Exam. and Pract., April 5, 1877; Med. Times and Gaz., 1878, ii, 485; Brain, London, 1906, xxix, 425.

[28] The convulsions resulting from intravenous injection of absinthe after complete removal of a lateral lobe have been studied by Risien Russell, who found them to be much more intense on the side of the lesion (Phil. Tr. Roy. Soc. Lond., clxxxv, 842). They were found to be identical on both sides by Rubert Boyce (Phil. Tr. Soc. Lond., clxxxvi, p. 370).

which is a powerful narcotic poison, when administered in comparatively large doses, generally kills the animal without giving rise to convulsions. It was therefore thought preferable to administer the oil in very small doses and note whether convulsions would appear in one muscle group while the others remain unaffected.

A myogram of such a localized convulsion is shown in Figure 6.

It will be seen from this myogram that whereas both extensors were quiescent, both gastrocnemii were in contractions. The muscle on the side of the lesion contracted, however, much more vigorously than the corresponding muscle on the other side, this fact again indicating a relationship between the lobulus paramedianus and the homolateral hindlimb. To make certain that there was no mechanical difficulty present which might have prevented the recording of the left gastrocnemius and which I might have failed to observe visually, I reversed the order of the attachment of the two gastrocnemii to their respective muscle levers and took a myogram of another series of convulsions. The myogram (Fig. 7) shows the same characteristics as the preceding one.

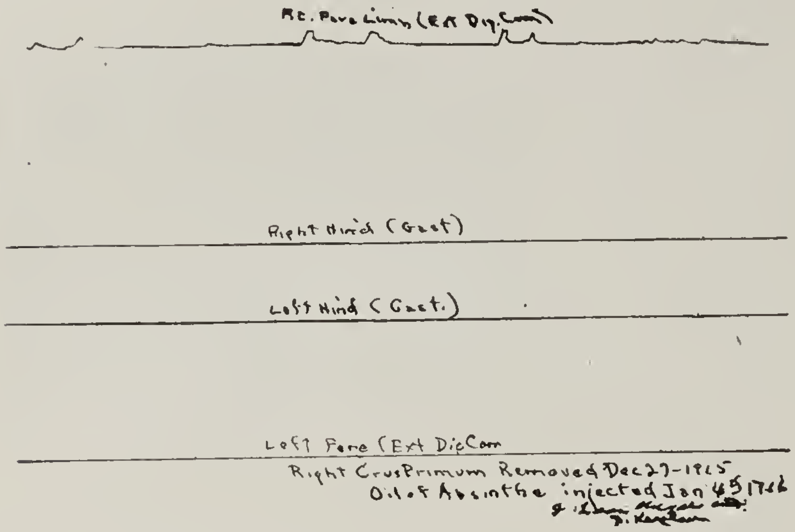

Fig. 12.—Result in an animal with a small circumscribed lesion of the right crus primum.

The last two myograms are, with but two exceptions, typical of all the other records of localized convulsions in animals with a circumscribed lesion of the lobulus paramedianus, three of which had a lesion of the left lobule and one, a lesion of the right. It is characteristic that, during the convulsive state, whereas the extensors are perfectly quiescent, both gastrocnemii are in convulsions, the homolateral muscle being affected, however, to a much greater degree than the contralateral muscle. In the two exceptions referred to, the homolateral gastrocnemius was contracting while the contralateral muscle, as well as the extensors, were quiescent. This last type of localized convulsions was, however, the rule in the two animals with a lesion of the crus secundum.

It will be seen that here the right extensor communes digitorum was in convulsions, although the rest of the body was completely at rest. Contractions of the muscle of the type shown in the myogram have been recorded throughout the whole extent of the drum. An identical tracing, with the contraction of the left extensor communis digitorum and the rest of the muscles quiescent, was obtained from an animal with a lesion of the left crus primum. A relationship is thus shown between the crus primum and the homolateral forelimb.

Figure 14 is of special interest. This myogram was obtained from a cat with a comparatively large lesion of the left crus primum, as shown by the photograph of the brain, which careful examination has shown to have involved also the superior part of the left paramedian lobules.

The record shows that whereas the right extensor communis digitorum was perfectly quiescent, the left was in a state of intense convulsions, its contractions being much greater than those of the voluminous and powerful gastrocnemius. This condition is never observed in a normal animal. It shows also that both gastrocnemii were, at the same time, also in convulsions, the homolateral muscle contracting, however, much more vigorously than the contralateral one. The myogram thus represents the result of a combined lesion of the left crus primum and the left paramedian lobules.

The various myograms show the greater intensity of the convulsions in the muscles related to the site of the lesion exhibited itself in both their clonic and tonic contractions, but mainly in the first type.

In another animal with a lesion of the lobulus medianus posterior the oil of absinthe produced intense convulsions in the posterior of the trunk, although the muscles of the limbs were apparently unaffected. These convulsions were observed visually and I have no graphic record of them.

The lobules studied in these experiments have the following homologues in the human cerebellum: The lobulus paramedianus corresponds to the tonsil or amygdala, the crus secundum to the lobulus biventer, and the crus primum to the lobulus semilunaris superior et inferior and the lobulus gracilis.[2]

SUMMARY AND CONCLUSIONS

1. The function of the cerebellum is to inhibit, control and regulate the activity of the motor cortex of the cerebrum and the paracerebellar nuclei in the medulla.

2. The phenomena of cerebellar deficiency are, accordingly, to be interpreted as phenomena of hyperfunctional and not hypofunctional activity.

3. The cerebellum is functionally differentiated for the various muscle groups of the body, indirectly, by being primarily related through its various lobules to the various motor centers in the cerebrum and the tonus centers in the medulla, just as a posterior root ganglion is, in a motor sense, related to a certain muscle complex through its corresponding group of motor cells in the anterior horn of the cord.

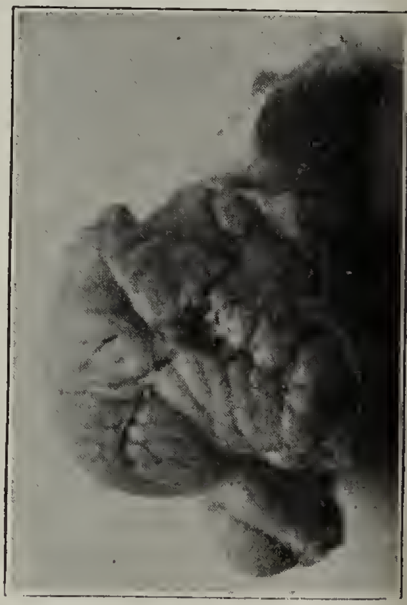

Fig. 13.—Brain of cat with lesion of right crus primum.

4. The paramedian lobule is, in this manner, related to its homolateral hindlimb, and probably also to the contralateral hindlimb; the crus secundum to the homolateral hindlimb, very likely, exclusively, and the crus primum to the homolateral forelimb.

5. These results are in general in conformity with the theory of cerebellar localization as postulated by Bolk. They differ from it only as regards the paramedian lobule, which Bolk assumed was the center for unilateral movements of the muscles of the trunk.

It might be well to state in this connection that this study might prove to be of distinct practical importance. It is possible that in suspected cases of cerebellar tumor or disease in which the phenomena of cerebellar deficiency, the ataxic gait, the hypermetria, the adiadokocinesis in the arms, etc., are too slight to be recognized, the administration within physiologic limits of a cerebral excitant, such as the vinous preparation of absinthe or even ordinary alcohol in moderate doses, might make these phenomena obvious and thus aid us not only in diagnosing an affection of the organ but also in establishing the exact seat of the disturbance.

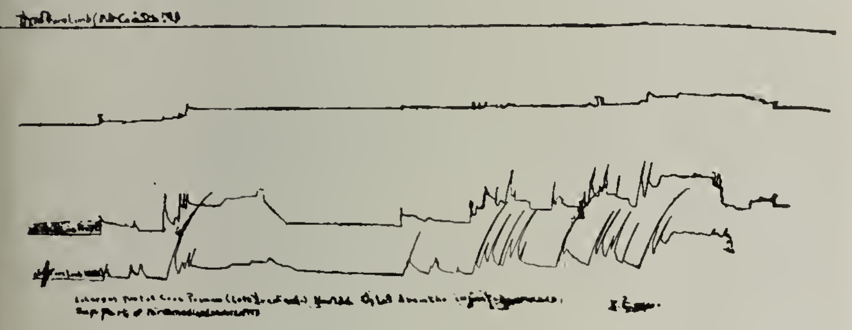

Fig. 14.—Myogram of localized absinthe convulsion of the left crus primum; the superior part of the left paramedian lobule was also involved.

ABSTRACT OF DISCUSSION

Dr. Charles K. Mills, Philadelphia: Dr. Meyers in a general way takes somewhat the position which Dr. Weisenburg and I took with reference to the matter of cerebellar localization. He seemed to be distinctly advocating a localized control of certain movements through the control of specific cortical and other centers. The cerebellum controls in certain of its parts certain synergic movements. The elements of the synergic movements have differentiated centers in the cerebrum. The cerebellum in any of its centers does not control separately and distinctly an impulse which would cause such a movement of the index finger as flexion or extension, alone, but the particular duty of the cerebellum is to regulate that movement in so far as it may be associated with other movements. In other words, cerebellar centers represent more or less complex synergic movements. Crocq pointed out that the centers of tone are distinctly different in location in lower animals, and as we go up in the scale, as in the frog, the dog or cat, the ape, etc., until we reach man. The mechanism of tone in the human being is different from that for the lower animal, but man may be reduced to the lower animal scale by certain lesions, and become more or less automatic and reflex in his activities. In complete bilateral flaccidity due to a total transverse lesion of the cord and in hemiplegic flaccidity due to a total destruction of the internal capsule, tonectic impulses can no longer be conveyed to the limbs affected, although they may be received by the pyramidal system above the side of the lesions.

Dr. Tom A. Williams, Washington, D. C.: Dr. Meyers seemed to make little of the clinical manifestations of alteration of tonus; and yet he attributes all the disorders expressing cerebellar lesions as due to interference with tonus. If that were the case, we ought to find clinically in cases in which there are disorders of motility definitely established as due to cerebellar lesions at postmortem, very marked interference with tonus. For example, is it conceivable that such marked interference with motility, as occurs when there is a complete suppression of labyrinthine deviation from central lesion, can be attributed to disordered tonus when there is no demonstrable disorder of tonus clinically? Therefore we should look a little farther, perhaps, than mere alteration of tonus for such marked symptoms as the loss of normal conjugate deviation on labyrinthine stimulation. Even supposing that such lesions do involve the paracerebellar nuclei, yet even there one should be able to demonstrate a difference of tonus on the two limbs of that individual who shows such symptoms. Will Dr. Meyers be more explicit regarding what he has said in relation to the objection? There are many other questions aroused by this research, but I think the factor mentioned is the most important.

Dr. Charles K. Mills, Philadelphia: The paracerebellar nuclei are, I believe, distinctly related to the distribution of the vestibular nerve, and they have special functions which have actually been demonstrated not only by the Bárány methods, but by other clinicopathologic investigations. The function of this nucleus complex is different from that of tonus in my interpretation of the word. And we must reconcile the reasoning which Dr. Meyers has advocated with the observations of the other sort bearing on this subject.

Dr. I. Leon Meyers, Chicago: Dr. Mills expresses the belief that the cerebellum controls synergy of movement. My aim was not to deny the control of synergy of movement—it was to analyze synergy. What does synergy mean? As stated in my last paper, synergy is extensive work and can not be expressed in the terms of a single neuron effect. It implies that the whole cerebellum works at the same time. Nerve activity in a single neuron is limited, and could only act on one single muscle fiber. My idea was to show that the cerebellar function is that of coordinating movements in a manner similar to the coordination of movement in the heart by the inhibitory effect of the vagus. The voluntary movements of the skeletal muscles it seems are the result of two antagonistic forces: the cerebellum and the cerebrum, just as the activity of the heart, and probably also that of the plain muscles of the stomach, intestines, etc., are the resultant effects of two antagonistic forces, the sympathetic and the vagus. This resultant effect may be called synergy, but the primary activity is that of acceleration of movement, and inhibition of movement. Owing to lack of time I omitted one point. One or two tracings were introduced to show that following cerebellar lesions there is, in the absinthe fit, an increase also of the tonic contractions, indicating that the cerebellum checks also the impulses of tonus. This, as stated in my paper, has been demonstrated before by Thiele by his studies of decerebrate rigidity. That the paracerebellar nuclei are the center for tonus stimuli has been held long ago by Ewald, who advanced the idea of labyrinthine tonus, the Deiter's complex being merely a station in the labyrinthine mechanism. But the chief action of the cerebellum seems to be on the motor cortex, as shown by the tracings in which a much greater intensity is noted in the clonic than in the tonic contractions. I should also like to add that in several experiments the lesions were too small to be photographed, and no symptoms whatever were to be observed. On injection with absinthe, however, there was prompt reaction on the side of the lesion. With reference to the cerebellar localization it must be accepted in the same sense as Horsley viewed it—as sensory centers with their primary influence on the motor cortex, in the same manner as the ganglia of the sensory roots which pass into the lumbar region are centers with relation to the musculature of the leg.

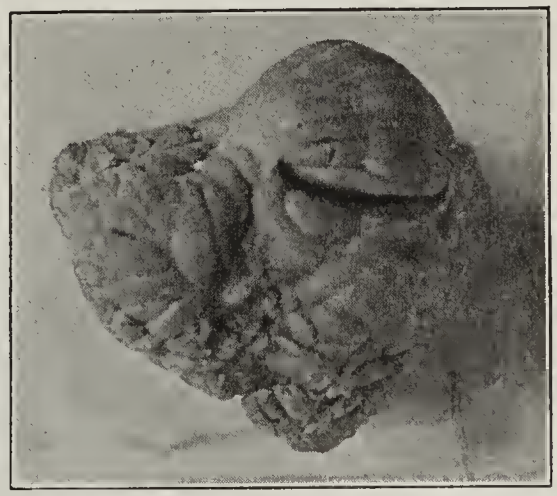

Fig. 15.—Brain of cat with lesion of median part of left crus primum and superior end of left paramedian lobule.

Dr. Tom A. Williams: Why is there no demonstrable difference of tonus in the patient then?

Dr. Meyers: In examining reflexes which are probably the expression of tonus, we find that they are variable. Sometimes they are increased, and cases have been quoted by Gowers in which they have been decreased. So I really think that no definite conclusions can be reached as regards tonus from a study of the reflexes in cerebellar lesions.

New Instruments and Suggestions

A LEG-STRETCHING MACHINE

John Ridlon, M.D., Chicago

In November, 1904, I needed a device to stretch the flexion and adduction deformity resulting in a case of hip disease which had been treated by a long traction-splint, and in which the patient had been well for three or four years. There was present a fair range of motion at the joint.

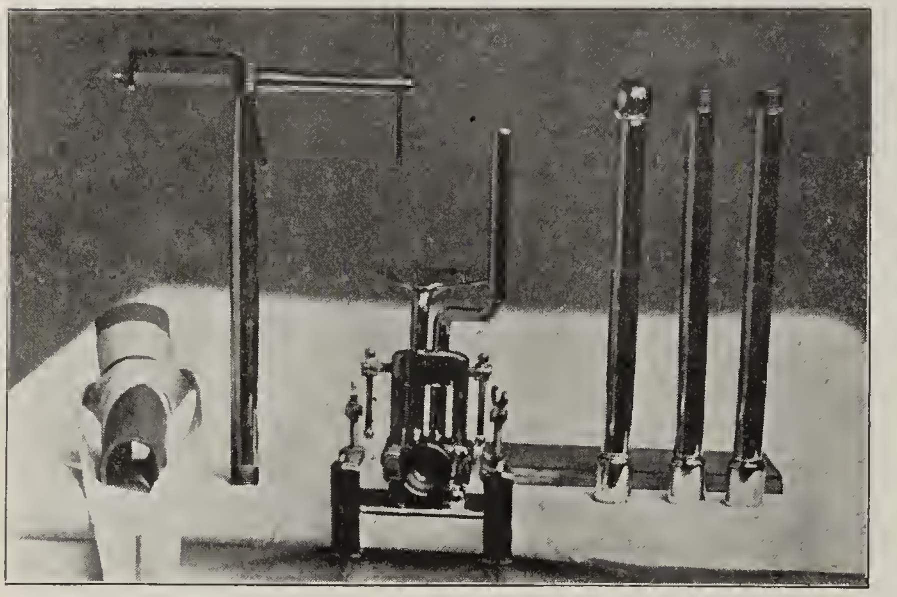

Fig. 1.—Parts of apparatus. From left to right: molded leather anklet with webbing strap which passes to windlass at end of extension rod. Last joint of extension rod with windlass and key for winding. Counterextension post, against which the perineum rests, with socket for ball-joint, clamped to table; into this plug the sacral support and a bayonet-shaped rod for counterpressure. Next comes the first section of the extension rod with ball pivot, and middle sections of extension rod. Beyond these lies the rubber pad which protects the perineum.

A cutting operation into a healed tuberculous joint is attended with considerable risk, and in my opinion is a thing that ought not to be done except from extreme necessity.

A subtrochanteric osteotomy for the correction of the deformity is a perfectly safe procedure, and the operation of choice to correct hip deformities when the joint is ankylosed; but when done on a patient with any considerable range of joint motion, it is usually unsatisfactory because much of the previous deformity usually returns after the operation.

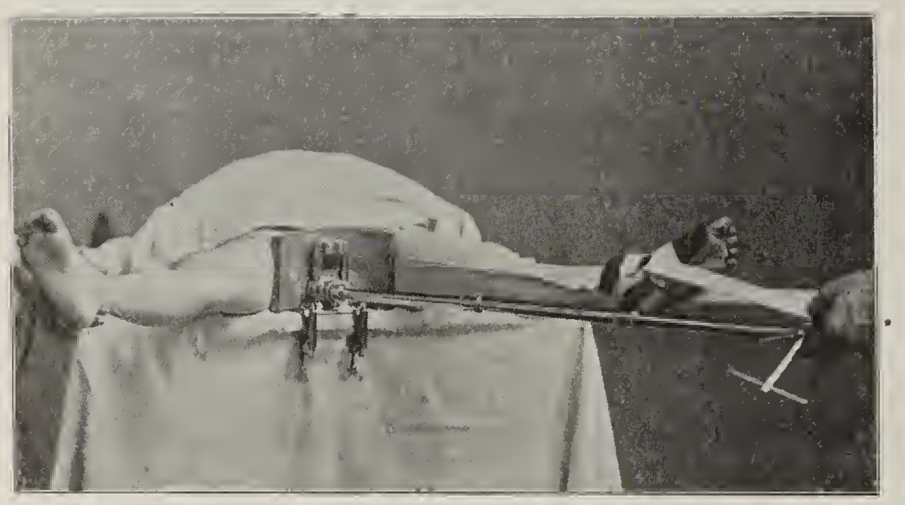

Fig. 2.—Stretching and abducting the limb.

The problem, then, was to devise an apparatus which would make powerful traction on the limb in any direction desired and absolutely maintain it while a plaster cast was being applied.

It was also desired to have a machine which could be taken apart and packed in a small grip to be carried about.

Figure 1 shows the parts of the apparatus.

Figure 2 shows the machine applied to the patient, with rubber pad in place protecting the perineum, and the leg stretched and abducted.

When the muscles have been stretched sufficiently, the hips are raised on the sacral support, counterextension is maintained by the bayonet-shaped piece, and the patient is ready for the plaster cast.

The apparatus may also be used for stretching and straightening contraction deformities at the knee joint, as shown in Figures 4 and 5.

The apparatus, or something of its kind, is absolutely necessary for the proper treatment of fractures of the neck of the femur by traction, abduction and the plaster spica.

Patients with recent fracture of the neck of the femur whom I formerly kept in bed wearing a Thomas hip splint for three or four months may now be safely permitted to rise in from two to four weeks, and there is no pain after recovery from the anesthetic. This is a matter of no small importance in very old persons.

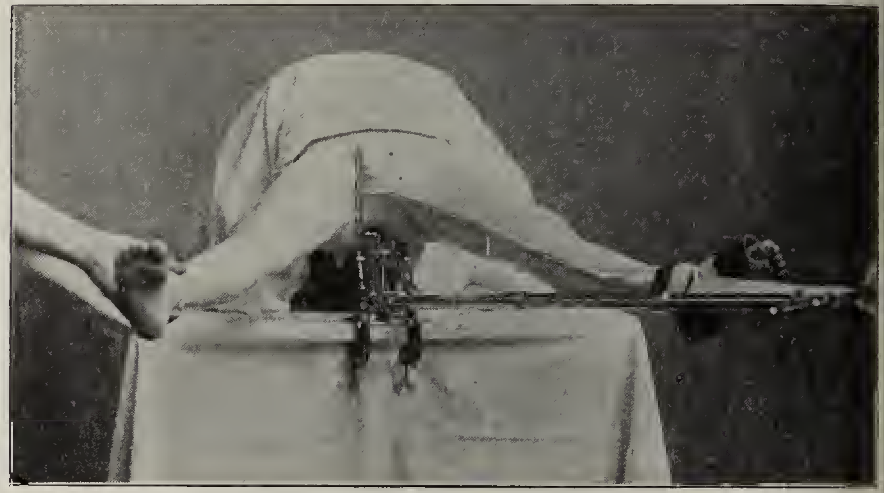

Fig. 3.—Patient ready for application of the plaster cast.

The apparatus is a necessity for comfortable work when nailing or screwing ancient fractures of the femoral neck; for "setting" fractures of the shaft of the femur, whether recent or when being plated, and for all contraction deformities at the knee, whether operated on or not.

From time to time during the past fourteen years the machine has been modified and additions made to meet new needs.

The present type is shown in Figures 6 and 7.

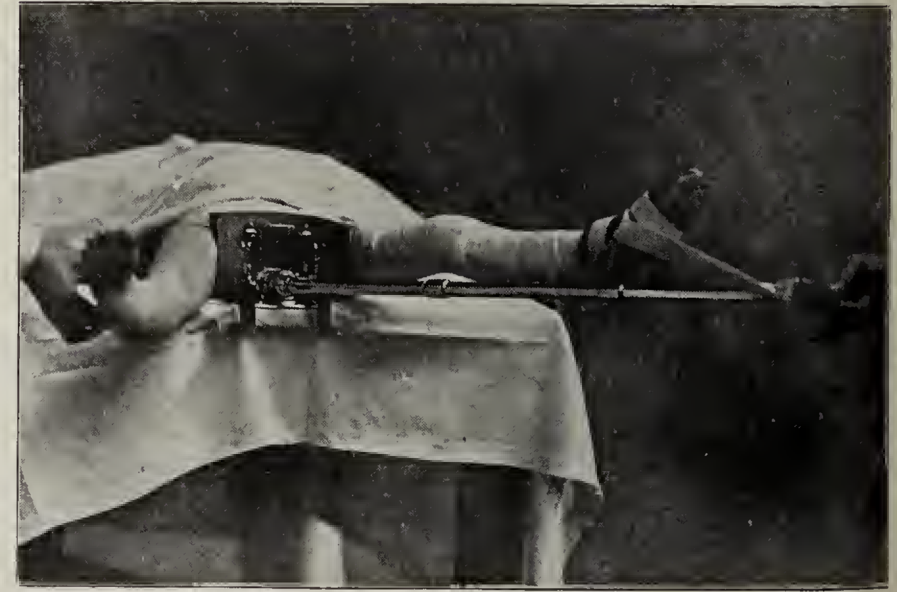

Fig. 4.—Stretching flexion deformity at the knee.

Two extension rods are now generally used when correcting hip deformities, traction being made on the well side to "balance" and "fix" the pelvis. The sacral support carrying the patient is now raised by a screw device (in the first pattern the patient was lifted by hand). Two polished steel rods make counterpressure, one on each side of the genitals. The ball-and-socket joint is reversed, the ball being attached to the part fastened to the table and the socket being at the proximal end of the extension rod. It gives a more secure joint in the extremes of motion. Pivots are also fastened to he table on each side of the patient as bases for the traction ods. This adds greatly to the amount of traction that can e had when an adducted limb is to be carried into full bduction. It is obvious that when the extension rod is ivoted between the legs, when stretching an adducted limb, he tension is lessened as the limb abducts; but when pivoted t the side of the hip, every degree of abduction into which he limb is swung adds to the traction force by leverage. The leverage of a 5-foot bar is tremendous. It was found hat the strongest 1¼ inch surgical webbing, even when loubled, tore apart like wet paper, and we now use rawhide traps in place of the webbing depicted in the illustrations f my first apparatus.

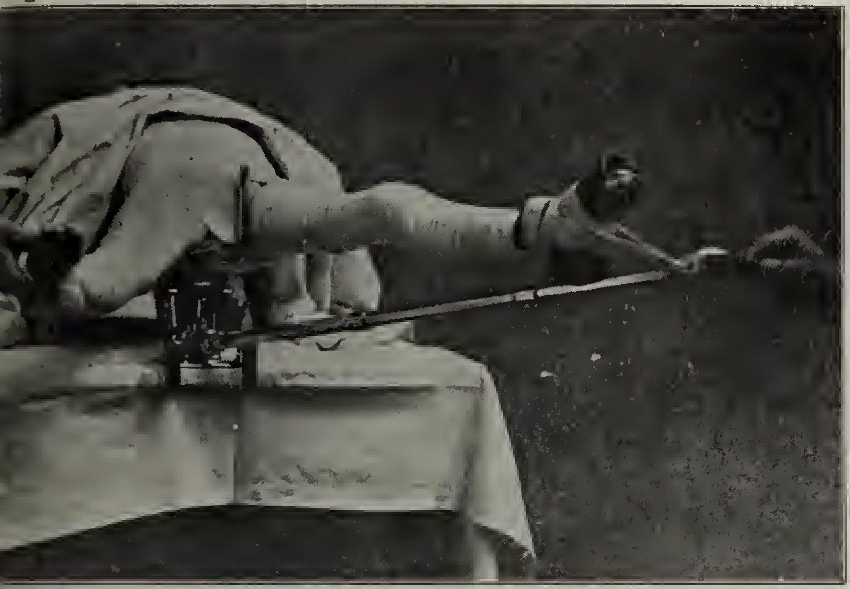

Fig. 5.—Patient in position for applying plaster cast to the limb fter flexion deformity at the knee has been straightened.

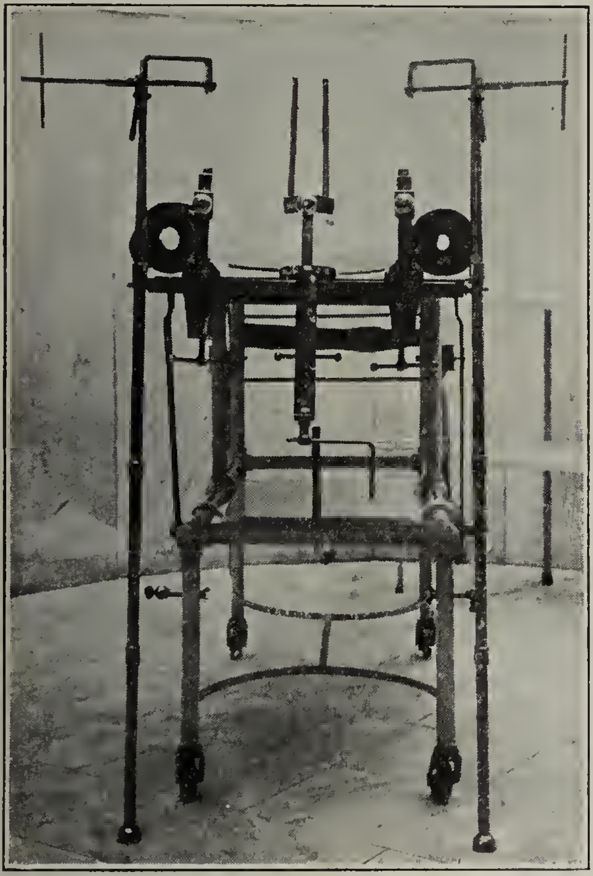

Fig. 6.—Present type of apparatus. Attached to the middle of the nd of an ordinary operating table is the pelvic support, which is aised and lowered by a set screw, with upright rods for counter raction, and a ball on which pivots each of the extension rods. On ach side of this central piece are two adjustable ball pivots for the xtension rods. Outside each of these is the rawhide strap, rolled p, which is looped around the patient's ankle and the ends passed hrough the windlass at the ends of the extension rods. The extension ods standing on the floor at the corners of the table are jointed for onvenience in packing, have a cup at the proxymal end to fit over he ball pivots and allow motion in any direction; and at the distal nds (shown above) are windlasses with keys for making traction hrough the straps attached to the patient's ankles.

Occasionally one wishes to apply a plaster cast in a case n which a marked lordosis of the lumbar spine is present in a case of flexion at the hip, either from joint disease or from infantile paralysis.

In such cases the flat spade-shaped sacral rest is replaced by two flat bars of annealed steel, bent to the desired curve and supported at their upper ends by a folding sheet-steel pier. The patient is placed on these curved bars, the hip flexed to straighten the spine to the desired extent, and the plaster jacket put on and allowed to set; then the hip deformity is corrected and the cast applied, controlling the position of the hip, knee and foot, if necessary. When such a cast has "set," the counterpressure rods between the legs are unscrewed, the patient lifted up and turned face down, and the flat annealed steel bars drawn out from under the plaster jacket as readily as a saber comes from its sheath.

7 West Madison Street.

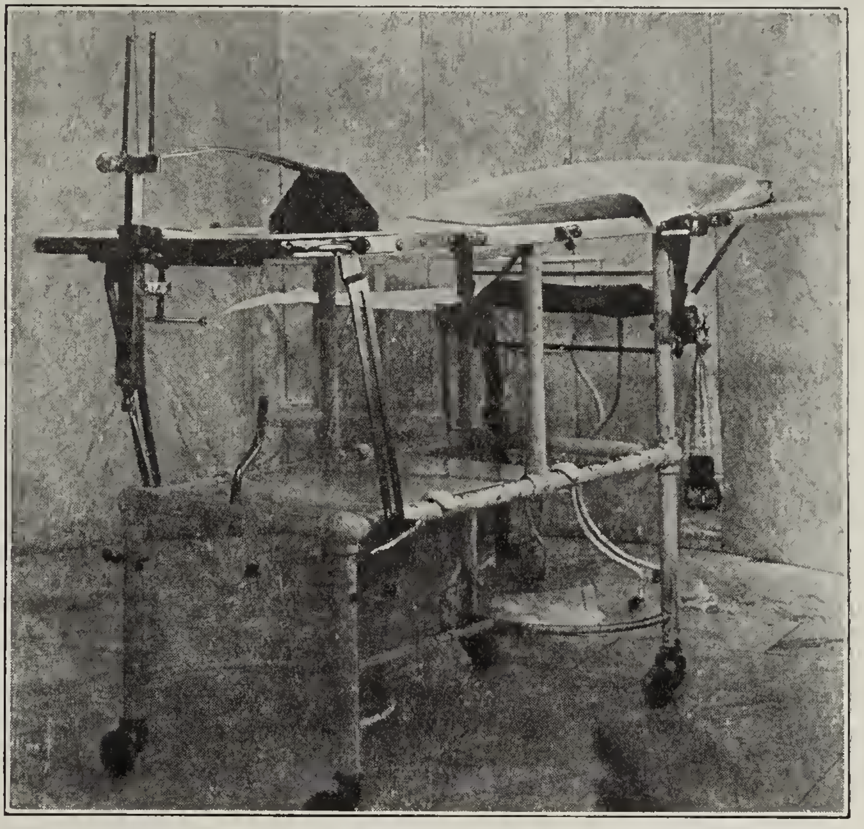

Fig. 7.—Present type of apparatus. Same central pelvic rest with the sacral plate removed and two parallel bars of annealed steel, supported at their upper ends by a folding pier. In this form the apparatus is used for supporting the patient while a plaster jacket is applied; or the device shown here and the traction appliances shown in Figure 6 can be used together when putting on a leg-and-body cast for hip and spine disease in the same patient, or in cases of infantile paralysis with spinal and hip deformity.

CONTINUOUS IRRIGATION FOR WOUNDS

Wilburt C. Davison, A.B. (Princeton); B.A., B.Sc. (Oxon),
Brooklyn

Rhodes Scholar of Merton College, Oxford, from the State of New York; Senior Demy, Magdalen College, Oxford

It has been frequently noted by Wright[1] and others that if a wound or burn is continuously irrigated, it is cleaner, heals more quickly, and the patient does not have the so-called "septic temperature." One of the simplest methods of maintaining continuous irrigation is shown in the accompanying illustrations of patients in a base hospital in England. Figure 1 shows a soldier with a jagged shell wound involving the elbow. His hand and wrist are supported by an overhead suspension. The irrigation is supplied from a reservoir above the head of the bed, and is conducted down to the wound by rubber tubing. The temperature, which was hectic on admission, came down to normal after less than twenty-four hours of irrigation and the wound quickly healed.

It has been found that practically as good results were obtained with irrigations of hypertonic (5 per cent.) saline

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1. Wright, Sir A. E.: Proc. Roy. Soc. Med. (London), 1914-1915, Occas Lect., 41; Brit. Med. Jour., 1915, i, 625, 665, 720; Lancet, London, 1915, i, 737, 787, 843, 897.

solution, Vagin's "new antiseptic,"[2] weak iodin, and hydrogen peroxid.

The fluid drips on the highest part of the wound from the rubber tubing (which is cut at an angle), usually at the rate of 30 drops per minute, and flows over the raw surface, draining into a basin or a "rubber basket" suspended below the wound (Fig. 2). This "rubber basket" consists of a wire ring about 14 inches in diameter around which rubber sheeting is loosely attached like a landing net. Into the lowest point of this rubber sheeting there is cemented a piece of rubber tubing which leads into a bucket under the bed. The advantage of this basket is that the wire ring may be bent to fit any wound and thus catch all overflow and prevent its dripping on the bed, as sometimes happens when a basin is used.

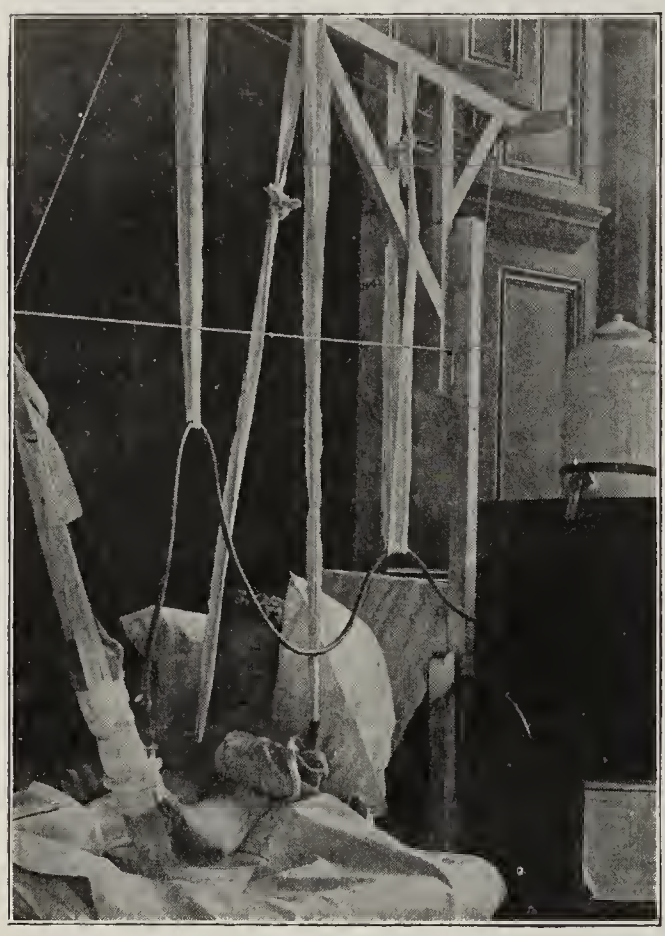


Fig. 1.—Shrapnel wound of arm treated by continuous irrigation (Photograph by Dr. D. P. McDonald.)

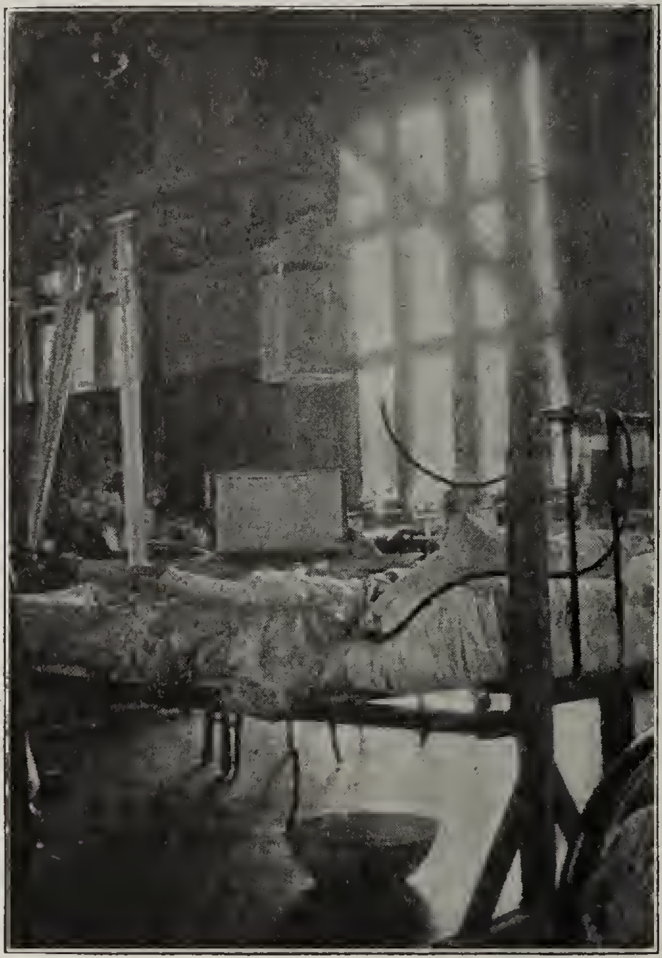


Fig. 2.—Rubber basket suspended below the wound to catch the overflow.

29 Seventh Avenue.

A PRACTICAL AUTOMATIC THERMOSTAT FOR THE ARTZBERGER PSYCHROPHORE *

Alvin E. Cerf, Ph.C., M.D., San Francisco

Heating an instrument for treatment purposes by allowing hot water to flow through it requires the undivided attention of at least one attendant, and presents enough difficulties in exactly regulating and maintaining the required temperature to make this method fairly impracticable and to preclude its successful and general use. About a year ago I devised an automatic thermostat which is simple, practical, fairly inexpensive and obviates all the difficulties attending the regular use of "therapeutic heat" in office and institutional practice and has stood the test of eight months' daily use.

The illustration shows the following parts:

1. Two low voltage heat coils, one a "pilot" coil, *A*, mounted on a wall board, the other placed inside the distal end of the Artzberger psychrophore, *P*. These are of the same resistance, wound with 50 feet of No. 18 chrome resistance wire.
2. A rheostat for regulating voltage, *L*, wound with 150 feet of No. 22 German silver wire, cut in series on one side of the line and having a range of from 1 to 30 volts.
3. Two 32 candle power 110 volt carbon lamps, *M*, *M*, set in series multiple on the other side of the line to give the necessary amperage.
4. An automatic switch for disconnecting the current when the temperature goes above the desired point.

Four disks, *B*, of thin metal, filled with ether, hermetically sealed and held contiguous at their centers.

An upright rod, *D*, which simply rests on the top disk and works freely through the thumb screw, *C*.

A sliding flange, *E*, adjusted on *D* by a set screw, *F*.

The "make and break" arm of the switch, *H*, attached to the cross pin, *G*.

A spiral spring, *I*, which holds *H* in the "make" position at *K*.

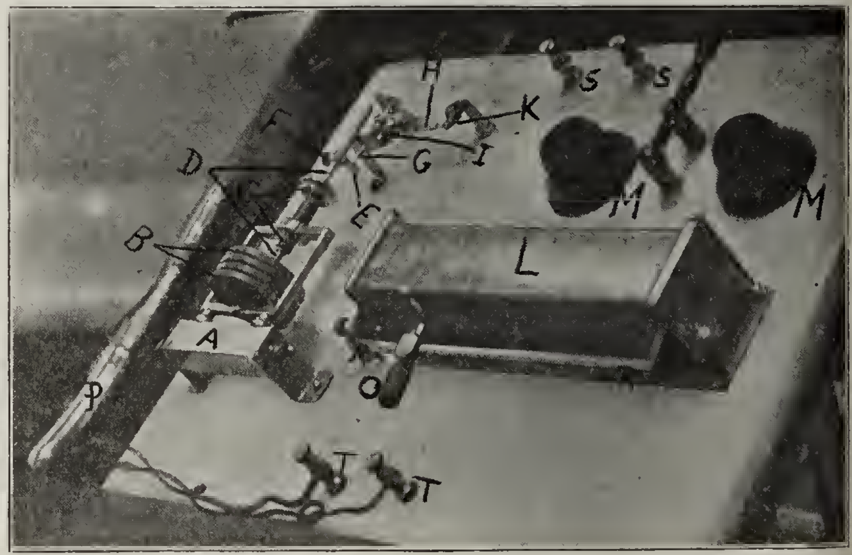
The contact point *K*, of the switch.

ACTION

The heat, diffusing from the coil, *A*, vaporizes the ether in *B*, which expands and lifts the disks. This pushes up the rod *D*, causing the flange, *E*, to impinge on the pin, *G*; this presses on and decreases the tension of the spring, *I*, which, when sufficiently pressed, releases the arm, *H*, and accomplishes the "break."

The temperature is regulated by the sliding arm, *O*, of the rheostat. The scale for this should be marked on the rod *R R*. I also have it marked on the board. The flange, *E*, is really a safety valve. I have it firmly screwed on *D*, at a point at which the maximum temperature, which I use therapeutically (120 degrees F.), will break the contact. I never move *E*.

These graduations must be worked out by actual trial. A thermometer is placed in contact with the distal end of the Artzberger psychrophore, and the exact positions of *O* and *E* marked, at which the break occurs, before finally marking each point on the scale *R R*. I allow the thermostat to run three hours at each temperature to make certain there is no variation.



Automatic thermostat for the Artzberger psychrophore.

The instrument requires 2½ amperes at 30 volts.

S, *S* are binding posts for connecting with the house circuit.

T, *T* are binding posts for connecting on the instrument.

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[2] Smith, J. L.; Drennan, A., and Campbell, W.: Brit. Med. Jour., 1915, ii, 129.

* Presented before the Section of Urology of the San Francisco County Medical Society, Aug. 29, 1916.

ADVANTAGES

My instrument cost $12 for material and $18 for skilled labor. Any degree of heat from 98 to 150 F. can be maintained for any period of time.

No attention is necessary, once the instrument is set and current turned on.

The heating is gradual enough to obviate disagreeable sensations to the patient.

The Artzberger psychrophore may be sterilized by boiling.

The whole outfit is conveniently portable if mounted on a fiber board.

I have long been convinced of the considerable therapeutic value of properly applied heat in the treatment of urethral and prostatic conditions, and hope in the near future to present my experiences for what they are worth.

111 Ellis Street.

MECHANICAL DIFFICULTIES IN ANESTHESIA

A NEW ANESTHETIC MASK

Joseph Jaros, M.D., Chicago
Instructor in Surgery, Northwestern University Medical School

It occurred to me that a mask so devised as automatically to hold the jaw forward and keep the lips apart would be of great help to the anesthetist. The model shown in the accompanying illustrations is the result of numerous attempts, and has been used in a large number of cases.

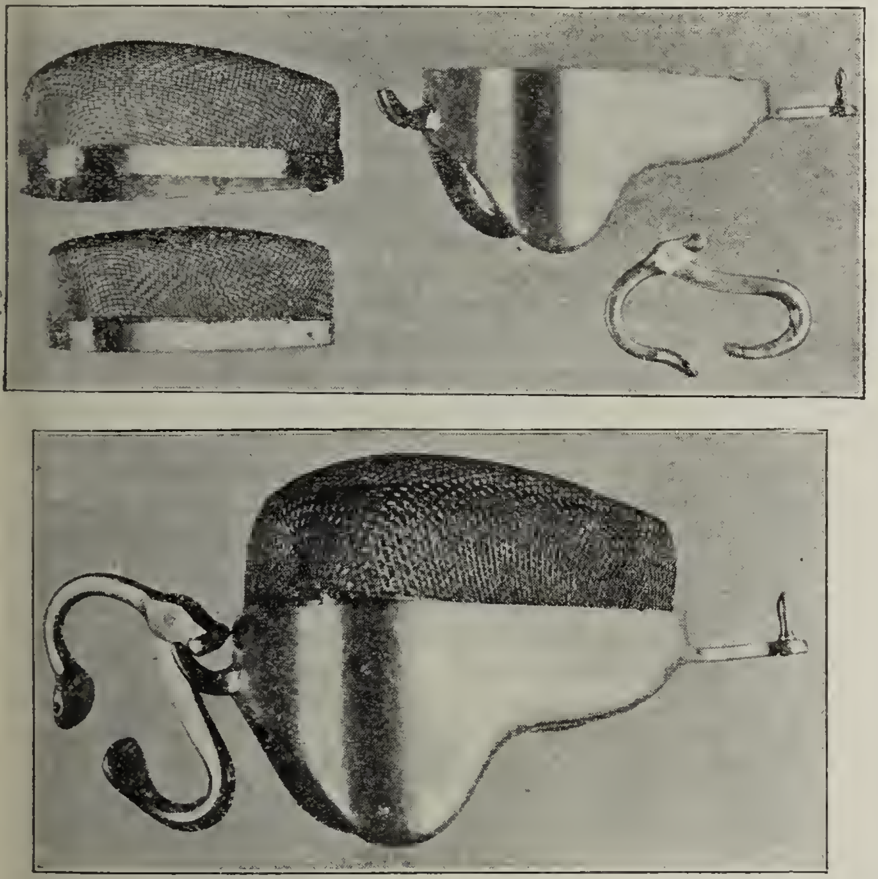

Fig. 1.—Respective parts of mask and the mask assembled.

The body is of aluminum, the lower curved margin being rolled inwardly, forming a trough which prevents any excess ether from running down on the face. In front there is a fork which engages with a hooked member, also of aluminum and shaped like tongs. One end of this member is inserted beneath the alveolar process of the mandible and is prevented from slipping out by the other end, which curves beneath the chin. This member may be applied before induction, or at the end of the first stage. With its greatest curve as a fulcrum, the mask rocks on the malar processes. A slight pressure downward on the longer arm of the lever tends to lift forward the shorter arm resting over the chin, and with it the lower jaw. Since the mask is firmly fixed to the mandible, a small band passed over the long arm of the mask fixes it firmly and securely to the face, covering only the nose and mouth, leaving the eyes exposed. The baskets are of light bronze wire mesh, and fit securely into the body of the mask without further fastening. A solid cover may be substituted for this pervious basket in vapor or gas anesthesia.

The committee on anesthesia,[1] reporting to the American Medical Association, said:

> A mask which is at once light, easily adjusted, absolutely air tight on any face, quickly removable, and not requiring to be held by the anesthetist is the greatest need.

The mask presented meets these requirements. Made of aluminum, it is light, easily cleaned, easily sterilized and is noncorrodable, it is easily adjusted, and fits any face in subjects over 7 years of age. It can be readily and quickly removed. There is no complicated harness attachment. The ether-saturated portion may simply be lifted off, while the remaining portion of the mask supports the jaw and separates the lips, thus affording ingress of air and permitting ready removal of mucus from the mouth. It is self retaining, a mere band over the upper end of the mask holding it securely and closely. It holds the jaw forward and keeps the lips apart without any appreciable pressure and without any trauma. It is easily prepared by the nurse, no sewing nor clamping being necessary. The gauze in the required number of layers is laid over the smaller basket and covered by the larger one, the protruding portions of the gauze being cut off with scissors. Because the gauze is not folded, the thickness of the mask is exactly uniform. With an opening leading into the body of the mask for the attachment of tubing, it may be used for gas or ether vapor.

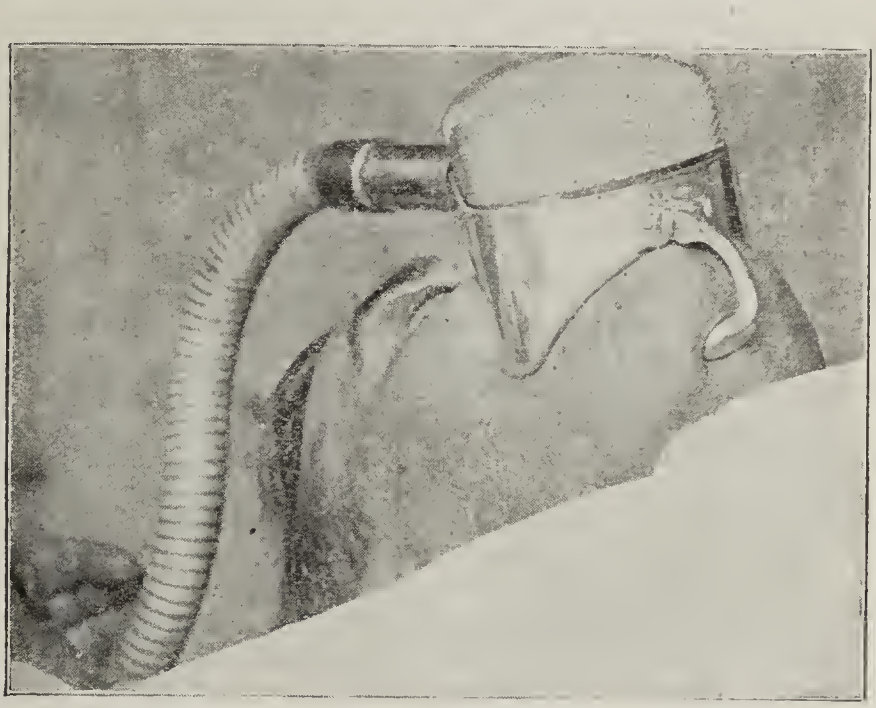

Fig. 2.—The mask used with gas or ether vapor.

It leaves the face and eyes exposed for observation, and proves especially serviceable in operations on the eyes. It eliminates the possibility of ether coming in contact with face or eyes. It can be used with gas or ether, with the drop or insufflation methods.

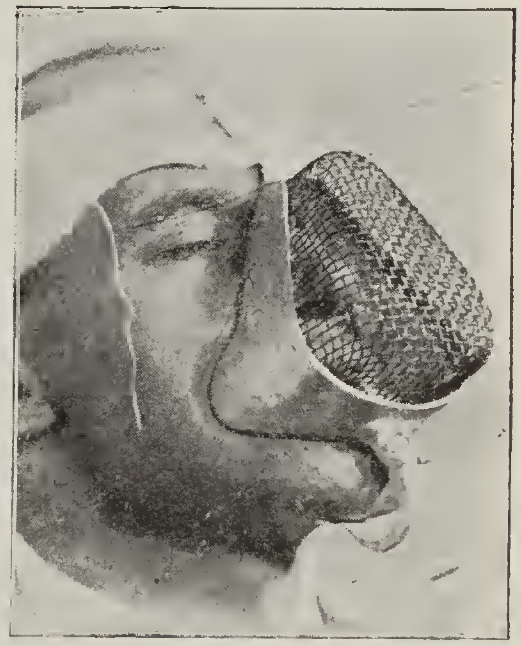

Fig. 3.—As used for drop method anesthesia. The inner basket and gauze have been removed in order to show the hook-shaped member resting within the mouth beneath the teeth and lower alveolar process.

4515 Greenwood Avenue.

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[1] 1. Report of Committee on Anesthesia, The Journal A. M. A., June 15, 1912, p. 1910.

TOXICITY OF THE PRESENT SUPPLY OF SALVARSAN AND NEOSALVARSAN

Oliver S. Ormsby, M.D., and James Herbert Mitchell, M.D., Chicago

During the autumn of 1915, the supply of salvarsan and neosalvarsan in the United States became exhausted. There was none to be had except that in the hands of speculators, who demanded extraordinary prices for the drug.

In the spring of 1916, the agents Farbwerke-Hoechst Company of New York succeeded, after months of effort, in obtaining a shipment from Germany. Shortly after the arrival of this importation, we received a supply of salvarsan direct from the New York agents, and resumed the use of it in the routine treatment of syphilitic patients with the same technic which we had formerly employed.

The water used is distilled in Jena glassware from distilled water furnished by the Consumers' Company. Each morning the water is distilled and collected in Jena flasks of 500 c.c. capacity. The flask is capped with gauze, then put over the flame and kept there until the boiling point is reached, after which it is set aside and allowed to cool. The water remaining after the day's work is redistilled on the following day. The sodium hydroxid solution is prepared in small quantity, at frequent intervals, from chemically pure sodium hydroxid and redistilled water, in a sterile Jena glass Erlenmeyer flask, which is stoppered with rubber. Before the preparation of the salvarsan solution, all the glassware is carefully sterilized and then rinsed with redistilled water. Great care is taken not to add an excess of sodium hydroxid solution in neutralizing the acid salvarsan.

Formerly, we diluted the dissolved and neutralized salvarsan with physiologic sodium chlorid solution, as directed in the instructions. Later, however, we discarded this, and used water in dilutions which represented 0.1 gm. to each 25 c.c.

As soon as we began to use of the new supply of salvarsan, we were immediately struck by the vasomotor phenomena accompanying or following the injection. Within a few seconds after the flow of the solution into the vein had begun, the patient complained of a strong and sickening odor of ether. Marked generalized erythema, and in some cases urticarial wheals, appeared. Lacrimation occurred, followed by injection of the conjunctival vessels. The patient tossed the head from side to side in evident respiratory embarrassment, and complained of a feeling of constriction about the chest. The pulse, at first full, quickly became rapid and weak, accompanied usually by pallor. In a few cases, nausea and vomiting occurred.

June 28, 1916, six patients were given injections of four different ampules, prepared in three separate solutions. The control number on the package was B. B. V. All six reacted as described above in varying degrees of severity. The reactions lasted (and the patients remained in the office under observation) from one hour to three and one-half hours. All had more or less nausea for twenty-four hours following the injection. All but one had had numerous injections previously either of salvarsan, neosalvarsan, or arsenobenzol. Five patients received 0.4 gm., and one patient, his first injection, was given 0.2 gm.

As a result of these reactions, the entire quantity of salvarsan was returned to the New York agents in exchange for other ampules. In this exchange lot, none of the B. B. V. control number was found. The reactions continued with the new lot, although much less frequently; and in an effort to determine whether the vasomotor irritation was due to the method of administration, physiologic sodium chlorid solution was substituted for the water in making the dilution, as advised in the instructions in the package. No diminution of the reaction could be detected as a result of this change. When we informed the New York agents of the reactions we were having, they inquired concerning the sodium hydroxid and water employed, and emphasized the necessity of freshly prepared solutions. These precautions, however, have been routine for years with us.

After the consumption of this supply of salvarsan, its use was discontinued and neosalvarsan was substituted.

In the department of dermatology and syphilis at Central Free Dispensary of Rush Medical College, a group of sixty-three patients was given 127 injections of salvarsan. In this group, there were twenty-eight severe reactions, and a number of mild reactions, consisting of slight nausea, with occasional vomiting, after leaving the dispensary and during the night. The most toxic ampule found was marked B. M. B., and all of the severe reactions occurred with this control mark. The dosage was in all cases 0.4 gm. or less.

The technic used at the dispensary was exactly the same as that described above. Reactions occurred both with the dilutions with physiologic sodium chlorid solution and with the dilutions with water.

The package of the new shipment of neosalvarsan differed from that formerly supplied, in that the individual file was omitted and there was a notice saying that owing to the scarcity of metals it was no longer possible to include more than one file for each five packages. There was no apparent increase, however, in the toxicity of the drug.

The neosalvarsan package is now supplied with a large flat file on which "New York" is stamped. The neosalvarsan in this package is found to be less readily soluble than the former product and tends to form a gelatinous mass when added to the water; as a rule, it becomes necessary to triturate the mass before it goes completely into solution. The present product is also more toxic than the drug contained in the package lacking the file.

The reaction following the injection of the present neosalvarsan differs from that of salvarsan in that there is a marked tendency toward nausea and vomiting. In two cases, urticarial wheals have followed each injection, but the diffuse erythema, lacrimation and respiratory difficulty, with fall of blood pressure, observed after salvarsan, have not occurred.

Five patients have vomited during or immediately after the injection. One patient vomited after each of four injections. Before the first injection (0.3 gm.), this patient had eaten a very light luncheon an hour previously. Prior to the other three injections, he had eaten nothing for six hours. Three of this group had received numerous injections of other arsenical preparations without reactions. One patient was also in the group of six reactions, June 28.

Nearly all of the patients now complain of the increased odor and taste which occur immediately after the flow begins, and in some cases continue for twenty-four hours. For this reason, we have had considerable difficulty in persuading a few patients to continue with the injections.

Our technic of neosalvarsan injection consists in adding a full dose to 30 c.c. of water prepared as described and injecting by a gravity method. Higher dilution and a slower rate of flow have not diminished the reaction.

The use of epinephrin, as first advocated by Milian,[1] is of doubtful value. It can do no harm, however, and should be kept at hand for immediate use hypodermically.

CONCLUSIONS

1. The striking increase in the number of severe reactions following the use of salvarsan as now supplied indicates a high degree of toxicity.

2. That neosalvarsan, too, is more toxic than formerly is indicated by the number of cases in which immediate vomiting occurs.

25 East Washington Street.

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[1] Milian: Bull. Soc. franç. de dermat. et de syph., 1914, p. 104.

Method of Combating Infections.—Attention is being directed more and more to the foci from which infection spreads, rather than to the route by which it may be disseminated. The present teaching is that the control of communicable diseases can best and most reasonably be effected by taking charge of and destroying the infective organisms at the moment they leave the patient. They should not be given an opportunity to reach other individuals in such a state of virulence that they may cause disease in such individuals.—W. H. Hattie, M.D., *Public Health Journal,* September, 1915.

SYMPTOMS FOLLOWING INJECTION OF NEOSALVARSAN

A. M. Moody, M.D., Chicago

For some time intravenous injections of salvarsan and neosalvarsan have been given with scarcely any ill effects. More recently, however, the results following injections, especially with the present available product of neosalvarsan, but occasionally also with salvarsan, have been such as at times to keep the patient somewhat worried. This condition is of a transitory nature, although slight symptoms may occasionally persist for a few days.

In several cases, chills with headache, nausea, diarrhea, and in some instances vomiting have followed a single injection of neosalvarsan. The onset of these symptoms may be immediate or delayed from one to twelve or more hours. In few instances have the symptoms persisted for any length of time. Another disagreeable symptom which I have seen twice is a feeling that one is going to choke. This seems to carry with it a large element of fear, which rapidly disappears in from fifteen to thirty minutes. Physically it has been impossible to detect any anatomic alterations during such attacks. The symptoms are purely subjective. Sneezing is another phenomenon occasionally seen.

We have records of only one death following intravenous injection of neosalvarsan. This patient, a woman, was injected Thursday at 3 p. m., receiving 0.9 gm. of neosalvarsan. The patient was in poor condition when the injection was made, she later developed headache, chills and backache, Friday night went into coma, and died at 10 a. m. Sunday, with what the physician described as symptoms of arsenical poisoning. These findings were not confirmed by postmortem examination.

It is our custom to give the salvarsan and neosalvarsan by the gravity method, in quantities of solution varying from 100 to 150 c.c. All solutions used are made up daily with freshly double distilled water. The water is distilled over glass. These precautions we believe are absolutely essential to avoid the more violent reactions which so frequently follow the giving of such substances in small bulk and rapidly, as usually occur following the intravenous administration by syringe.

We have also observed that those persons who have had a meal just prior to receiving the injection are the ones who almost invariably have some toxic symptoms.

About 2,000 doses of arsenobenzol—Schamberg's preparation—have been given here without any of the toxic results seen following the use of neosalvarsan and salvarsan. Unfortunately the manufacture of this product has been discontinued.

TOXICITY OF SALVARSAN

John D. Ellis, M.D., Chicago

In the great majority of cases in which I have used the salvarsan purchased during the last three months, I have noticed some toxic symptoms. Fully half of these patients have suffered from repeated vomiting after an intravenous injection. Intravenous injections of salvarsan purchased prior o that time rarely resulted in vomiting or any toxic sympoms.

In one case, in a man, aged 22, who came to the office with a chancre of three days' duration, but with a positive Wassermann reaction, I administered 0.6 gm. neutralized in 180 c.c. of freshly distilled water. No symptoms occurred until three hours after injection, when the patient had an attack of vomiting lasting three or four minutes, with retching and severe nausea continuing for about an hour. For six days thereafter his nausea was relieved only on his assuming a supine posiion. He was unable to retain anything in the stomach, even water being promptly vomited. Any attempt to rise was ollowed by severe nausea and vomiting. Emesis for the first day consisted of bile-stained mucus. Enemas were adminstered, and proctoclysis was done. The urine became highly acid, but no casts, albumin or blood appeared. The blood pressure ran from 105 to 115 systolic; the white blood count was 8,500. Physical examination revealed nothing except considerable tenderness over the liver, which, however, was not enlarged, and some slight tenderness over the epigastrium. There was no rigidity determined.

One week after the patient recovered from this attack I administered 0.4 gm. of salvarsan intravenously in 100 c.c. of water, and this was followed by attacks of vomiting and nausea lasting two days. At the end of this time the patient recovered, and I have been unable to detect any injury to the kidneys since that time.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1673)

TECHNIC OF PHENOLSULPHONEPHTHALEIN TEST

Aseptic ampules prepared for subcutaneous injection can be obtained,* each ampule containing 1 c.c. of sterile salt solution and 0.006 gm. of phenolsulphonephthalein. Half an hour before the injection the patient should be given 250 c.c. of water to insure that urinary secretion will not be delayed on account of a shortage of water. Next, the patient is catheterized under aseptic precautions, or he empties his own bladder. Then the phenolsulphonephthalein is given subcutaneously or intramuscularly, or rarely intravenously. When it is given subcutaneously or intramuscularly, the patient should urinate at the end of the first hour and again at the end of the second hour, into different receptacles; or if a catheter is in the bladder, the urine may drip into a test tube containing a drop of a 25 per cent. solution of sodium hydroxid, and the first slight pink color should be noted and the time recorded. The catheter is then clamped and the urine drawn at the end of the first hour, and again at the end of the second hour. Each sample of urine should be measured and tested for its specific gravity; then enough of a 25 per cent. solution of sodium hydroxid is added to the urine to make the color which in acid urine is yellow or orange change to the deepest possible reddish purple. This solution is diluted with distilled water to 1,000 c.c., and the whole thoroughly mixed. A small portion is filtered and placed in a color test glass for comparison with some standard or colorimeter, of which several types may be obtained.

It should be noted that the phenolsulphonephthalein may be freely excreted though but a small amount of urine is passed, that is, the amount of urine passed has no relation to the amount of phenolsulphonephthalein excreted. Normally, on the average, 50 per cent. should be recovered in the first hour, and 85 per cent. at the end of two hours, from intramuscular injections. From intravenous injections, from 35 to 45 per cent. should be recovered the first fifteen minutes, from 50 to 65 per cent. in thirty minutes, and from 65 to 85 per cent. in one hour. If in two hours, when it is given intramuscularly, only 40 per cent. or less of the phenolsulphonephthalein has been excreted, Elliott[9] considers that not only are the kidneys defective, but also there is a retention of waste nitrogen in the blood, and a blood test should be made.

To note just when the elimination of phenolsulphonephthalein ceases, the patient may pass the urine every hour for six hours.

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* See New and Nonofficial Remedies, 1916, p. 247.

[9] Elliott, A. R.: The Phenolsulphonephthalein Test in Chronic Nephritis, The Journal A. M. A., June 5, 1915, p. 1885.

OTHER TESTS OF FUNCTION

In the iodid test of von Noorden,[10] a capsule containing 0.2 gm. of potassium iodid is given on an empty stomach, swallowed with 50 c.c. of water. The saliva is tested for iodin every three minutes to show when the capsule dissolves, and the urine is drawn and tested every five minutes. Normally the saliva shows iodin in from eight to twelve minutes, and the urine shows it from three to five minutes later. If the reaction in the urine is delayed half an hour, it is a moderate delay; if it is delayed from this time to one hour, the delay becomes more and more significant. All the iodin should be eliminated in thirty hours.

Thomas[11] urges the use of indigocarmin as a valuable indication of the functional capacity of each kidney, as evidenced by the output of colored urine at each ureter during ureteroscopy. He finds it valuable in all surgical conditions, and especially valuable in conjunction with roentgenoscopy in the diagnosis of renal calculi. After the patient is prepared, according to the technic which he describes, 20 c.c. of a 0.4 per cent. solution of indigocarmin are injected into the gluteal muscles, and if the kidneys are normal, they will excrete a dark blue liquid in from three to twenty minutes and a light blue in fifteen minutes. In his 200 tests it appeared as light or dark blue in fifteen minutes in 90 per cent. of the cases, and in ten minutes in 61 per cent. of the cases. If the indigo does not appear as light blue in fifteen minutes or as dark blue in twenty minutes, there is a serious insufficiency of renal function. Of course the ureteroscope will show in surgical conditions a more or less marked discrepancy in the excretion from the two kidneys.

In a later article, Thomas[12] emphasizes his belief that his low mortality in prostatectomy (3.3 per cent.) is due to the previous indigocarmin test and a recognition of operative limitations. Although this test to decide the difference between a surgical kidney and its fellow is of value, as described by Thomas, it is not as good a test of renal gland function as is the phenolsulphonephthalein test, as only 25 per cent. of indigocarmin is excreted by the kidneys. Furthermore, indigocarmin excretion may not be decreased in some instances of acute or diffuse nephritis, and a blue color may not develop in purulent and alkalized urines.[13]

The methylene blue test is not as good as the phenolsulphonephthalein test, and has the same defects as the indigocarmin.[14]

Neubauer[15] gives 1.5 gm. of creatinin in 150 c.c. of sweetened water, and finds that healthy kidneys eliminate from 60 to 90 per cent. of it in six hours and the remainder in six more hours. With diseased kidneys less than 20 per cent. is eliminated in six hours, and the rest not in days. While in nephritics lactose excretion is always delayed, with serious congestion of the kidneys, its excretion does not follow the rate of phenolsulphonephthalein excretion and does not show what part of the kidneys is affected.[14]

In a recent article, Mosenthal and Lewis[16] state that too much reliance must not be placed on single tests of renal function, as kidneys may retain sodium chlorid, urea, phosphates, sulphates, or even water — any one of these substances — and yet allow the remaining substances to be excreted. They place great value on the test meal for kidney function, on phenolsulphonephthalein, and on Ambard's formula.[17] After a study of the subject, however, Jonas and Austin[18] conclude that the estimation of the blood urea is more reliable and more useful than is the urea index or the Ambard quotient.

DETERMINATION OF THE NITROGEN OF THE BLOOD

The examination of the blood for the total nonprotein nitrogen and for urea, together with the tests of the kidney excretion described above, has advanced the understanding of kidney defects, and presages the limitations of medical and surgical treatment of genito-urinary disease. The method of Folin,[19] in which from 2 to 5 c.c. of blood are required, is probably the test most used.

Nonprotein nitrogen is a term applied to the nitrogen remaining after all proteins have been precipitated out of the blood. Such remaining nitrogen is also termed "incoagulable nitrogen" and "retention nitrogen."

In the beginning it should be urged that a single determination of the nonprotein nitrogen of the blood is not conclusive, unless the amount is large, but a progressive increase from day to day or week to week shows danger of uremia, and uremia is not a condition caused by one poison, but by many.

Tileston and Comfort[20] believe that the nonprotein nitrogen of the blood below 30 mg. per hundred c.c. of blood is normal; from 30 to 35 mg. it shows a slight increase; from 35 to 50 mg. a considerable increase, and from 50 to 100 mg. a great increase. Nonprotein nitrogen of 100 mg. or more is of very serious prognosis. More than 16 mg. of urea per hundred c.c. of blood is abnormal, and more than 25 mg. shows a considerable increase. This agrees closely with the figures offered by Bang[21] of Sweden, who says that 25 mg. of nonprotein nitrogen in 100 gm. of blood is normal, and about 15 mg. of this should be urea. More recently Gettler and Baker[22] have examined the blood in thirty normal individuals three hours after a uniform breakfast, and find the nonprotein nitrogen higher than the foregoing figures, namely, from 30 to 45 mg., and the urea from 15 to 25 mg.

Tileston and Comfort found that the determination of the total nonprotein nitrogen was more important than the urea determination. They found in chronic interstitial nephritis the nonprotein nitrogen increased even to 324 mg. per hundred c.c. of blood, and the urea even to as much as 237 mg. Sometimes, however, there may be a normal nonprotein nitrogen in some forms of chronic nephritis.[23]

During acute disease, as pneumonia, there may be a retention of nitrogen in the blood, and such a condition is probably a frequent added cause of death in this most serious of acute diseases.

While uremic patients practically always show nitrogen retention, it is interesting to note that puerperal clampsia does not always, and perhaps seldom, show uch retention, unless there has been a long previous ephritis. In other words, puerperal eclampsia may or nay not be a true uremia, as other retained intoxicants nay cause convulsions besides those retained by kidey insufficiency.

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[10] Von Noorden: Med. Klin., 1916, xii, No. 1.

[11] Thomas, B. A.: The Results of Two Hundred Chromo-Ureteroscopies Employing Indigocarmin as a Functional Kidney Test, The Journal A. M. A., Jan. 18, 1913, p. 185.

[12] Thomas, B. A.: The Rôle of Functional Kidney Tests and Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality, The Journal A. M. A., Nov. 28, 1914, p. 1909.

[13] Hepburn: Yale Med. Jour., March, 1912, p. 289.

[14] Potter and Bell: Am. Jour. Med. Sc., February, 1915, p. 236.

[15] Neubauer: München. med. Wchnschr., 1914, lxi, No. 16.

[16] Mosenthal, H. O., and Lewis, D. S.: A Comparative Study of Tests for Renal Function, The Journal A. M. A., Sept. 23, 1916, p. 933.

[17] McLean: Jour. Exper. Med., 1915, xxii, 212.

[18] Jonas, Leon, and Austin, J. H.: Am. Jour. Med. Sc., October, 1916, p. 560.

[19] Folin, Otto: Jour. Biol. Chem., 1912, xi, 527.

[20] Tileston, Wilder, and Comfort, C. W., Jr.: The Total Non-Protein Nitrogen and the Urea of the Blood in Health and in Disease, as Estimated by Folin's Methods, Arch. Int. Med., November, 1914, p. 620.

[21] Bang: Biochem. Ztschr., 1915, lxxii.

[22] Gettler and Baker: Jour. Biol. Chem., 1916, xxv, 211.

[23] Frothingham, Channing, and Smillie, W. G.: The Relation Between the Phenolsulphonephthalein Excretion in the Urine and the Non-Protein Nitrogen Content of the Blood in Human Cases, Arch. Int. Med., October, 1914, p. 541.

The diet of a nephritic should be modified by the mount of nonprotein nitrogen of the blood. Surgical perations should be postponed if practical when the lood shows an increased amount of nonprotein itrogen.

As syphilis is now known to attack the kidneys nore frequently than was supposed, and as retained itrogen may be in evidence in this disease, the effect n the kidneys of arsenic and mercury treatment in hese patients must be seriously considered. Whether r not the arsenic treatment predisposes to kidney isturbance later in syphilis should also be investigated. cute intestinal obstruction has been shown to increase ie blood nitrogen, and the same may be true of many cute painful or serious crises.

Ordinarily, but not always, in nephritis, the less ie phenolsulphonephthalein output, the greater the mount of nonprotein nitrogen in the urine. Accordng to Frothingham and Smillie, and others, passive ongestion of the kidneys from cardiac insufficiency nay markedly diminish the output of phenolsulphonehthalein without an increase of the nonprotein nitroen being found in the blood.

As shown by Hopkins and Jonas,[24] the amount of rotein fed a chronic nephritis patient has a direct earing on the amount of nitrogen retention, and thereore a frequent estimate of the nonprotein nitrogen of ie blood has a distinct therapeutic value. Many ephritic patients are unnecessarily underfed. Mosenial and Richards[25] came to the conclusion, after careul investigation in nephritic patients, that even when iere was a retention of nitrogen in the body, as deteriined by the protein intake and the nitrogen output, iere was not necessarily an increase in the nonprotein itrogen of the blood. Hence at times in nephritics a ormal protein nonprotein nitrogen in the blood may ot show that nitrogen is not retained.

Cameron[26] says that after a general anesthetic there ; usually an increase in the urea of the blood, and iis is especially true in operations on the genitorinary tract, and of course most frequently in patients iho have a diminished kidney function.

Schwartz and McGill[27] give their findings after estiiating the urea of the blood in 211 patients as folws: The urea of the blood is greatly modified by iet; is increased by nephritis, varying with the degree f inflammation and congestion; is increased by iechanical obstruction of the urinary tract; is genrally increased in pneumonia; is increased in exophialmic goiter; is decreased in myxedema, and in many cute conditions and infections it is increased.

Addis and Watanabe[28] state that the rate of excreon of urea by the urine varies with the urea concenration in the blood.

It was long in vogue to give large amounts of water in nephritis "to wash out the kidneys." More recently it was shown that this was bad in dropsy, in which the kidneys do not excrete water well. We must now come to the intermediate decision, namely, that with nitrogen retention and with damaged kidneys which cannot excrete a concentrated urine, and when there is no great amount of edema, we must give considerable water at the same time that we diminish the protein intake in order to eliminate the solids and retained nitrogen. The truth of this statement has recently been demonstrated by Foster and Davis.[29]

(To be continued)

New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

MERCURIALIZED SERUM-MULFORD (See N. N. R., 1916, p. 192).

The following dosage forms have been accepted:

Mercurialized Serum-Mulford, No. 5-A.—Each package contains one 8 Cc. graduated sterile glass syringe with sterile needle, containing the equivalent of 0.0055 Gm. (1/12 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 5-B.—Each package contains one 8 Cc. graduated sterile glass syringe with sterile needle, containing the equivalent of 0.011 Gm. (1/6 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 6-A.—Each package contains ten 8 Cc. graduated sterile glass syringes with sterile needle, each containing the equivalent of 0.0055 Gm. (1/12 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 6-B.—Each package contains ten 8 Cc. graduated sterile glass syringes with sterile needle, each containing the equivalent of 0.011 Gm. (1/6 grain) mercuric chloride.

Who Shall Survive?—The eugenist who tries more than to eliminate the unfit will first of all be called on to answer the question what strains are the best to cultivate. If it is a question of breeding Indian corn or chickens, we know what we want. We desire a large yield of good corn, or many eggs of heavy weight. But what do we want in man? Is it physical excellence, mental ability, creative power, or artistic genius? We must select certain ideals that we want to raise. Considering then the fundamental differences in ideals of distinct types of civilization, have we a right to give to our modern ideals the stamp of finality, and suppress what does not fit into our life? There is little doubt that we, at the present time, give much less weight to beauty than to logic. Shall we then try to raise a generation of logical thinkers, suppress those whose emotional life is vigorous, and try to bring it about that reason shall reign supreme, and that human activities shall be performed with clocklike precision? The precise cultural forms that would develop can, of course, not be foretold, because they are culturally, not biologically, determined; but there is little doubt that within certain limits the intensity of emotional life—regardless of its form—and the vigor of logical thought—regardless of its contents—could be increased or decreased by organic selection. Such a deliberate selection of qualities which would modify the character of nations implies an overestimation of the standards that we have reached, which to my mind appears intolerable. Personally the logical thinker may be most congenial to me, nevertheless I respect the sacred ideals of the dreamer who lives in a world of musical tones, and whose creative power is to me a marvel that surpasses understanding.—Franz Boas.

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[24] Hopkins, A. H., and Jonas, Leon: Studies in Renal Function th Special Reference to Non-Protein Nitrogen and Sugar Concentran in the Blood, Phenolsulphonephthalein Elimination and Blood Presre, Arch. Int. Med., June, 1915, p. 964.

[25] Mosenthal, H. O., and Richards, A. E.: Interpretation of Posie Nitrogen Balance in Nephritis, Arch. Int. Med., February, 1916, 329.

[26] Cameron, D. F.: Variations in Renal Function Dependent on rgical Procedures, The Journal A. M. A., June 3, 1916, p. 1765.

[27] Schwartz, Harold, and McGill, Caroline: Blood Urea Determinans in 211 Cases, Arch. Int. Med., January, 1916, p. 42.

[28] Addis and Watanabe: Jour. Biol. Chem., March, 1916, p. 1057.

[29] Foster and Davis: Am. Jour. Med. Sc., January, 1916, p. 44.

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SATURDAY, DECEMBER 9, 1916

BACTERIA ON PAPER MONEY AND BOOKS

Since bacteriology demonstrated the widespread distribution of bacteria and emphasized the almost omnipresent opportunity for the transmission of disease in this way, the fear of micro-organisms has become almost an obsession with many persons. Appreciation of the unseen dangers which constantly lurk about us has done much to initiate manifold performances in the interest of hygiene. Public and personal sanitation can be enforced effectively in a free country only when its dictates are in accord with the education of the persons involved. Cooperation means so much in the carrying out of hygienic reforms that all workers in the domain of the public health have begun to realize the real value of popular education in this field. Public opinion is today respected as a potent factor in hygiene as well as in politics and the management of social problems.

Popular reaction is recognized as harmful when it initiates a spirit of distrust. Many of the hasty generalizations of science, and, above all, many of the unwarranted assertions which continually appear in print under the guise of scientific or pseudoscientific authority sooner or later redound to the discredit of real progress. An attitude of skepticism is awakened, and the distrust of an obvious misstatement unconsciously becomes magnified into a reactionary indifference to the better contributions of scientific men. It is important, therefore, that workers in the world of science should guard against the public propagation of any doctrine which does not rest on sufficiently substantial evidence to justify the propaganda. The championship of half truths or conjectured truths inevitably acts in the course of time as a barrier to the very objects which are sought in public reforms; for in the end, truth always prevails.

In illustration, the popular opinion of a few years ago in respect to soiled paper money may be cited. Even today it is regarded by many as extremely dangerous to handle, and many people still insist on clean bills when they are getting change. Bank tellers rarely exhibit such aversion, nor do they give a history of exceptional incidence of infectious disease. Our currency has been blamed for the spread of disease and death, especially when it has been difficult to find the true etiologic agency. We recall that not long ago a case of myxedema was regarded by a daily newspaper as the outcome of counting money — a conclusion which will certainly surprise those who have placed the disease in a category quite independent of the infections.

Because of such apparently exaggerated contentions, an actual investigation of the bacteria present on soiled money was made by Hilditch,[1] who arrived at the conclusion that money constitutes an unimportant factor in the transmission of disease. We want and certainly need a more frequent redemption of our soiled and worn bills, yet the facts and evidences at hand do not justify us in alarming the public needlessly by rash statements concerning our currency. Such seemingly conservative deductions do not in any way negative the the possibility that money, like other things, may at times act as a medium of disease transmission.

The experience gained in the bacteriologic study of soiled paper money has been repeated in the case of books, which have likewise been looked on frequently as dangerous factors in the dissemination of the contagious diseases. Let it be clearly stated at the outset that books which have been handled by persons suffering from one of the communicable diseases should always be disinfected before they are used again. No one will gainsay this. Is there justification, however, for the suspicion with which the books in public libraries are so often regarded? Exposure to sunshine and air, and disinfection can be enforced as a routine measure if necessary; but books are not immune to the inevitable damage resulting from such usage. Recently Laubach,[2] of the laboratory of hygiene and bacteriology at Johns Hopkins, has examined bacteriologically a large number of badly soiled and torn books in constant circulation for several years among Baltimore children in whose homes the sanitary conditions were decidedly unsatisfactory. The majority of bacteria found on books belonged to the chromogenic group, corresponding to the species found in atmospheric air. They were in general somewhat attenuated. Although the colon bacillus has been demonstrated to occur on the hands of schoolchildren,[3] the relative infrequency of this organism on soiled books would seem to indicate that it does not find on books the proper conditions for multiplication. This factor is too frequently lost sight of in the current conceptions of bacterial life. In pure water, for example, most bacteria soon die. In no instance could the diphtheria bacillus be isolated from books, although it was known that some of the Baltimore books, in the lots examined, had come from homes in which children were suffering from the lisease. Kenwood and Dove[4] have reached the conlusion from similar investigations that "there is prob.bly no material risk involved in the reissue of books ecently read by consumptives, unless the books are bviously soiled. Even then the risks are very slight."

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[1] Hilditch, W. W.: A Bacteriological Study of Soiled Paper Money, Pop. Sc. Month., August, 1908, p. 157.

[2] Laubach, C. A.: The Possible Rôle of Books in the Dissemination of Contagious Diseases, Johns Hopkins Hosp. Bull., 1916, xxvii, 183.

[3] Winslow, C.-E. A.: The Occurrence of the Colon Bacillus on the Hand, Jour. Med. Research, 1903, x, 463.

As a practical outcome of the recent studies in the acteriology of books it appears, in accord with Lauach's findings,[2] that pathogenic bacteria can seldom e isolated from books which have been handled by ick patients, and there is, therefore, no empiric reaon for maintaining that books serve as vehicles of nfection. Direct sunlight and diffuse daylight are the nost efficient germicides for organisms found in ooks, as they are for the same organisms under other onditions. Since, however, pathogenic bacteria, like he typhoid bacillus and diphtheria organism, can be ecovered from artificially infected books under varius circumstances after long periods of time, and since he diphtheria bacillus does not lose in virulence durng this period, there are sufficient reasons for insistng on the thorough disinfection of books which have een handled by patients.

THE IRRITABILITY OF THE STOMACH

The heart is developed from a muscular tube in vhich there is assumed to be muscular continuity hroughout. Although the primitive vertebrate heart s formed by a modification of this tube, the musculaure of the chambers is continuous throughout. In he adult heart of man the anatomic relations of the lifferent cavities have become considerably modified n the course of development. The sinus venosus of he lower forms is now represented merely by a bit f specialized tissue at the termination of the coronary inus in the right auricle and of the superior vena cava vhere it serves as the "pace maker" of the heart beat. he two accumulations of more primitive tissue known s the sino-auricular node and the auriculoventricular ode play an important rôle in the functions of the ardiac tissue as an organ.

The stomach may also be studied from the point of iew that it has evolved from a simple tube much as he heart has been enlarged and specialized. Reasonng from the grounds of comparative anatomy and mbryology, Alvarez[5] maintains that we should expect o find the remnants of the primitive intestinal tube long the lesser curvature. These theoretical considrations led to the discovery that strips of muscle from ifferent parts of the stomach wall vary markedly in heir tendencies to rhythmic activity, in the rates of ontraction, and in the forms of the curves. The most hythmic region was found on the lesser curvature next o the cardia. The rate of contraction was generally faster and the rhythm more regular in the strips from the lesser curvature than in those from the greater curvature.

According to the most recent observations of Alvarez at the George William Hooper Foundation for Medical Research at the University of California Medical School, the developmental peculiarities of the stomach correspond with differences in the irritability and latent period associated with the differences in contractility. Thus in some of the laboratory animals the latent period for faradic, galvanic and mechanical stimuli is shortest around the cardia and along the lesser curvature as far as the incisura angularis. These limits include also the most irritable part of the stomach. The region of the greater curvature and fundus is much less irritable and often fails to react at all. The pyloric ring is more irritable and reacts more promptly than does the rest of the antrum. The duodenum is much more irritable than the pyloric antrum. The posterior surface of the stomach is a little less irritable than the anterior surface, and the latent periods are longer. With the exception of the cardia and lesser curvature, the stomach in situ is often quite refractory to stimulation in its cardiac half. This seems to be due to nervous inhibition as it is marked in the excised stomach, and less marked in strips of muscle cut from the fundus or greater curvature. It seems likely that the nervous mechanism serves more to restrain the muscle — to keep it from reacting to every stimulus — than to render it more irritable.

A few experiments performed by Alvarez on human stomachs suggest that the findings on the other species will be confirmed in the case of man. He also announces his agreement with Meltzer that it is quite hopeless to attempt to influence the stomach therapeutically by intragastric or abdominal electricity. The refractoriness of the stomach in situ, particularly when stimulated through the mucous membrane, is so great that even powerful currents will produce no motor effect.

SOME HYPOTHESES CONCERNING VARIATIONS IN THE CONTENT OF BLOOD SUGAR

The widespread interest which has been manifested recently with respect to the concentration of the sugar in the blood has naturally prompted hypotheses in relation to its significance and to the cause of the variations that may occur. The pathologic variations, such as the marked increases in the blood sugar content found in diabetes or renal impairment, need not be considered here. Even under admittedly physiologic conditions detectable alterations in the sugar content may arise as the result of either the dietary or bodily incidents. What do they signify?

The ingestion of sugar or other carbohydrates leads to a rise in the blood sugar in man. The extent of this increase now appears to be variable to such a degree as to raise the question whether the response of the individual in apparent health is likely to be the same under different conditions. Graham[1] has lately reported from the laboratories of St. Bartholomew's Hospital, London, new data which have the unusual value of being obtained from a single person at many intervals over a long period of time. In confirmation of earlier observations they show the change in the blood sugar after a carbohydrate meal; but they also suggest that the height to which the level of the blood sugar rises varies with the general condition of the individual and the rise which occurs during fatigue may be pathologic. According to Graham a dose of 100 gm. of glucose produces a sudden rise in the blood sugar in adult men which may be apparent within ten minutes and usually reaches the maximum in twenty minutes. The sugar usually reaches its original level in from one to one and one-half hours. Under conditions which cause fatigue, the blood sugar rises to a greater height and takes from three to four hours to fall to its original level.

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[4] Kenwood, H., and Dove, E.: The Risks from Tuberculous Infecon Retained in Books, Lancet, London, 1915, ii, 66.

[5] Alvarez, W. C.: Am. Jour. Physiol., 1916, xl, 585; Differences in ritability and Latent Period in Different Parts of the Wall of the omach, Am. Jour. Physiol., 1916, xli, 321.

The rapidity with which the absorption of the sugar from the intestines proceeds and with which the level of the blood sugar rises are rather startling, and the short duration of the rise in healthy adults is equally astonishing. One of the hypotheses regarding the handling of the sugar absorbed from the bowel postulates that it is promptly taken up from the portal circulation by the liver in which it becomes deposited as glycogen. Following this it has been assumed that the rise in blood sugar observed after a meal may be due to a failure of the liver to take up all the sugar from the portal vein when it arrives with a sudden rush after a heavy carbohydrate meal. Graham replies to this by remarking that when it is considered that this rise in the blood sugar takes place two to three times a day in healthy people it seems most unlikely that the liver should be caught napping each time and allow some sugar to escape into the general circulation. Hence it seems probable that the "extra" sugar is either going to be used at once or is on its way to another storehouse. Some sugar is certainly used at once, as the respiratory quotient rises soon after a meal; but the greater part of it must either be stored in the muscles, liver, etc., or be laid down as fat.

If it proves to be true that the normal rise in blood sugar after a meal is not due to a failure on the part of the liver to take up the sugar, but that the "extra" sugar is on its way to the muscles and other storehouses, the rise which Graham finds taking place in fatigue might be due to a slight diminution in the power of the muscles and other depositories to take up sugar as quickly as usual. Consequently in fatigue there is more sugar circulating in the blood than usual and the time taken by the tissues to take up the sugar is longer than usual. Graham believes that this condition is very suggestive of the early stages of the alimentary glycosuria which occurs in elderly people. In these patients sugar is passed very soon after a carbohydrate meal and is accompanied by a marked rise in the blood sugar. It seems probable to him therefore that this form of glycosuria is also due to a failure on the part of the tissues as it takes place so soon after meals.

These views relating to blood sugar in fatigue are not easily harmonized with the widely accepted hypothesis of Cannon.[2] If we may associate fatigue with the results of struggle, according to Cannon the increased concentration of sugar in the blood of animals during intense emotions, together with the mechanism by which the increase is brought about, may be considered as a physiologic adaptation. According to this idea the increased amount of sugar that frequently is present in the blood during an emotion is for the purpose of supplying the muscles with the increased energy required for the physical activity necessitated by the emotion. Cannon has interpreted such excess of sugar as the result of an excessive secretion of the suprarenal glands. The organism, he remarks, which with the aid of increased suprarenal secretion can best muster its energies, call forth sugar to supply the laboring muscles, lessen fatigue, and send blood to the parts essential in the run or the fight for life, is most likely to survive.[3]

To the conflicting views which look on a higher blood sugar content in fatigue either as evidence of inadequate storage capacity on the part of overtaxed tissues or as indication of overmobilization of carbohydrate to assist in the work antecedent to the fatigue, further complications may be added through the researches of Lee and Scott,[4] who have reported a decreased concentration of sugar in the blood as the effect of the depressing atmospheric conditions represented by high temperature and humidity. They suggest that if there is a physiologic adaptation of the fuel supplied to the increased amount of work to be done, it seems not unreasonable to believe that the reverse may also be true. In other words, when it is physiologically fitting that the animal reduce muscular exertion to a minimum, in order that the output of heat may be as low as possible, as in a hot and humid environment, the supply of fuel will be lowered correspondingly. The assumption that less sugar is mobilized in response to a lessened heat requirement of the organism adds another to the varied hypotheses as to the causes of alterations in the content of blood sugar from time to time in a reasonably normal individual, thus serving as a reminder that the last word on this subject has yet to be pronounced.

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[1] Graham, G.: Variations in the Blood Sugar in Health, Jour. Physiol., 1916, l, 285.

[2] Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, 1915.

[3] Cannon, W. B.: The Emergency Function of the Adrenal Medulla in Pain and the Major Emotions, Am. Jour. Physiol., 1914, xxxiii, 372.

[4] Lee, F. S., and Scott, E. L.: The Action of Temperature and Humidity on the Working Power of Muscles and on the Sugar of the Blood, Am. Jour. Physiol., 1916, xl, 486.

CHICAGO'S DIETETIC EXHIBITION

In H. G. Wells' fantastic story entitled "The Food f the Gods," one of the characters discusses the sup- osed eccentricities of the chemist and the physiologist, vho are represented to be engaged in the practical nvestigation of this great boon to the world. He dds: "And that you will find the case with 'scientists' ll the world over. What there is great of them is n annoyance to their fellow scientists and a mystery o the general public, and what is not is evident." Had his burlesque of the men of science been written durng the past few days, one might well have concluded hat its author was thinking of the widely heralded diet squad" which has lately given Chicago a promi- ent place on the front pages of the daily papers. One f these,[1] for example, quotes the "health authority" s saying: "If you are paying more than 40 cents a lay for your food you are wasting your money. . . . This [health] department believes it is not going eyond its proper province in tackling the proposition f showing the Chicago public what it believes the est method of overcoming the difficulty." A group of welve volunteers is accordingly enlisted to partake of elected menus which must not cost more than 40 cents day for each person, "in the hope that housewives nay learn how to serve better meals more cheaply." he criterion of adequate nutrition is stated to have een the body weights of the subjects.

So far as such a program is an attempt at popular ducation in the planning of meals, marketing, etc., it elongs in the sphere of home economics and houseold arts, and concerns the medical man only indi- ectly. But the activities of a bureau of health are f more direct interest to the physician. He quite aturally asks what factor of health conservation is nvolved in this propaganda, what novelty it intro- uces, and how valid are the methods employed and e deductions made.

Certainly there is nothing unique in the purchase of dequate nutrition at 40 cents per day per person, even n these "war times." It is a familiar theorem that a amily ought not to spend more than half of its income or food. On the basis of the 40-cent figure just uoted, the average workingman's family of five would ay two dollars a day for its rations, postulating an come of about $120 a month; yet many a family lives n an income of half that amount. There are many ata available to show that in the conventional family f two adults and three children an average of 25 cents er day per person can be made to nourish them. uch provision obviously does not permit elaborate enus; but when it is contrasted with the 40-cent gure, supposedly an unusually restricted allowance by e very fact that the "test" has been undertaken at is low price level, the "problem" loses all elements uniqueness.

Let us examine the real problem of adequate nutrition at a low cost in a more critical manner. The average adult requires 3,000 calories a day in the form of food fuel. If only $25 is spent each month for food, little more than 80 cents a day is available for this purpose. For a family of five requiring, say, 12,000 calories, this means only 7 cents for a thousand calories. How much more helpful it would be to teach the needy something of fuel values in relation to cost, as Mrs. Rose[2] has lately attempted in an instructive manner. If housewives understood that foods can be classified into many groups, including some costing less than a cent per hundred calories, and that the range of choice is very large; if they could be made to realize that a mere bill-of-fare is no guarantee of appropriate nutrition; if they were encouraged to appreciate the significance of food values and to understand, for example, that a can of tomatoes is little else than flavored water which gains its popularity in part because of flavor and color; if they became convinced of the false economy of restaurant living with its high calory cost in the form of apparently low priced dishes — if these and innumerable other details such as are today ascertainable[3] were disseminated intelligibly, some commendable progress might be made.

The newspaper notoriety of a few diet recipes is a poor substitute for the best that modern nutrition investigations can teach. Mendel[4] has lately emphasized anew that the nutrition of the great mass of the people is a question of the highest importance, deserving far more attention than it has hitherto received. Man no longer depends on instinct alone for guidance in the affairs of life, even in matters of diet. Instruction in domestic science ought to become a means of solving some of the problems of applied nutrition; but progress in this connection does not come solely from menu-making.

In addition to its lack of intrinsic novelty or scientific innovation, the Chicago exhibition — we hesitate to call it an experiment — fails to afford any adequate index of the satisfactory nutrition of its subjects. Every physiologist knows how elusive an occasional body weight may be in this respect. A loss of body protein or fat is often temporarily obscured by the deposition of water in the tissues. Even somewhat sustained gains or maintenance of weight sometimes fail to betray food deficiencies. A nursing mother needs lime-bearing foods; a growing child requires milk; one-sided diets must be avoided with discrimination; adequate calories must include a modicum of protein. Nothing less than a critical and truly scientific estimate will insure the inclusion of these and other essential provisions. An education of the public in these directions would represent a real advance.

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[1] City Diet Squad Planned in War on Living Cost, Chicago Herald, v. 18, 1916.

[2] Rose, Mary Swartz: Feeding the Family, New York, The Macmillan Company, 1916.

[3] Compare, for example, the data in Gephart, F. C., and Lusk, Graham: Analysis and Cost of Ready-to-Serve Foods, Chicago, American Medical Association, 1915.

[4] Mendel, L. B.: Changes in the Food Supply and Its Relation to Nutrition, Yale University Press, 1916.

Current Comment

A DOUBTFUL COMPLIMENT TO EVANSVILLE

"Doctors Cavrill and Culver, the two doctors of the Interstate Doctors, who have been in the city several days looking the field over for a site for the new Indiana institute, have at last decided that Evansville is a most promising city in Southern Indiana and accordingly the institute will be located here."

This is the first paragraph of an advertisement sent us during the past few days from Evansville, Ind. The Interstate Doctors, as the readers of The Journal know, is an organization of quacks which locates in "easy" communities, relieves the credulous sick and near-sick of their money and leaves when the glittering fiction in its advertisements has been dimmed by the accumulated force of facts. Although our records, based on the official records of every state in the Union, are exceedingly complete, we find no reference to any "Dr. Cavrill." Our files show that Indiana has a Dudley M. Culver who was advertised as one of the "consulting physicians" of the Dr. J. W. Kidd Company's mail-order fakery that operated from Fort Wayne for a good many years but finally went out of business when the federal authorities charged it with conducting a fraud. We also find reference to a "Dr. Culver" who was operating in Elkhart in 1914 under the name "United Doctors," and the terms "United Doctors" and "Interstate Doctors" seem to have been used with an indiscriminating flexibility by the same organization of quacks. Goshen, Ind., had an experience with the Interstate Doctors in the spring of 1915. Goshen, however, refused to be "easy." It has a wide-awake organization of business men known as the "Retail Merchants' Association." According to the Goshen *Daily Democrat* of April 13, 1915, the Retail Merchants' Association of that town suggested to the Interstate Doctors that Goshen was really not a healthy place for quacks to locate. Quoting from the newspaper: "When an ultimatum was laid down by the Retail Merchants' Association, the doctors . . . decided to give up without making a contest. They reasoned a fight would be too expensive." If the people of Evansville had a full realization of what concerns like the "United Doctors," "Interstate Doctors," "Botanical Doctors" and other euphoniously named quack organizations really were, it is not likely that any newspaper would publish the fact that the quacks, after looking over a city, decided that it was a most promising location! It is not likely, for instance, that an item such as this would appear in any newspaper even at "special" advertising rates:

"Flashy Dick, the well-known 'green-goods' man, and Bill Sykes, the second-story artist, were in town recently looking over the prospects of business. , After sizing up the citizens of our city, they decided that Blankville is a most promising locality and decided to locate here at least for a time."

No. It is hardly conceivable that any newspaper would publish an item of this sort even if offered as advertising. There are certain forms of deceit that the public is so familiar with that it needs little warning against them; there are other humbugs, of a semitechnical nature, with which the public is not so well acquainted. The operations of itinerant and semi-itinerant quacks belong to the latter class. It remains to be seen whether Evansville will go on record as belonging to the "sucker" class.

TOXICITY OF SALVARSAN

From the reports of Ormsby and Mitchell, Moody and Ellis, in this issue of The Journal, it would appear that at least some of the salvarsan recently on the market has been unusually toxic. One wonders how many others have had similar experiences. Since the war began the supply of salvarsan and neosalvarsan has been short, at times seriously so. Meanwhile, other preparations, such as diarsenol, made in Canada, and arsenobenzol, made in Philadelphia under the direction of Professor Schamberg, have been more or less used. Professor Schamberg, as will be noted from his statement elsewhere in this issue, ceased to furnish his preparation as soon as the patentees were again able to supply the foreign product. This is to be regretted since it seemed to be giving perfect satisfaction, and especially since it could be furnished to hospitals and to charitable institutions at a price much less than the foreign product. Diarsenol, however, is still being used, probably to a considerable extent, although not openly imported.

HEALTH CONSERVATION IN STEEL MILLS

The United States Bureau of Mines urges[1] the importance of extending the "safety first" idea so as to include "health first." The prevention of ill health is discussed as a plain business proposition, of quite as much importance in industrial life as the prevention of accidents. As a first step in health conservation, a physical examination of all employees is recommended, so that infectious or contagious diseases may be discovered in their incipience and their spread controlled. Undue fatigue, caused by laborious or fast work, long periods of work, monotony or complication of muscular movements, constant strain or standing, or lack of variation of periods of relaxation, constitutes one of the most common causes of occupational disability. High temperature or humidity, excessive glare or improperly placed lights, loud or continued noises and constant vibration also produce fatigue. Emphasis is laid on proper illumination as intimately associated with efficiency, safety and bodily welfare. In some mills, increased efficiency varying from 2 to 10 per cent. has been reported as a result of improved lighting conditions. Adequate ventilation includes air removal and the removal of harmful products. Special conditions found in steel mills are fumes, gases and dust, and harmful conditions of temperature and humidity. The most effective means of removing dust, in Watkins' opinion, is by a carefully designed and constructed exhaust system. Continued exposure to high temperature and humidity increases susceptibility to disease and should be counteracted by provisions for free circulation of air, lowered temperature, minimum length of exposure to heat, ample bathing facilities and plenty of drinking water. All provisions for the well-being of the workers may fail unless enforced by education. This may be carried on by the plant physician and by means of circulars, some suggested titles for which are: Protect Your Eyes; See the Doctor; Workmen, Take Care of Your Health; Watch Your Teeth; Don't Go Home Dirty; Watch Your Feet.

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[1] Watkins, J. A.: Health Conservation at Steel Mills, Technical Paper 102, U. S. Bureau of Mines.

SANATOGEN — THE HUMORS OF WAR

Even the European war with all its horrors is responsible for some human actions which add to the gaiety of nations. By turning to the London Letter[1] in this issue, readers of The Journal will learn that the British-made Sanatogen, which for some years has been made in England, is no longer to be manufactured — as Sanatogen! This glorified *Schmierkäse* combination is now going to be made in the British Isles by a British concern and sold under another meaningless but equally euphonious name. The English have evidently made up their mind that if they are going to be humbugged it shall not be with a German product. Surely this is patriotism raised to the *n*th power. One is reminded of the classic advertisement of a storekeeper: "Why Go Elsewhere and Be Humbugged; Come in Here."

INDUSTRIAL DISEASES IN NEW JERSEY

Under the New Jersey law, lead, phosphorus, arsenic or mercury poisoning contracted as a result of occupation is reportable. The state board of health report for 1915 shows that there were reported during the year fifty-six cases of lead poisoning, two cases of mercury poisoning, one case of arsenic poisoning and six cases of anthrax. The board, while required to collect statistics of industrial diseases, has no authority to regulate conditions in factories in which such diseases occur. Such reports, while interesting, are comparatively valueless unless supplemented by amendatory legislation, giving the state board power to deal in a remedial way with the conditions which produce diseases.

PROPOSED AMENDMENT OF BRITISH SOCIAL INSURANCE ACT

The British Social Insurance Act was passed in 1911. In January, 1916, a committee was appointed to consider amendments to the financial provisions of the law and to recommend measures to simplify its administration. The committee has now reported. During the three years in which the law has been in operation the contributions of the male beneficiaries of the act were in general sufficient, although some particularly hazardous occupations or unhealthy localities consistently show a rate of sickness in excess of the average. The committee finds, however, that the amount paid by women beneficiaries has fallen short of the requirements. Married women appear to be subject to a greater amount of sickness than women generally. The committee recommends releasing a part of the contributions to the sinking fund to meet the current needs of the approved societies, so as to provide an immediate increase in the amount available for the payment of benefits to women, the accumulation of a special reserve fund and the creation of contingency and special risk funds. The committee also recommends a number of amendments affecting principally the relations of the various approved societies to the various funds established by the law.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Physician's Wife Dies.—The death of Dr. Philip Mills Jones, San Francisco, November 27, was followed, two days later, by the death of his widow, also from pneumonia. They were buried together, December 1.

Personal.—Dr. Hjalmar Kylberg, Merced, has been elected republican assemblyman from the forty-ninth district.——Dr. Leo Eloesser, assistant professor of surgery at Stanford University, has received a cross of merit from the Grand Duke of Baden, for his services in the German military hospital in Baden.

COLORADO

Personal.—Dr. John S. Fox, Silverton, has returned after a year and a half of service in an American hospital unit in Northern France.——Dr. Richard W. Corwin, chief surgeon of the Colorado Fuel and Iron Company, has returned after several months in France as assistant to Dr. Alexis Carrel.——Dr. William H. Halley, Rouse, has been appointed assistant chief surgeon of the Colorado Fuel and Iron Company, with headquarters at Pueblo.——Dr. Paul W. Carmichael, Denver, has been appointed camp physician for the Colorado Fuel and Iron Company at Rouse.——Dr. Charles A. Powers, Denver, has returned after six months' service at the American Ambulance Hospital, Paris. He will resume his work there in April, next.

Medical Library Opened.—The new library building, erected for the Medical Society of the City and County of Denver, at 620 Court Street, was formally opened, November 29, with a banquet, reception and dedicatory address. The dinner was attended by nearly 200 guests, and at its close the formal dedicatory exercises took place. The address of the evening was delivered by president Livingston Farrand of the University of Colorado, and dealt with "The Histories of the Greater Men in Medicine." This was followed by a congratulatory address by Dr. Fielding H. Garrison, Washington, D. C., on behalf of the Library of the Surgeon General's Office, United States Army, and addresses by members of the society. The new building is a model of its kind; the lighting and sanitary arrangements are ideal; there is a floor space of 125 by 50 feet, with 315 feet of new double-faced steel stacks. The library was started in a very small way in 1893 as the Colorado Library Medical Association, and now subscribes for about 225 current medical journals and has a library of more than 18,000 bound volumes.

ILLINOIS

New Hospital Opened.—The new Robinson Hospital is completed and Drs. Herbert N. Rafferty, Cyrus E. Price, Jonas W. Carlisle and A. Lyman Lowe have moved their offices into the new building. A reception was tendered to the local neighboring physicians at the hospital, November 24, and it was opened on the following day.

After-Care of Infantile Paralysis Victims.—The Illinois State Board of Health has sent to New York a representative to study the methods there employed for the care of patients with infantile paralysis and the paralysis and deformities following. It is intended to establish clinics in every county in Illinois where patients will be given free the benefit of the best possible treatment.

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[1] Page 1771.

Personal.—Drs. Brian and Edwards, St. Francisville, sustained painful injuries, November 18, by the overturning of their automobile, while making a professional call.——Dr. Franklin B. Van Nuys, Arcola, announces that he will retire from practice and will devote his entire attention to the management of his farm near Vandalia.——Dr. Lincoln S. Lacy, Pittsfield, has been appointed surgeon of the Wabash System, succeeding Dr. Samuel B. Peacock, resigned.

New Antituberculosis Officers.—At the annual meeting of the Illinois Association for the Study and Prevention of Tuberculosis, held at Springfield, November 9 and 10, a new constitution and by-laws was adopted and the name of the organization was changed to the Illinois Tuberculosis Association and the following officers were elected: president, Dr. George T. Palmer, Springfield; vice presidents, Dr. William A. Evans, Chicago; Hon. E. M. Mangan, Aurora; Dr. Charles B. Johnson, Champaign, and Dr. Lewis C. Taylor, Springfield; secretary, Dr. Jeanette C. Wallace, Peoria, and treasurer, Mr. David R. Forgan, Chicago, and executive committee, Drs. James W. Pettit, Ottawa; Ethan A. Gray, Chicago; Edward W. Fiegenbaum, Edwardsville; Orville W. McMichael, Chicago; Mr. George W. Perkins, Chicago, and Mrs. L. A. Adams, Jacksonville.

The County Sanatorium Question.—At the last election eight counties in Illinois voted for the establishment of a county sanatorium and two against it. In Adams County the majority for the sanatorium was 6,831; in Champaign County, 6,079; in Kane County, 11,038; in La Salle County, 9,501; in Livingston County, 3,538; in Morgan County, 5,036; in McLean County, 1,947, and in Ogle County, 814. The sanatorium proposition was defeated in Greene County by a majority of 725; in Rock Island County by a majority of 1,203. In Champaign and McLean counties the votes cast by men and women were not separated but in the other six counties the following majorities for the sanatorium prevailed: Adams County, women 3,303 and men 3,528; Kane County, women 5,358 and men 5,680; La Salle County, women 5,052 and men 4,449; Livingston County, women 2,262 and men 1,276; Morgan County, women 2,761 and men 2,275; Ogle County, women 868 for and men 544 against the sanatorium. In the two counties in which the sanatorium proposition was defeated the majorities were as follows: Greene County, women 168 and men 557; Rock Island County, women 5,427 and men 6,612.

Chicago

Chicago Institute of Medicine.—At the annual meeting of the Chicago Institute of Medicine, held December 5, Drs. Frank Billings, N. S. Davis and Frank S. Johnson were elected members of the board of governors.

Personal.—Dr. Otto L. Schmidt was elected second vice president of the Chicago Historical Society at its annual meeting, November 21.——Dr. Hayes W. Carlin suffered a fracture of the left leg by the overturning of his automobile, November 20.

IOWA

Poliomyelitis.—On account of the presence of infantile paralysis in Calhoun County, with three cases at Lohrville, the school authorities decided on November 18, to close the schools of that place until December 4.

Hospital Notes.—The new wing of the Evangelical Deaconess Hospital, Marshalltown, was formally dedicated, November 15.——A campaign for the People's Hospital, Waterloo, has resulted in subscriptions of $22,000 in fourteen days. The amount required is $75,000.

Medical Library Urged.—The state librarian in his annual report urged the governor to recommend the establishment of a medical department in the state library. It is proposed to ask for an annual appropriation of $2,000 for the purchase of books and magazines and their transmission to the physicians of the state, and $2,400 annually "as a salary for an expert librarian, trained in medicine and surgery and in the languages in which medical and surgical literature is commonly written and published."

Typhus Fever.—Several cases of typhus fever have occurred at the Atchison, Topeka and Santa Fe Railway Employees' Hospital, Fort Madison. Six cases have been reported, with one death. The railway company took prompt action and in cooperation with the state board of health has the condition well in hand.——A special disinfecting car of the road has traversed the lines of the road in Illinois and Iowa, fumigating and disinfecting all Mexican employees and their clothing and bedding, and the process will be carried out throughout the entire length of the line.

Society Elections.—At the twelfth annual meeting of the Second District Medical Society of Iowa, held in Davenport, November 12, the following officers were elected: president, Dr. Elon B. Gilbert, Geneseo, Ill.; vice presidents, Drs. Henry Matthey, Davenport, and J. Lynn Crawford, Cedar Rapids; secretary-treasurer, Dr. John V. Littig, Davenport.——At the annual meeting of the Scott County Medical Society, held in Davenport, November 10, Dr. James Dunn was elected president; Dr. Frank Neufeld, vice president; Dr. Roscoe P. Carney, secretary and Dr. Sidney G. Hands, treasurer, all of Davenport.

Personal.—Dr. Henry Matthey, Davenport, has returned after several months' service with the German Red Cross.——Dr. Arthur C. Echternacht, Mason City, who has been on border duty with the Iowa National Guard, has returned home on a furlough.——Dr. Lee M. Coffey, Keokuk, who has been ill with typhoid fever, has recovered and resumed practice.——Dr. Chanley J. Lukens, Albia, is undergoing treatment at St. Joseph's Hospital, Ottumwa.——Dr. David Q. Storie, Chariton, is reported to be seriously ill.——Dr. Henry P. Mason, Wilton, is under treatment for septicemia in a hospital in Chicago.

MAINE

Personal.—Dr. Warren G. Sawyer, Madison, has been appointed medical examiner for Somerset County.——The town of Old Orchard has been sued by Dr. Harold A. Pingree, Portland, to recover $142, alleged to be due him for an operation and attendance on a patient in October of last year. It is said that Dr. Pingree was engaged by a member of the Board of Selectmen of Old Orchard to attend the patient.

New Officers.—At the annual meeting of the Maine Antituberculosis Association, held in Bangor, November 3, the following officers were elected: Dr. William C. Peters, Bangor, president, and Drs. John E. Wadsworth, Skowhegan, and Elmer D. Merrill, Foxcroft, vice presidents.——The Penobscot County Medical Association held its sixty-second annual meeting in Bangor, November 19, and elected Dr. William P. McNally, president; Dr. John B. Thompson, vice president, and Dr. Harris J. Milliken, secretary-treasurer.

MARYLAND

Japanese Professor Inspects Hospitals.—Dr. Waichiro Ocado, professor of medicine at the University of Tokyo, who is making a tour of inspection of the hospitals of the United States, visited Baltimore, November 22.

Laboratories Moved.—The research departments of Johns Hopkins Medical School are being transferred to the new Hunterian Laboratory Building, located at the corner of Wolfe and Madison streets. The building is five stories in height, constructed of red brick with sandstone trimmings, and will house the school library and all research laboratories.

Typhoid at Goucher College.—Seven cases of typhoid fever have been found among the students of Goucher College, and a rigid investigation is being made by the health department. The situation is regarded as serious, but officials at the health department as yet have been unable to ascertain the source of the contagion. Three of the students suffering from the disease live in the dormitories of the college, and the others reside at their homes in the city.

Personal.—Dr. Oscar H. McNemar, Odentown, is under treatment at the Emergency Hospital, Annapolis, for an accidental gunshot wound of the face, neck and shoulder, received while hunting, November 14.——Dr. Joseph C. Bloodgood, Baltimore, delivered a lecture at Greenville, S. C., November 13, on "The Prevention of Cancer."——Capt. Clarence P. Erkenbrack, Baltimore, who has been on duty at the border with the First Maryland Infantry, has resumed his duties as health warden of the twenty-second ward.

MASSACHUSETTS

Coroners Appointed.—The following appointments of medical examiners are announced: Dr. Edward S. Winslow, Hampshire District, succeeding Dr. Clarence I. Sparks, Easthampton; Alphonso V. Bowker, Athol, reappointed; Dr. Harry

B. Holmes, Adams, reaapointed; Dr. Horace K. Foster, Peabody, reappointed; Dr. Homer Z. Leach, Hardwick, succeeding Dr. William J. Heffner, Hardwick.

Poliomyelitis.—The opinion was expressed unofficially by the health authorities of Massachusetts, December 1, that the poliomyelitis epidemic had died out in the state. No new cases had been reported during the previous forty-eight hours. The mortality figures have not been compiled, but it was estimated that there had been about 100 deaths. Since January 1 there had been 1,892 cases, 179 of which had been reported n November, as against 702 in October.

After-Care of Infantile Paralysis—The Orthopedic Department of the Children's Hospital, Boston, offers a course, which began December 1, in muscle training and in the principles of nursing after-care of infantile paralysis. The course is an all day course, covering a period of about six months and s opened to a limited number of properly qualified women. The fee, which is payable in advance, is $100, and the money received will be used for the maintenance of the clinic. Robert W. Lovett is in charge of the course.

Physicians Fined.—Dr. Joseph B. Twadelle, Boston, who was indicted last month, charged with having facilitated transportation of smuggled heroin and morphin, is said to have pleaded guilty in the federal court and to have been fined $500.——Dr. Louis A. Hermann, Boston, charged with a similar offense, is said to have been convicted of the alleged sale of drugs and fined $1,000.——The State Board of Regisration and Examination, on November 16, was reported to have revoked the licenses of these two physicians.

Personal.—Dr. Daniel B. Reardon, Quincy, and Allen Greenwood, Waltham, both of whom served in the Harvard Medical Unit on the western front, delivered addresses before the Boston chapter of the American Institute of Bankers, November 16. The addresses were illustrated by photographic slides.——Dr. Raphael C. Thomas, Boston, sailed, December 8, for the Philippine Islands, where he will be in charge of the Union Hospital, Iloilo.——Dr. Herbert J. Cronin has been appointed accident prevention physician of Boston.——Dr. Edward P. Bagg, Jr., has been reappointed station physician of the Holyoke Hygiene Association, and Dr. Fred H. Allen has been elected medical director of the association.

MICHIGAN

Appropriation for Sanatorium.—Supervisors of Wexford County have appropriated $3,000 for a tuberculosis sanaorium.

Marine Hospital at the Soo.—A station has been estabished by the United States Public Health Service in the Federal Building, Sault Ste. Marie.

Social Service Course.—Under the direction of the Detroit Board of Health, courses of lectures in social service are being given on Mondays and Fridays at the Board of Health Clinic.

Smallpox at Traverse City.—There have been fifty-five cases of smallpox reported at Traverse City. Of these, wenty-five have already been released from quarantine and no further outbreaks are now expected.

Personal.—Dr. Victor C. Vaughan, Ann Arbor, delivered a ecture at the Baptist Church, Manistique, November 22, on Euthenics, or the Influence of Environment."——Dr. James Sooy has been appointed city analyst of Flint.——Dr. Todd . Wilson has resigned as a member of the staff of the Negaunee Hospital and has moved to Grand Rapids.——Dr. George Manting, Holland, has been appointed surgeon to the American Steel Company at East St. Louis, Ill.——A banquet was held by the citizens of Clare, October 24, in honor of Dr. Thomas H. Maynard, who has just completed a half century of medical practice.

MONTANA

Hospital Notes.—The New Conrad Hospital, erected by the Conrad Benevolent Association, was formally dedicated to he public service, October 8. The building is a three-story brick structure, containing thirty rooms, with all modern acilities. On the first floor there is a ward which will accommodate ten patients. The institution is under the charge of H. W. Power, W. L. DuBois and W. F. Patteron.——More than $12,000 of the fund required for the Deaoness Hospital, Bozeman, has already been subscribed.——A two-story and basement brick addition to the White Fish Hospital is under construction.

NEBRASKA

Personal.—Dr. Ward W. Hedlund, Lincoln, has been appointed third assistant physician at the Hastings State Hospital, succeeding Dr. Danielson, resigned.——Dr. Arthur J. Wilson, Omaha, fell and fractured his skull. He is under treatment at St. Joseph's Hospital.

Broader Plane for Health Matters.—A meeting was held in Lincoln, November 9, at which committees from each medical society of the state, together with a committee from the Health Officers' conference and the secretaries to the state board of health, formulated a bill to present at the coming session of the legislature regarding the reorganization, on a broader plane, of the health and sanitary matters of the state. Every principle of the bill submitted was approved by the joint committee, and a committee consisting of one member from each organization was selected to complete the new bill.

NEW YORK

New Sanatorium.—Under the guidance of Deputy Commissioner Dr. Charles S. Press, Troy, the campaign for the erection of a new tuberculosis sanatorium for Rensselaer County was carried to a successful conclusion at the last election.

Personal.—Dr. Karl Connell, Elmira, who has been serving in Europe for nearly two years and has recently returned from the Mexican border, delivered an address before the Elmira Academy of Medicine, November 15.——Dr. William L. Culpepper, assistant city bacteriologist and instructor in hygiene and public health at the Syracuse University College of Medicine, has resigned to become field director of the International Health Board in South Texas.

Medical Inspection Day.—Tuesday, December 5, was observed throughout the state as Medical Inspection Day. On this day, Dr. Hermann M. Biggs, commissioner of health, requested that the people of the state consult their physicians in order to determine whether or not they are in good health. The reason for this request was the fact that the death rate of individuals over 45 years of age is steadily increasing in the United States.

New York City

Court Decision Upholds Sanitary Code.—A decision recently handed down by Justice Rodenburg of the supreme court of the state upholds the right of a city to apply the blood test to ascertain whether a milk dealer is a carrier of typhoid fever.

Maternity Hospital to be Built.—At a meeting of the Maternity Hospital Society of East New York and Brownsville, held October 13, the chairman of the building committee reported that preparations had been made to break ground for the erection of the hospital in the early spring.

Harvey Society Lecture.—The fourth lecture in the twelve-lecture course of the Harvey Society will be delivered at the New York Academy of Medicine, December 16, by Prof. Henry H. Donaldson of the Wistar Institute of Anatomy and Biology, Philadelphia, on "Growth Changes in the Mammalian Nervous System."

Pneumonia Discussed.—At the December 7 meeting of the New York Academy of Medicine, pneumonia was the topic for the evening. Dr. Rufus I. Cole spoke on "The Nature of the Disease and the Serum Treatment." Dr. Alfred E. Cohn discussed "The Use of Digitalis," and Dr. Alan M. Chesney, "The Treatment by Optochin."

Fund for Paralysis Service.—Plans to raise an emergency fund of $1,000,000 for visiting nurse service and other activities of the Henry Street Settlement have been announced. Almost $600,000 has already been subscribed to the fund, which is being raised to meet the extra demands on the settlement, and largely on the service for the treatment of convalescence after infantile paralysis.

New York County Medical Society Elects.—At the one hundred and eleventh annual meeting of the Medical Society of the County of New York the following officers were elected to serve for the year 1917: president, Dr. J. Bentley Squier; vice presidents, Drs. Charles H. Peck and Lugwic W. Kast; secretary, Dr. Daniel S. Dougherty; assistant secretary, Dr. J. Milton Mabbot; treasurer, Dr. Frederic E. Sondern, and censors to serve for two years, Drs. William S. Gottheil, Ward B. Hoag and Alexander Lyle.

Civil Service Examination.—The municipal civil service commission states that applications will be received from

December 1 to December 15 for the position of physician for the examination of mentally defective children (psychiatrist), Grade 4. There is one vacancy to be filled in the position of senior physician for the examination of mentally defective children, with a salary of $2,520, in the board of education, and three vacancies for resident physicians for mental defectives with a salary of $1,500, in the department of public charities. The examination is open to all citizens of the United States.

City to Transport Paralysis Victims.—A meeting of the New York committee on the after-care of infantile paralysis patients met recently for the purpose of dissolving, because it was understood that the city had undertaken to carry the victims of last summer's scourge from their homes to the hospitals for treatment and back again. After a prolonged discussion, however, the committee decided to continue its work for a time. The charity department announces that enough money has been allowed for transportation and that as soon as they can decide on the best type of motor bus to use the work will be begun.

PENNSYLVANIA

Personal.—Dr. Anthony F. Myers, Blooming Glen, for twenty-three years secretary and treasurer of the Bucks County Medical Society, was presented by his fellow members with a watch and chain in recognition of his energetic service for the society.——Dr. George J. Van Vechten, Scranton, has been appointed director of the department of health of Scranton.——Dr. Edward S. Dickey, Pittsburgh, has returned after several months' service in the Russian army.——Drs. Irwin D. Metzger, Pittsburgh, and Calvin L. Johnstonbaugh, Bethlehem, have been reappointed members of the Bureau of Medical Education and Licensure.——Drs. Howard W. Arthurs and T. A. Hogan, Pittsburgh, have been appointed members of the Board of Dental Examiners.——Dr. Walter H. Brown of the Bucks County Medical Society has resigned as epidemiologist of the Massachusetts State Department of Health to take up work as executive officer of the Bridgeport, Conn., board of health.——Dr. Nathaniel E. Silsley, Scottdale, who was operated on in the Columbia Hospital, Pittsburgh, November 6, returned to his home, November 29, much improved in health.

Clean Milk Campaign.—The Northumberland County Medical Society has undertaken a thorough campaign of education for the obtaining of clean milk, and makes the following suggestion for incorporation in borough ordinances: (1) registration of all milk and ice cream dealers with the secretary of the borough board of health; such legislation including the filing with that official of (*a*) a U. S. Department of Agriculture score card on which each farm supplying milk or cream to the borough is given a rating of 70 per cent. or over by a competent physician or veterinarian, and (*b*) of a physician's certificate showing freedom from communicable disease on the part of all persons engaged in handling such milk before delivery to the consumer. Registration is to be renewed at the end of three months, and fees for same are to be arranged on a scale to cover monthly examinations of milk for traces of preservatives added in violation of state law. (2) Limitation to a reasonable period of the age of milk to be offered for sale or to be pasteurized for sale. (3) Forbidding repasteurization of milk for sale in the borough.

Philadelphia

Society's Twentieth Anniversary.—The Philadelphia Pediatric Society will celebrate its twentieth anniversary at the College of Physicians, December 12, and the speakers will include Dr. Frank Spooner Churchill, Chicago; Dr. Henry Dwight Chapin, New York, and Dr. John Howland, Baltimore. The meeting will be followed by a reception at the Hotel Rittenhouse.

Change in Drug Law.—November 29, in the final presentment made in the quarter sessions court, the November grand jury urged an immediate change in the law governing the sale of narcotics. Since the change in the Harrison Narcotic Law, drugs can easily be obtained with little money, and the number of patients and prisoners resulting from their use has increased to alarming numbers.

Medical Institutions About Philadelphia.—Hospital week, for the first time in Philadelphia, was observed, November 26 to December 3. The churches of the city were in charge. ——Following up the new plan of utilizing neighborhood hospitals for clinical study, the Kensington branch of the Philadelphia County Medical Society held its meeting, December 8, in the Kensington Dispensary for the Treatment of Tuberculosis.——The Pennsylvania School for Social Service was opened September 25, with over thirty pupils. Mr. Bernard J. Newman, formerly general secretary of the Philadelphia Housing Commission, is the new director.——The Home for Incurables will receive about $300,000 from the estate of the late T. Morris Knight, according to an inventory recently made.——During the past year the German Hospital treated free of charge 4,031 dispensary patients and 1,438 ward patients.

Personal.—Dr. Burton Chance has been made attending physician at the Wills Eye Hospital.——Dr. T. Hollingsworth Andrews, after 52 years of practice, has announced his retirement from active work.——Dr. Barton K. Thomas, Pottstown, has been made an instructor of clinical medicine in Jefferson Medical College.——Dr. Nelson M. Percy, Chicago, will deliver the 1916 Mutter lecture on surgical pathology at the College of Physicians, December 15. His subject will be "Pernicious Anemia, with Special Reference to its Surgical Management."——Dr. Simon Flexner of the Rockefeller Institute, New York, read a paper, December 6, before the College of Physicians on "Epidemic Poliomyelitis; Its Nature and Mode of Infection," and Dr. Haven Emerson, commissioner of health of the same city, delivered an address on "Some Practical Considerations in the Administrative Control of the Disease."

UTAH

Public Health Association Organized.—A local branch of the Utah Public Health Association was organized in Ogden, November 16, and Drs. Edward I. Rich, Walter E. Whalen and Robert S. Joyce were elected directors.

Typhoid Fever.—Typhoid fever is reported to be prevalent in Price and other places in Carbon County, and investigation by the secretary of the board of health disclosed the fact that the water supply is polluted. For several years the state board of health has issued warnings to residents of the county, and has called attention to the necessity for protecting the water supply.

WISCONSIN

Poliomyelitis.—For the week ending November 19 there were six new cases of poliomyelitis in the state at the following places: two at Galloway and one each at Kenosha, Arcadia, Milwaukee and Osceola. The total number of cases since July 1 was 459. The state health board, in its *Quarterly Bulletin,* calls attention to the fact that instant and drastic quarantine results when a case of poliomyelitis is reported, whereas measles elicits little attention from neighbors and citizens, although the death rate for measles is higher than that for poliomyelitis, and frequently measles shows that it possesses higher potentialities for complications following the disease.

University Extension Medical Teaching for County Societies.—The State Medical Society of Wisconsin has secured the cooperation of the full-time medical teachers of the University of Wisconsin and of Marquette University and has issued a circular to its component societies giving a list of these instructors, who are ready to respond to requests from county societies to take part in their scientific programs. The societies are expected to provide for the traveling expenses of the lecturers, and arrangements for assigning these men to places on the programs of the different county societies may be made either through the secretary of the state association or by the secretaries of the county societies, addressing the lecturers directly. The Wisconsin organization is planning from this beginning to develop a real graduate extension teaching course to be at the service of the medical profession of the state.

CANADA

Hospital Fire.—Fire partly destroyed Grace Hospital, Toronto, on the morning of November 28. The inmates, 116 adults and nineteen babies, were all removed in safety. Much praise is given to two house physicians and the nursing staff for their work in rescuing the patients.

Ontario Hospital at Orpington Doubled.—The Ontario government has sent instructions to England for the immediate preparation of plans and estimates for the enlargement of the Ontario Military Hospital at Orpington, England. When completed this will give a capacity for 2,014 beds, as against 1,040 as at present. For the present the medical staff will not be increased. All reports go to show that the work of the staff sent from Ontario has been eminently satisfactory to the English authorities.

Decision Regarding Watered Milk.—In the province of Manitoba a dairyman was fined $50 for selling watered milk. The prosecution was under the Public Health Act which provides that there shall be no appeal from any conviction under this act. Counsel for the dairyman brought an appeal before the Court of Appeal of the province, contending that it was *ultra vires* for the legislature of Manitoba to attempt to fix standards for milk or cream and that this function belonged exclusively to the Dominion government. The court, however, refused the appeal, declaring that it had no jurisdiction.

Feebleminded in Toronto.—The Public Health Section of the Academy of Medicine, Toronto, held a symposium on the feebleminded on November 30. Dr. St. Clair Hincks said that after two and one half years of investigation the results of 1,445 examinations have been compiled. Fifty-five per cent. of feebleminded persons examined are habitual criminals; 285 are habitual thieves, all of whom are still at large in the city; 59 take delight in burning down buildings; 120 have murderous tendencies; 60 per cent. of all the social victims on the streets are feebleminded, and 178 women were examined who were sex crazy, suffering from a vile disease. In 201 cases of absolute incorrigibility among feebleminded schoolchildren, examination showed 53 as being the victims of sexual immorality. Dr. Charles K. Clarke criticized severely the callous neglect of the feebleminded by the authorities.

Personal.—Mr. F. A. Dallyn, C. E., provincial sanitary engineer for Ontario, has left for Europe to study sewage and water problems.——Capt. Murray H. Patterson, attached to an English regiment as medical officer, and recently awarded the Military Cross for distinguished conduct in the field, is at his home in Chatham, Ont.——Capt. Arthur W. M. Ellis, son of Prof. William H. Ellis of the University of Toronto, has succeeded Lieut.-Col. George G. Nasmith. C. M. G., in charge of sanitation of the Canadian camps in France. Dr. Ellis was on the staff of the Rockefeller Institute, New York, when the war broke out, and went abroad with the first Canadian overseas force.——Capt. W. Harley Smith, Toronto, with the Ontario Military Hospital at Orpington, Kent, England, has been promoted to major.——Capt. A. Grant Fleming of the City Hall laboratory staff, Toronto, left for overseas in October with a draft from the C. A. M. C., training at Camp Borden.——Dr. Hamilton F. Biggar, an early graduate of Victoria University, Toronto, now located in Cleveland, has given $5,000 to found a scholarship at Victoria University.——Dr. Harold D. Ball, Toronto, left in October for England, where he will be attached to Moore Barracks Hospital, Shorncliffe.——Col. Arthur Mignault, M.D., home from the front on leave of absence, has been appointed to take charge of recruiting in the Province of Quebec.

GENERAL

Gastro-Enterologists Organize. — The Southern Gastro-Enterological Association was organized at Atlanta, November 15, and the following officers were elected: president, Dr. James C. Johnson, Atlanta; vice president, Dr. Jesse T. Rogers, Savannah, and secretary-treasurer, Dr. Marvin H. Smith, Jacksonville, Fla.

Ohio Valley Association Meeting.—The eighteenth annual meeting of the Ohio Valley Medical Association was held in Evansville, November 21 to 23, and the following officers were elected: president, Dr. William Shimer, Indianapolis; vice presidents, Drs. J. Rawson Pennington, Chicago; Walter F. Boggess, Louisville, and Meyer L. Heidingsfeld, Cincinnati, and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville.

Tri-State Officers.—At the thirty-third annual meeting of the Tri-State Association of Tennessee, Arkansas and Mississippi, held in Memphis, November 21 to 23, the following officers were elected: president, Dr. James W. Gray, Clarksdale, Miss.; vice presidents, Drs. H. Rogers Hays, North Carrollton, Miss., Richard W. Griffin, Tiptonville, Tenn., and Floyd Webb, Turrell, Ark.; secretary, Dr. James L. Andrews, Memphis (reelected), and treasurer, Dr. James A. Vaughan, Memphis (reelected).

Orthopedists to Meet.—The annual meeting of the Central States Orthopedic Club will be held at Cleveland and Cincinnati, December 27 and 28. The first day's meeting will be held at Cleveland. Clinics will be held at the new Mount Sinai, Lakeside and St. Luke's hospitals. In the afternoon the club will go to Elyria and visit the Gates Hospital for Crippled Children, leaving for Cincinnati in the evening. On the second morning there will be a clinic at the Cincinnati General Hospital and at 5 o'clock the executive session of the club will be held, followed by the annual banquet.

Department of Health at Yale.—Yale University has established a department of health charged with the sanitary safety of the students' surroundings, and for the purpose of furnishing them health supervision and advice. Complete and careful medical examinations will be made of all students engaging in organized athletics, all competitors for the staff of the Yale *News*, the students working in the dining halls, and all freshmen. Any member of the university may consult the staff, vaccination against smallpox and typhoid fever will be provided, and students unable to pay will be taken care of at Yale Infirmary. It is said that a permanent endowment fund of $300,000 will be needed for the department, and it is expected that this sum will be easily raised.

A Suspicious Character.—Correspondence and telegrams concerning an individual who is imposing on the hospitality of physicians and pharmacists have been submitted to The Journal by a physicians' supply house in a nearby city. It is alleged that the individual represents himself as being "Capt. S. T. Bland-Sutton"—son of Sir J. Bland-Sutton, the English surgeon—commissioned by the War Office in London to purchase medical and surgical supplies for the army. He is described as a rather slender man, of light complexion, with long, prominent nose and two scars on the left side of his face, which he claims to have received in France. He has a typical English accent, and displays an accurate, and apparently first hand, knowledge of medical conditions in the war. He is reported to have "borrowed" a suit of clothes from one hospital intern and a small sum of money from another, and failed to return either.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Mary's Free Hospital for Children, New York City, Association for Improving the Condition of the Poor, Sea Breeze Experimental Hospital, Coney Island, Morristown, N. J., Memorial Hospital and All Souls Memorial Hospital, Morristown, each $10,000 by the will of Mrs. Annie H. Peekham.

Evanston, Ill., Hospital, a donation of $125,000, by Mr. James A. Patten, contingent on the raising of a public subscription of a like amount.

Children's Hospital of Philadelphia, $10,000 as a memorial to Miss Katherine Holmes Fiske, by the will of Louis S. Fiske.

Presbyterian Hospital, Philadelphia, $10,000, by the will of Jane L. McConnell.

Vancouver, B. C., General Hospital, $50,000, by the will of Mr. J. B. Graves, Kamloops, B. C.

Children's Free Hospital, Milwaukee, $2,000 as a result of a bazaar, given by the Infant Aid Society of the Hospital, November 10.

University of Chicago Medical School, a donation of $250,000 by Martin A. Ryerson, president of the board of trustees.

FOREIGN

The Italian Census.—The figures of the 1911 census for Italy have just been published. It records 28,357 blind and 27,608 deaf mutes to the total population of 34,661,377, June 10, 1911.

Weichselbaum Retires.—A. Weichselbaum, professor of pathologic anatomy at the University of Vienna since 1885, is retiring, having reached the age limit of 71. Professor Kolisko has been appointed in his place. The latter has hitherto been ordinary professor of forensic medicine.

Deaths in the Profession Abroad.—J. de Erostarbe, for many years chief of the medical department of the Spanish navy, and a prolific writer on medical and hygienic matters affecting the navy and the merchant marine, aged 86.——J. P. Picot, professor of clinical medicine at the University of Bordeaux, aged 77. He retired from active work in 1909.

Government Reduces Price of Paper in Spain.—The *Siglo Medico* reproduces the official announcement of the appropriation of a million pesetas to pay the excess cost of paper, for the daily papers, over the price of July, 1914. Our exchange queries "And what about the scientific periodicals? Are we not to share in this benefit?" No reply is forthcoming as yet.

Institute for Inorganic Chemistry Organized at Münster.—The Chemical Institute of the University of Münster has recently been enlarged and endowed to make it a nursery for scientific research also in inorganic chemistry. The Prussian parliament voted it an appropriation for the purchase of machinery, books and other equipment and a number of metal and dynamite firms have raised additional sums.

Potassium Chlorate.—In Japan before the war about 300 tons of potassium chlorate were manufactured, while the consumption was about 4,000 tons annually. Many producers are now in the field, according to Vice Consul M. D. Kirjasoff at Yokahama (*Commerce Reports*, Dec. 1, 1916), and the production has risen to about 3,500 tons per annum, and, by permission of the government, some of it is exported. In the early stages of the war its export was prohibited.

Ehrlich's Successor.—Our German exchanges of October 10 quote the *Frankfurter Zeitung* to the effect that Prof. W. Kolle, chief of the Institute for Bacteriology and Hygiene of the University of Bern, has been called to Frankfurt as successor to Ehrlich in the Institute for Experimental Therapy and also in the G. Speyer-Haus. Wassermann of Berlin was called first, but he yielded to pressure from the local scientific authorities and finally declined. Prof. Hans Sachs, Ehrlich's co-worker, has been appointed director of the Institute for Experimental Therapy, and Professor Morgenroth of the Charité, Berlin, is being considered for director of the Speyer Institute (*stellvetretende Direktoren*).

Waldeyer's Eightieth Birthday.—The senior of the Berlin medical faculty, W. Waldeyer, professor of anatomy at the University of Berlin since 1883, was raised to the peerage (erbliche Adel) by the kaiser on the occasion of his eightieth birthday, October 6. A bronze portrait plaque was presented to him by his present and former pupils, and a duplicate was hung in the headquarters of the Postgraduate Instruction System, the Kaiserin-Friedrich Haus. He has been chairman of the central committee of this work for many years. The Leopold-Karolinische Akademie of Halle presented him with the gold Cothenius medal, and honorary memberships in various scientific and other societies poured in on him. He announced that although he was thinking of retiring from his teaching chair at the university at the close of this semester, yet he intended to keep up his other work.

WAR NOTES

Asks Red Cross to End Relief Work.—Austria-Hungary, through Ambassador Penfield at Vienna, has asked the American Red Cross to discontinue relief work in Belgrade and other parts of Northern Serbia, when supplies now on hand have been distributed. No reason is given for this request.

Deaths in Prison Camps.—Official statistics, which were published in Berlin, December 2, state that on August 1 of this year there were 1,663,794 prisoners of war in Germany. In the two years of the war, 29,297 prisoners had died; of these, 6,032 died from tuberculosis; 4,201 from typhus fever; 6,270 from wounds, and 6,605 from other illnesses.

Typhus in the Turkish Army.—It is reported that soldiers of the Turkish army in Syria are dying from typhus fever at the rate of 1,000 a day. Cholera is also said to be prevalent. The American Committee for Armenian and Syrian Relief says it will send drugs and chemical supplies to Syria on the Naval Collier *Caesar,* which will leave New York for Beirut, about December 20.

Hospital Ships Sunk.—The White Star steamship *Britannic,* one of the largest steamships afloat, was sunk in the Aegean Sea, November 22. The *Britannic* was being used as a hospital ship and was carrying many British sick and wounded, of whom 1,106 were saved and about fifty drowned. The ship was sunk by a mine or torpedo.——The British hospital ship *Braemer Castle,* bound from Saloniki to Malta, with wounded, is reported to have been mined or torpedoed in the Aegean Sea, November 24.

Losses in the Medical Force of the Italian Army and Navy.—The *Policlinico* quotes the inspector general of the military medical service to the effect that 68 physicians have been killed in the war in Italy to date and 63 medical students, all while tending the sick and wounded. In addition to this total of 131, there are 45 medical officers known to have been taken prisoners by the enemy. The *Policlinico* adds that its own lists give the number still higher, 84 physicians and 81 medical students, a total of 165.

Southern Serbian Relief Work.—The American Red Cross is preparing to undertake the relief of a number of civilians in Southern Serbia in and about Monastir. A large percentage of the 200,000 civilians in the country recently fought over by the allied troops is in need of assistance. The first shipment of food supplies, amounting to $5,000, has already started from New York, and an additional $5,000 has been cabled to agents at Saloniki for emergency purposes. More supplies will be sent later and the Red Cross staff in Saloniki will be greatly increased.

PARIS LETTER

Paris, Nov. 9, 1916.

The War

NEW SURGICAL AUTOMOBILE TRAINS

The equipment of the military health service has been considerably improved since the beginning of the war. Adaptation to existing conditions has necessitated considerable reorganization, which has particularly affected automobiles equipped for special work. A recent innovation, worthy of special mention, is the introduction of what are known as complementary surgical groups. Each of these groups is composed of two vehicles—an automobile wagon tractor and a trailer, the object of which is to provide divisional ambulances with complementary means for sterilization, roentgenoscopy, electric light and a portable operation hut. The wagon has a specially constructed body and is divided into two distinct and separate compartments. In front, behind the driver's seat, is the first compartment. It contains a dynamo and its engine to which two flap doors opening on each side give easy access, while at the same time forming a shelter above, and prolongation of the floor below. There is also the necessary apparatus for the protection and control of the roentgenoscopic installation as well as two cases containing the electrical apparatus. The second and larger compartment contains a roentgenoscopic apparatus on the right hand side, and sterilizers, including an autoclave, a Poupinel sterilizer, a field sterilizer, two kettles of 25 liters each, a Vermorel spray, a drying cupboard for linen, large and small sterilizing boxes and a lavabo on the left hand side. There are also an operating table, four small tables, and a quantity of petroleum, alcohol, formol, etc. The dynamo is a Compound-Thompson giving 2½ kilowatts at 100 volts, continuous current, and, being provided with a very sensitive governor, furnishes uniform illumination. The distribution of the light is effected by flexible conductor bands, along which lamps can be rapidly installed and removed. The small operating hut, carried on the trailer, is formed of double panels, light and interchangeable, and its internal surface is covered with white oilcloth, permitting the maintenance of asepsis by sponging. This hut is composed of two rooms—one serving as a preparation room, and the other as an operating room. The floor is covered with linoleum. It is heated by water at 90 F. circulating through winged tubes from a small, light boiler carried on two wheels. The field armies will be provided with 140 of these complementary surgical automobile trains.

PHYSICAL QUALIFICATION OF CANDIDATES FOR AVIATION SERVICE

The aviation service requires special qualities, not only of courage and endurance, but also of physical fitness. A careful examination, therefore, is made of all candidates. They must have a sound heart, good respiratory capacity, perfect vision, and must show no tendency to vertigo. On the initiative of Dr. Marchoux, a further series of tests has been imposed on candidates to insure the possession of qualities more delicate, yet no less indispensable, which would make certain the functioning of the nervous system of the aviator in a manner as nearly as possible similar to the imperturbable mechanical one of the engine itself. These qualities are the maximum of imperturbability, and the ability to execute instantly—almost mechanically—the maneuvers necessitated by any sudden emergency. Candidates for aviation are therefore subjected to two kinds of tests: The first kind measures the rapidity of perceptions and of the psychomotor reactions which they cause in connection with visual, auditory and tactile impressions. The second kind measures the degree of influence exercised by the emotions on the cardiac and respiratory rhythm, on the muscular contraction of an organ in action (trembling of the hand) and on the blood pressure. For the first series of tests the subject is placed in front of a d'Arsonval electric chronometer. The circuit of the dial is made once a second by a hand which can be started by the examiner whenever he desires, and can be stopped instantly by pressure on a button placed under the finger of the candidate. The operator starts the hand, and the candidate, whose eyes are fixed on the latter, presses the button as soon as he notices the movement. The distance through which the hand has passed gives in hundredths of a second the total length of the various operations estimated by the reaction time of the candidate. In a normal subject this is about 0.19 second; in emotional or hesitating subjects it may rise to 0.3 second, or more. The same method is used to measure the length of the psychomotor reaction time to auditory impressions (sound of a gong or the blow of a hammer), and to tactile impressions (the shock of a wet cloth on the head or hand). The normal reaction time in this case is from 0.14 to 0.15 second. The examination of the candidate comprises ten experiments for each test, the mean of which is taken for the final result. Thanks to this double series of experiments, the selection of candidates can be made in a very rigorous manner, which is clearly both to their own interest and to that of the service. The number of candidates thus found incapable of serving as pilots is between 30 and 40 per cent. of those applying.

TEST FOR PICRIC ACID IN THE SERUM OF JAUNDICE MALINGERERS

Dr. Castaigne of the Faculté de médecine de Paris, physician of the hospitals, and Dr. Desmoulières have communicated to the Académie de médecine a practical process which permits the prompt detection of false jaundice caused by ingestion of picric acid. For this purpose from 15 to 20 c.c. of the blood of the patient are placed in a test tube, and an equal quantity of an aqueous solution of trichloracetic acid added. The mixture is shaken vigorously and filtered. The filtrate thus obtained is colorless unless picric acid is present, in which case it has a more or less yellow tint. The slightest yellow tinge is sufficient to prove the presence of this acid.

THE DENTAL CONGRESS OF THE ENTENTE ALLIES

The Dental Congress of the allies will open, November 10, in the Dental School of Paris, M. Justin Godart, undersecretary of state of the military health service, presiding. This congress, which has been authorized by the minister of war and which is placed under his patronage as well as under that of the minister of the marine, will be especially devoted to the consideration of war wounds of the jaw and face, of maxillary facial prosthesis, of dentistry, and of the organization of the dental services in the army during and after the war. It is open to all stomatologists and surgeons specializing in this subject who have been accepted by the allies to treat face wounds in their different sanitary corps.

LOSSES IN MILITARY MEDICAL SERVICE

According to the official figures published in the *Bulletin médical,* the total losses of the medicopharmaceutical corps during the war comprise 453 physicians who have died, 285 of whom were killed; 1,350 physicians who were wounded; 24 pharmacists who have died, 3 of whom were killed, and 18 pharmacists who were wounded.

LONDON LETTER

London, Nov. 13, 1916.

Sanatogen Assets Sold by the Government

In a previous letter to The Journal it was stated that an English firm had put on the market a preparation named sanaphos as a substitute for the German sanatogen, taking advantage of the animosity against everything German provoked by the war. The same boastful claims were made for the new as for the old nostrum. At first the government allowed the sanatogen business to continue under a controller which it appointed so as to prevent any of the profits being transmitted to Germany. The controller, Max Muller, a German and one of the former managers of the business, was allowed to communicate with the proprietor, Wulfing, in Germany, a proposal to sell the business to an English company. Wulfing telegraphed that he agreed to the sale provided he had option to repurchase at the end of the war. The telegram was intercepted by the censor, with the result that the government refused consent to the proposed transfer. Thereafter for a time, apparently, the firm was allowed to continue its business in England. Last May an order was made by the government requiring the business to be wound up, and seven weeks later a notice was issued stating that the controller appointed had decided to sell by tender as a going concern the leases of the premises held by the company near Penzance and in London with the plant and machinery, and that the existing milk contracts and stocks of sanatogen, formamint, etc., would also be disposed of. Nothing more was heard of the matter until toward the end of September, when it was disclosed that sanatogen was still being manufactured and sold by the company, the profits being accumulated and held presumably for the German proprietor, and that efforts were actually being made, by the employment of canvassers and the offer of a bonus, to push the sale of the product. Instructions were then issued by the government to sell the business at the earliest possible moment without any reference to trade marks or goodwill. It is explained that the board of trade had ordered the sale to be postponed owing to uncertainty whether the trade marks should be cancelled or sold with the other assets, and that it had allowed the firm to go on making and selling sanatogen in order that the farmers who supplied skimmed milk to the business should not find their contracts suddenly ended without an apportunity of renewing them with the purchaser of the factory. It was consequently not until September, 1916, nearly twenty-six months after the outbreak of war, that the government gave their final directions for the sale of this German undertaking. It has been purchased by a group of British business men, and the fact is announced in the press as an affair of the first magnitude!

The Problem of Venereal Diseases

As stated before, the problem of venereal diseases has, largely as a result of the war, aroused great attention. The subject has been ventilated in the press in a manner which would have seemed impossible a few years ago. The question of notification has produced an acute controversy. In an address delivered at the Institute of Hygiene, Sir Malcolm Morris said that the problem probably would never have obtained the publicity it had if it were not for the fact that this great war was causing these diseases to spread throughout the country with greater rapidity than normally. What was true now would be more true when the war was over and men came back. That this fear was well grounded was shown by what followed the Crimean and Napoleonic wars. It was because of a "conspiracy of silence" that the disease had spread. That conspiracy had now broken down, and the press of the country had greatly helped to remove it. Under the new regulations, the state was prepared to bear 75 per cent. of the cost of the new treatment. The essence of the success of the movement would be that the treatment would be entirely free. With regard to the proposal of certain women that the disease should be made compulsorily notifiable, he thought it would be of far less value in such cases than it had proved to be in some of the infectious fevers. In venereal disease, isolation was neither necessary nor practicable, and as to disinfection, it was not the surroundings that needed to be disinfected, but the patient, and he or she could be disinfected only by being cured. Notification, in fact, would do little, except furnish statistics of the incidence of venereal disease, while it would excite a great deal of opposition, and would inevitably drive many patients into the hands of quacks. Compulsory treatment, which was demanded by some advocates of notification, was in the present state of public opinion a chimera. The whole weight of expert opinion was against it.

The government scheme for the free treatment of venereal diseases is on the point of being put into effect. The great naval base, Portsmouth, will be the first town in which it will be put into action. The war office is cooperating with the local authorities, and two army surgeons experienced in the work will assist in the local hospital. It was at one time feared that hospitals might object to receiving those living in distant districts, but the response of these institutions goes to show that such fears are groundless. When patients are able to pay for private treatment they will not be encouraged to stay in the hospital, and will be recommended to seek the services of an outside physician. This will go a long way to meet the principal objection urged by the physician to the proposed national scheme. One result of the consultations between the Local Government Board, the councils and the physicians has been to bring home the conviction that the suppression of treatment, now so very general, by quacks and other unqualified persons is essential to the success of the new campaign against these diseases.

The Care of the Child

Mr. Samuel, the home secretary, speaking at a meeting at Oxford arranged by the Oxford Health and Housing Association, outlined a comprehensive scheme of infant welfare, and promised every encouragement from the government for societies engaged in this work. He said that the Local Government Board had recently circularized all the local authorities urging them to support schemes for maternity and infant welfare, and not to regard the ban on local expenditure due to the war as applying in any degree to that branch of their activities. It was one of the finest social successes of which we had any record that our infant mortality had been reduced by nearly one third in little more than ten years. Two ideas had influenced people of somewhat shallow thought and of pseudoscientific notions. One was that it did not matter how many babies were killed off—it was an example of the working out of the principle of evolution; the fittest survived, and the weakest went to the wall. But the damaged rate was just as important as the death rate, and by getting rid of evil social conditions, which produced weakness, infirmity and disease, a large proportion of children might be successfully reared. The second idea was that the country was overpopulated. But there was no ground whatever for thinking that our population of 45 millions was all that these islands could hold. If we were to deal with the problem of overcrowding in a rational fashion, and spread the people over a larger area, if adequate systems of town planning were pursued still further, and there were an extension of garden cities and garden suburbs, imagination could hardly see the number of persons this country could healthily accommodate. The statistics of antenatal mortality were probably as alarming as any others. It appeared that the deaths before birth were as many as the deaths in the first year of life. Putting the two together, the wastage was not far short of one-third of our potential new population. If these problems could be completely solved, though perhaps it was scarcely possible they should be solved completely, the nation would be much stronger. A complete scheme would consist of several parts and ramifications: first, an arrangement for the local supervision of midwives; second, arrangements for an antenatal clinic for expectant mothers, and a system of visitation; third, a maternity hospital, or beds at an existing hospital, where treatment could be given in complicated cases of pregnancy, and prompt attention could be given for the confinement of sick women, and fourth, postnatal work, arrangements for treatment of complications after birth, systematic advice and treatment for infants, continuance of clinics and dispensaries available for children up to the age when they were entered on the school register, and systematic home visitation of infant children not on the school register. The government was prepared to encourage and subsidize in every way the operations of such societies as those under whose auspices that meeting was held. No form of voluntary work for women (apart from the nursing of our soldiers) was more necessary or more useful than that in which those societies were now engaged.

Sir William Osler, who presided, said that the problem of infant mortality was mixed up with the housing and drink questions. A prospective mother ought not to labor long hours in shop or factory, and he regretted the extent to which nursing mothers went out to work in the north of England. There should be antenatal and maternity clinics, systematic inspection of babies, and a thorough inspection of dairies so as to insure the purity of the milk supply.

Marriages

James Arthur Porter, M.D., Hedrick, Iowa, to Miss Florence Grayce Coates of Clay Township, Grundy County, Iowa, November 16.

Albert Rowcliffe Moffit, M.D., Poughkeepsie, N. Y., to Miss Ella Anfrere Borland of New Hamburg, N. Y., November 18.

Willis Grafton Nealley, M.D., Brooklyn, to Miss Leonora Louise Armstrong of Upper Montclair, N. J., November 11.

Julian Faville DuBois, M.D., Sauk Centre, Minn., to Miss Katherine Lucile Mattocks of Elgin, Ill., November 30.

William Hansford Triplett, M.D., Matewan, W. Va., to Miss E. Emma Archer of Baltimore, June 14.

Meredith Malloy, M.D., Des Moines, Iowa, to Miss Mary Stiles Jones of Batavia, Ill., November 11.

William Joseph Tracy, M.D., to Miss Mary Frances Corran, both of Cornell, N. Y., October 18.

Raymond Jack Hauser, M.D., to Miss Ethel Bodine, both of Danville, Pa., September 15.

Audrey Orin Brown, M.D., to Miss Isabelle Logan, both of Detroit, November 22.

Charles D. Camp, M.D., to Miss Lillian A. Harris, both of Chicago, November 25.

Deaths

Thomas Augustine O'Hare, M.D., Rochester, N. Y.; University of Pennsylvania, Philadelphia, 1875; aged 67; a Fellow of the American Medical Association; formerly president of the Medical Association of the State of New York, Monroe County Medical Society, Rochester Academy of Medicine and Rochester Pathological Society, for many years a member and for the last five years president of the board of managers of the Rochester State Hospital; visiting physician to and president of the medical staff of St. Mary's Hospital, Rochester; died at his home, November 21.

Phaon Hermany, M.D., Mahanoy City, Pa.; New York University, New York, 1863; aged 76; a Fellow of the American Medical Association, and formerly president of the Schuylkill County Medical Society; for more than half a century a practitioner of Mahanoy City and local surgeon to the Lehigh Valley Railroad; for many years deputy coroner of Schuylkill County; died at his home, November 18, from neuritis.

Francis Joseph Keany, M.D., Boston; Harvard Medical School, Boston, 1892; aged 48; a Fellow of the American Medical Association; professor of dermatology of Tufts Medical College, Boston; dermatologist to the Boston City and Carney hospitals; consulting dermatologist to St. Elizabeth's Hospital and a trustee of the City Hospital; city dermatologist; died at his home, November 23, from heart disease.

George Wilkins, M.D., Montreal, Que.; University of Toronto, 1866; M.R.C.S., England, 1871; aged 74; professor of legal medicine and history and later emeritus professor of medical jurisprudence in McGill University, Montreal; medical director of the Sun Life Assurance Company and consulting surgeon to the Montreal General Hospital; died at his home, August 7, from cardiovascular disease.

Oleriannus Alvin Cover, M.D., Seymour, Iowa; Baltimore Medical College, 1893; Jefferson Medical College, 1894; aged 54; a Fellow of the American Medical Association; and a member of the Des Moines Valley Medical Society; local surgeon to Chicago, Milwaukee and St. Paul Railway; while driving over a grade crossing, November 28, was struck by a Rock Island freight train and instantly killed.

Frank S. Clark, M.D., Cleveland; Western Reserve University, Cleveland, 1890; aged 51; a Fellow of the American Medical Association; a specialist in obstetrics and diseases of children; chief of staff of St. Ann's Infant Asylum in Maternity Hospital; lecturer on obstetrics at the Charity Hospital and assistant demonstrator of obstetrics in his alma mater; died at his home, November 23.

Joseph Stafford Horsley, M.D., West Point, Ga.; Medical College of Georgia, Augusta, 1870; aged 73; a Fellow of the American Medical Association; formerly president of the Chattahoochee Valley Medical Association; local surgeon for the Atlanta and West Point Railroad; a practitioner of Trop County for more than forty-five years; died at his home, November 17.

Willoughby Walling, M.D., Chicago; University of Louisville, Ky., 1868; aged 68; a member of the Illinois State Medical Society; United States Consul at Edinburgh, Scotland, from 1885 to 1888; for four years head of a wholesale drug firm in Indianapolis and later a specialist on diseases of the ear, nose and throat; died at his home, November 27, from myocarditis.

Robert Latshaw Walker, M.D., Carnegie, Pa.; University of Pennsylvania, Philadelphia, 1866; aged 78; a member of the Medical Society of the State of Pennsylvania; for more than forty-eight years local surgeon for the Pennsylvania System and for forty years surgeon to the Pennsylvania Lead Company; died at his home, November 19, from pleuropneumonia.

David Byron Todd, M.D., San Francisco; University of Michigan, Ann Arbor, 1871; aged 69; formerly of Washington, D. C.; a veteran of the Civil War; resident physician of the Marine Hospital, San Francisco, for several years; for one term a member of the board of education; died in St. Luke's Hospital, San Francisco, November 20, from diabetes.

Andrew James Park, M.D., Oak Park, Ill.; Harvard Medical School, 1852; aged 90; formerly coroner and superintendent of education of Oxford County, Ont.; later a practitioner of New York and Chicago; well known as an astronomer and physicist; died at the home of his daughter in Oak Park, November 25, from senile debility.

Isaac Newton Cochran, M.D., Delphi, Ind.; University of Michigan, Ann Arbor, 1868; aged 73; formerly a member of the Indiana State Medical Association; a veteran of the Civil War; for four years mayor of Delphi and recently elected coroner of Caroll County; died at the Eastman Hospital, Indianapolis, November 22.

Riland Dillard Berry, M.D., Springfield, Ill.; Medical College of Ohio, Cincinnati, 1879; aged 61; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years a practitioner of Springfield; died at St. John's Hospital of that city, November 3, from cerebral hemorrhage.

Joshua H. Ghessling, M.D., Greensboro, Ga.; Medical College of Georgia, Augusta, 1879; aged 60; a Fellow of the American Medical Association, and formerly president of the Greene County Medical Society; for several terms mayor of Greensboro; died in Grady Hospital, Atlanta, after a surgical operation, November 20.

Alice Mitchell, M.D., Chicago; Women's Medical College of the New York Infirmary for Women and Children, 1885; aged 54; for twenty years a missionary of the Presbyterian Board of Missions at Woodstock, Mussowrie, U. P., India; died in Chicago, November 21, after a thyroidectomy for exophthalmic goiter.

John Frank Kane, M.D., Minooka, Pa.; Georgetown University, Washington, D. C., 1911; aged 32; a member of the Medical Society of the State of Pennsylvania; died in the Mary Kellar Memorial Hospital, South Scranton, Pa., November 20, from intestinal obstruction, several days after a surgical operation.

Thomas Joseph Dunn, M.D., New York; New York University, New York, 1888; aged 52; a Fellow of the American Medical Association; professor of clinical medicine in Fordham University Medical School, and a member of the staffs of the Fordham and St. Lawrence hospitals; died at his home, November 23.

Robert E. Cunningham, M.D., Castille, La.; University of the South, Sewanee, Tenn., 1902; aged 44; formerly a member of the Louisiana State Medical Society; a member of the Acadia Parish board of health and school board; died suddenly at his home, November 11.

John Edwin Walker, M.D., Thomaston, Me.; Medical School of Maine, Brunswick, 1884; aged 58; a member of the Maine Medical Association; physician to the Maine State Prison from 1888 until 1914; died at his home, November 22, from abscess due to a fall.

Frederick James Sanborn, M.D., Spencer, Mass.; Bellevue Hospital Medical College, 1883; aged 55; a member of the Massachusetts Medical Society; died suddenly from heart disease, November 20, in his automobile, while making a professional call.

William Henderson, M.D., Sarnia, Ont.; Trinity Medical College, Toronto, Ont., 1898; aged 45; who had recently returned after a year's active service with the Royal Army Medical Corps, abroad; died at his home, October 25, from angina pectoris.

Gordon Lee Harker, M.D., Parker, Colo.; Medico-Chirurgical College of Philadelphia, 1892; aged 47; for many years a practitioner of New Jersey, but for the last four years a resident of Colorado; died at his home, November 5, from kidney disease.

George Richard Bray, M.D., Fort Recovery, Ohio; Medical College of Ohio, Cincinnati, 1905; aged 52; until last year a practitioner of Dayton, Ky., and Cincinnati; died at the home of his mother in Fort Recovery, August 21, from diabetes.

Francis Adam P. Sieber, M.D., Chicago; Rush Medical College, 1883; aged 75; a veteran of the Schleswig-Holstein and Franco-German wars; once health commissioner of Lake View; died at his home, November 24, from chronic nephritis.

Isaac H. Mayer, M.D., Willow Street, Pa.; Jefferson Medical College, 1859; aged 73; once president of the State Medical Society; president of the state horticultural society, and noted as a fruit grower; died at his home, November 13.

Verne Ernest Winston, M.D., Keystone, S. D.; College of Physicians and Surgeons, Chicago, 1903; aged 37; died in the Methodist Deaconess Hospital, Rapid City, S. D., November 12, a few hours after an operation for appendicitis.

Edwin Hunt Robinson, M.D., Robinson Springs, Ala.; Memphis, Tenn., Medical College, 1849; aged 89; a member of the Medical Association of the State of Alabama until his retirement in 1908; died at his home, November 22.

John George Weinland, M.D., Dallas Center, Iowa; Beaumont Hospital Medical College, St. Louis, 1892; aged 60; a member of the Iowa State Medical Society; died at his home, August 31, from pernicious anemia.

John James Mason, M.D., New York; Bellevue Hospital Medical College, 1869; who retired from active practice in 1880, in New York, to engage in microscopic and anatomic work; died at his home, November 22.

Silas A. Boam, M.D., Topeka, Kan.; College of Physicians and Surgeons, Birmingham, England, 1870; aged 70; for nearly thirty years a practitioner of Topeka; died at his home, November 15, from heart disease.

Thomas W. Smith, M.D., Kiefer, Okla.; Hospital College of Medicine, Louisville, Ky., 1900; aged 42; formerly a Fellow of the American Medical Association; died in a hospital in Tulsa, Okla., November 10.

John Benjamin Joyce, M.D., Masonville, Iowa; Omaha Medical College, 1898; who was adjudged insane in December, 1914; died in Omaha, recently, following an operation for suppurative appendicitis.

George E. Nickel, M.D., Belle Vernon, Pa.; Physio-Medical Institute, Cincinnati, 1881; aged 57; a member of the school board and city council of Belle Vernon; died at his home, November 13.

Gulielmus Law, M.D. (Hon.); Greeley, Colo.; Gross Medical College, Denver, 1889; a practitioner since 1861; aged 78; a Fellow of the American Medical Association; died at his home, November 18.

Edgar Levander Handrick, M.D., Little Meadows, Pa.; Jefferson Medical College, 1863; aged 76; for more than half a century a practitioner of Friendsville, Pa.; died at his home, November 5.

Charles Gray Cole, M.D., Binghamton, N. Y.; Albany (N. Y.) Medical College, 1897; aged 51; a Fellow of the American Medical Association; died at his home, October 27, from pneumonia.

George W. Parr, M.D., Geuda Springs, Kan.; Western Reserve University, Cleveland, 1868; Bellevue Hospital Medical College, 1876; aged 75; died at his home, November 19, from pneumonia.

Oliver Herman Heidt, M.D., Detroit; University of Michigan, Ann Arbor, 1915; aged 26; a Fellow of the American Medical Association; died in Harper Hospital, Detroit, November 23.

John A. Warner, M.D., Clarksville, Mich.; Saginaw Valley Medical College, Saginaw, Mich., 1901; Detroit College of Medicine and Surgery, 1908; aged 51; died in Chicago, November 5.

James Oscar Green, M.D., Long Branch, N. J.; Bellevue Hospital Medical College, 1866; aged 76; a lifelong resident of Long Branch; died at his home, November 24, from pneumonia.

Charles C. Dransfeld, M.D., San Francisco; St. Louis College of Physicians and Surgeons, 1883; died in the Buena Vista Sanatorium, San Francisco, November 13, from myocarditis.

Samuel Erskine McClymonds, M.D., College Springs, Iowa; Miami Medical College, Cincinnati, 1877; aged 64; a member of the Iowa State Medical Society; died at his home, November 17.

David Claytor, Bedford, Va. (license, Virginia); aged 84; for nearly half a century a practitioner of Virginia; a Confederate veteran; died at his home near Bedford, November 17.

Jesse M. Ledbetter, M.D., Shreveport, La.; Charity Hospital Medical College, New Orleans, 1876; aged 62; formerly a member of the city council; died at his home, November 9.

Onas Smith, M.D., Ash Grove, Mo.; St. Louis College of Physicians and Surgeons, 1904; aged 33; also a druggist; died at his home, November 15, after a surgical operation.

James M. Evans, M.D., Clarksburg, Ohio; Starling Medical College, Columbus, Ohio, 1850;; aged 91; a life-long resident of Clarksburg; died at his home, November 15.

John H. Penn, M.D., Ravenna, Neb.; Ensworth Medical College, St. Joseph, Mo., 1893; died in a hospital in Omaha, November 11, after a surgical operation.

Jesse K. Bailey, M.D., Dayton, Ohio; Ohio Medical University, Columbus, 1894; aged 65; died at his home, November 14, from cerebral hemorrhage.

W. M. Sineath, Tifton, Ga. (license, Georgia, 1897); died, about November 3.

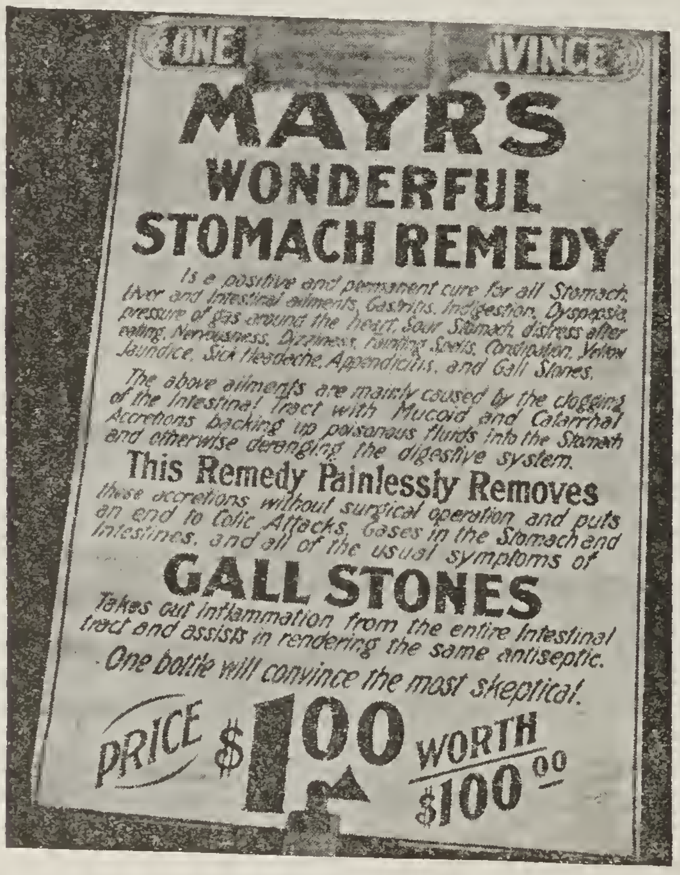
The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MAYR'S WONDERFUL STOMACH REMEDY

An Illustration of One Weakness of the Food and Drugs Act

"Mayr's Wonderful Stomach Remedy" has been discussed at some length before in The Journal[1] and it is not necessary at this time to go into any elaborate details regarding its composition. To refresh the memory of our readers, suffice to say the nostrum is essentially a large dose of fatty oil followed by a saline cathartic (Epsom salt, Rochelle salt, etc.). As is well known, when a large dose of bland oil is taken, followed by a saline, greenish soapy concretions are passed which the layman is invited to believe are "gallstones." The fake-gallstone trick was long a favorite of the traveling quacks; certain "patent medicine" makers have not been above adapting the same scheme to their business.



ONE ... VINCE

MAYR'S WONDERFUL STOMACH REMEDY

Is a positive and permanent cure for all Stomach, Liver and Intestinal ailments, Gastritis, Indigestion, Dyspepsia, pressure of gas around the heart, Sour Stomach, distress after eating, Nervousness, Dizziness, Fainting Spells, Constipation, Yellow Jaundice, Sick Headache, Appendicitis, and Gall Stones.

The above ailments are mainly caused by the clogging of the Intestinal Tract with Mucoid and Catarrhal Accretions backing up poisonous fluids into the Stomach and otherwise deranging the digestive system.

This Remedy Painlessly Removes these accretions without surgical operation and puts an end to Colic Attacks, Gases in the Stomach and Intestines, and all of the usual symptoms of

GALL STONES

Takes out inflammation from the entire Intestinal tract and assists in rendering the same antiseptic.

One bottle will convince the most skeptical.

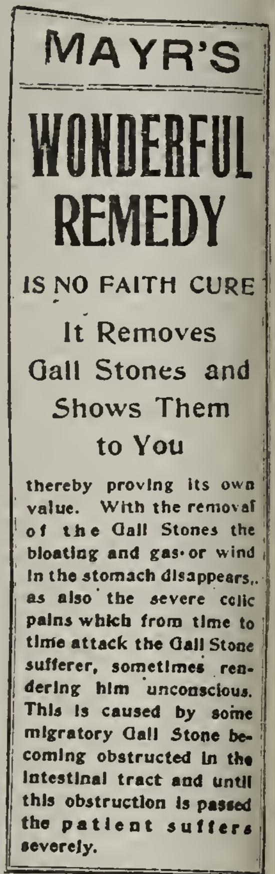
PRICE $1.00 WORTH $100.00

Photographic reproduction (reduced) of one of the window display cards exhibited in one of George H. Mayr's own stores in October, 1916. Several of the claims made on this card were admitted by Mayr to be false and fraudulent, when he was haled into the federal court for making them on the trade package. Nearly a year after admitting their falsity and fraud Mayr was still making them in his store windows —over which the federal law has no jurisdiction.

The reason for again referring to Mayr's Wonderful Stomach Remedy is to bring home one of the weaknesses of the federal Food and Drugs Act. Attention was recently[2] called to the fact that while it was more or less risky for "patent medicine" exploiters to make false and fraudulent curative claims on the trade packages, there was nothing to prevent false and fraudulent claims from being made for these same medicines through any other avenue of publicity which the nostrum maker might employ. Based on this, The Journal offered this rule for the detection of presumptive fraud: Any statement regarding the curative effects of a "patent medicine" that appears in any newspaper advertisement, circular, window display, etc., but does not appear on the trade package, may logically be regarded as false and fraudulent.

Mayr's Wonderful Stomach Remedy is again referred to point a moral and adorn a tale. In the free and easy days before there was any Food and Drugs Act, the Mayr product was sold frankly as a "cure" for gallstones. The label blatantly and unblushingly proclaimed the falsehood: "It Removes Gall Stones and Shows Them to You." After "morality by act of Congress" became, within circumscribed limits, an accomplished fact, this particular untruth disappeared from the label of the Mayr remedy. Then came a period in which gaudy window displays were used and in large letters that could be read across the street, one read:

> "Mayr's Wonderful Stomach Remedy Removes Gall Stones, Cures Appendicitis, Cures all Stomach, Liver and Intestinal Ailments. Entirely Harmless."



MAYR'S

WONDERFUL REMEDY

IS NO FAITH CURE

It Removes Gall Stones and Shows Them to You

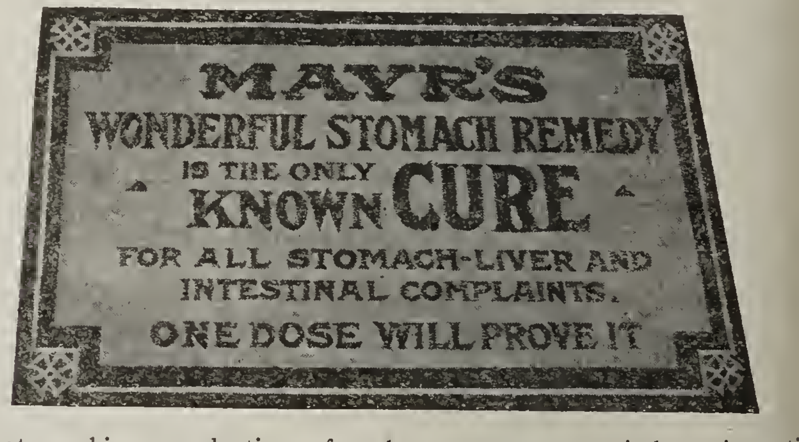
thereby proving its own value. With the removal of the Gall Stones the bloating and gas or wind in the stomach disappears, as also the severe colic pains which from time to time attack the Gall Stone sufferer, sometimes rendering him unconscious. This is caused by some migratory Gall Stone becoming obstructed in the intestinal tract and until this obstruction is passed the patient suffers severely.

Photographic reproduction (reduced) of part of a carton of Mayr's Stomach Remedy used before the days of the Food and Drugs Act. The falsehood, that it would "cure" gallstones, no longer appears on the trade packages. More than ten years after the passage of the Food and Drugs Act it continued to appear in window displays which are not subject to the penalties of the federal law.

A closer study of the display showed that between the words "Removes" and "Gallstones" there were printed in small letters and in colors that made them well nigh invisible, the words, "symptoms of." Similarly, also in small letters and not easily distinguishable, the word "chronic" was sandwiched in between "Cures" and "Appendicitis."

But although Mayr had deleted from his label the frank claim that his nostrum "removes gall stones and shows them to you" he still continued to make statements on the trade package that were false. Then the federal authorities took a hand and information was filed against George H. Mayr of Chicago alleging that his nostrum was misbranded under the Sherley Amendment to the federal Food and Drugs Act. The government declared that certain statements on the trade package, which are quoted at length in the report, were "false and fraudulent," in that these curative claims had been "applied to the article knowingly and in reckless and wanton disregard of their truth or falsity." The officials declared further that these claims were made

> "so as to represent falsely and fraudulently to the purchasers thereof, and create in the minds of purchasers thereof the impression and belief, that it was, in whole or in part, composed of, or contained, ingredients or medicinal agents effective, among other things, when taken in connection with Mayr's System Regulator and Tonic, as a remedy for gastritis, appendicitis, and gall stones, in taking out inflammation from the entire intestinal tract and rendering the same antiseptic, as a cure for gall stones of the liver, as a positive remedy and cure for appendicitis, and as a positive remedy for all stomach, liver, and intestinal diseases, when, in truth and in fact, it was not, in whole or in part, composed of, and did not contain, such ingredients or medicinal agents."



MAYR'S WONDERFUL STOMACH REMEDY IS THE ONLY KNOWN CURE FOR ALL STOMACH-LIVER AND INTESTINAL COMPLAINTS. ONE DOSE WILL PROVE IT

Photographic reproduction of a large permanent window sign still displayed at one of Mayr's Chicago stores. The federal law has no jurisdiction over claims made under these conditions!

Denuded of its legal verbiage this means that Mayr's claims that his nostrum was a "cure" for gallstones, appendicitis nd all stomach, liver and intestinal diseases were false and raudulent!

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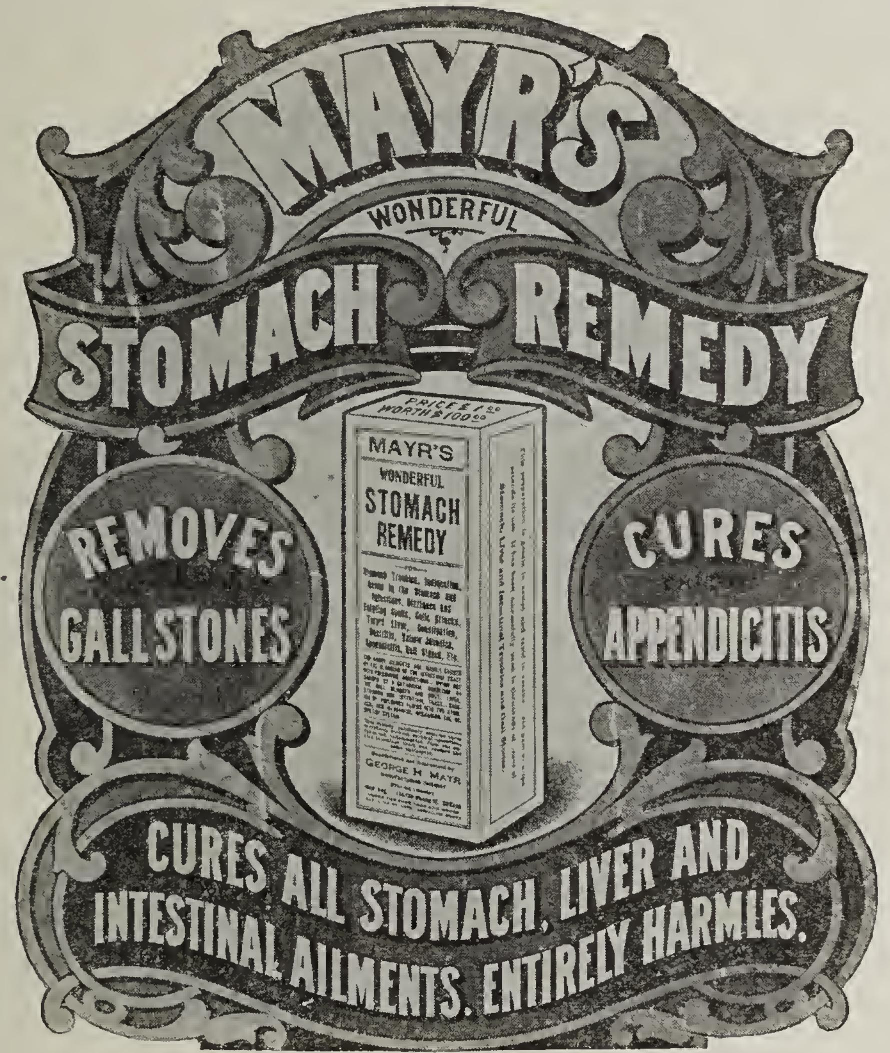
[1] The matter is reprinted, with illustrations, in the pamphlet "Miscellaneous Nostrums," price 10 cents.

[2] Patent Medicine Advertising in Newspapers and On the Trade Package, editorial, The Journal A. M. A., Nov. 25, 1916.

What did George H. Mayr do when confronted with this harge? Did he attempt to justify the claims under which e had been obtaining the public's money? Did he bring vidence to attempt to establish the claims that his remedy would cure gallstones and was a positive remedy for all tomach, liver and intestinal diseases? Not at all. George H. Mayr pleaded guilty.

He pleaded guilty, Dec. 10, 1915. Nearly a year later, George H. Mayr was still displaying, in the windows of his tores in Chicago, large placards containing not only some of he same claims that he had admitted in the federal courts were false and fraudulent and made knowingly and in reckless nd wanton disregard of their truth, but even more positive laims. We reproduce a photograph of one of these cards, ards, by the way, which in the original stood half the height f a man. We would further call attention to the fact that t the time this article is printed (Dec. 7, 1916) George H. Mayr still has painted in large letters over the top of his store window the following egend:

> "Mayr's Wonderful Stomach Remedy is the Only Known Cure For All Stomach, Liver nd Intestinal Complaints. One Dose will Prove It."



Photographic reproduction of a portion of a window display used by the Mayr concern. The original (which was about two feet long) of the portion here reproduced was a gaudy affair of red, green, blue, yellow, black and gilt. The color effect was such as to make the words "symptoms of" and "chronic" within the circles almost unreadable at a slight distance, the letters being small and in black on a dark red background. The words "removes gallstones" and "cures appendicitis" were in large white letters that could easily be read across the street.

It is justifiable to assume that when any man, whatever his business, admits in court that he has made fraudulent claims and then continues to make the same claims through channels that are not controlled by penal enactment, that man's standard of business ethics is such that the public needs protection against it. There are many such men in the "patent medicine" world. The only way in which the public may properly be protected against being defrauded in such cases is for the federal Food and Drugs Act to have its scope extended to cover *all* advertising of the products coming under the purview of he act.

One further thought. The Mayr nostrum is another explanation for the frantic objections of the "patent medicine" interests to giving he public the facts regarding the composition of their preparations. How many people would pay a dollar a package for "Mayr's Wonderful Stomach Remedy"—he "Only Known Cure For All Stomach, Liver and Intestinal Complaints"—if they knew that it was essentially nothing more "wonderful" than a small bottle of olive oil and a dose of Epsom salt?

MORE MISBRANDED NOSTRUMS

E. K. THOMPSON'S BAROSMA COMPOUND

"E. K. Thompson's Barosma Compound" which, according o the label contained 25 per cent. grain alcohol (about one half the strength of raw whisky) was put on the market by the Thompson Medical Company, Titusville, Pa. The preparation was analyzed by the federal chemists, who reported hat the product was a watery-alcoholic solution containing bromid of potassium (3.85 per cent.), potassium acetate (2.6 per cent.), extract of buchu and sugar (18.4 per cent.). The stuff was sold under the inferential claim that it was a cure for Bright's disease and other inflammations of the kidneys and under such specific claims as:

> "A remedy for Chronic or Acute Inflammation of the Kidneys or Bladder and Ulceration of the same, Gravel or Stone in Bladder, Rheumatism, Sciatica . . . and Dropsy."
> "Is a Splendid Remedy for . . . Rheumatism, Sciatica."

These and other statements the federal officials charged were "false and fraudulent" and made "knowingly and in reckless and wanton disregard of their truth or falsity." The company would neither affirm nor deny the charges, but entered a plea of *nolo contendere* and the court imposed a fine of $10 and costs.—[*Notice of Judgment No. 4114.*]

SAYMAN'S VEGETABLE LINIMENT COMPOUND

"Sayman's Vegetable Liniment Compound" was prepared and sold by one Thomas M. Sayman, St. Louis. Some of the claims made for it were:

> "This preparation is a valuable remedy for the treatment of the following disease: . . . Deafness . . . Fever and Ague, Congestive chills."
> "This preparation is a valuable remedy for the treatment of the following diseases: Rheumatism . . . Croup, Whooping Cough, Diphtheria. . . . Inflammation of the kidneys . . . Dysentery, Bloody Flux . . . Goiter . . ."

In addition, it was recommended for bites from rabid dogs, painful menstruation, granulated eyelids, sore nipples, toothache and chilblains. The chemists of the department reported that analysis "showed the product to be essentially a hydro-alcoholic solution of camphor, chloroform, capsicum, oil sassafras, ammonia and plant extractive; it contained 62.0 per cent. by volume of alcohol, and 18.85 minims per fluidounce of chloroform; the presence of turpentine was indicated." The therapeutic claims made for the stuff were declared false and fraudulent. Sayman pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 4128.*]

GREEN DROPS

"Knorr's Genuine Hien Fong Essence or Green Drops" was manufactured by Herman and Emil Knorr of Detroit, doing business under the name Knorr Medical Company. The government chemists reported that analysis of the product showed it to contain:

Alcohol (by volume)	69.72 per cent.
Ether (by volume)	0.35 per cent.
Nonvolatile matter per 100 c.c.	0.28 grams

Flavored with oil of spearmint.

Some of the claims made for this preparation were:

> "An excellent Remedy for diseases of the Stomach, and Bowels, Colic, Cholera Morbus, Summer Complaint, Neuralgia, Catarrh, Colds, Tonsillitis, Sore Throat, Croup and Diphtheria."
> "Dullness of ears, and even deafness, has been relieved and benefited by wearing a little wadding moistened with the Essence in the ear."

These and similar claims the government declared to be false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity. Herman and Emil Knorr pleaded guilty and were fined $50.—[*Notice of Judgment No. 4116.*]

Correspondence

Martin I. Wilbert — An Appreciation

To the Editor:—In the death of Martin I. Wilbert, Phar.D., the medical and pharmaceutic professions have lost a most useful and effective member. His long practical experience in the various branches of pharmacy, added to a broad theoretical knowledge of the subject, and his close affiliation with the medical profession made him exceptionally valuable.

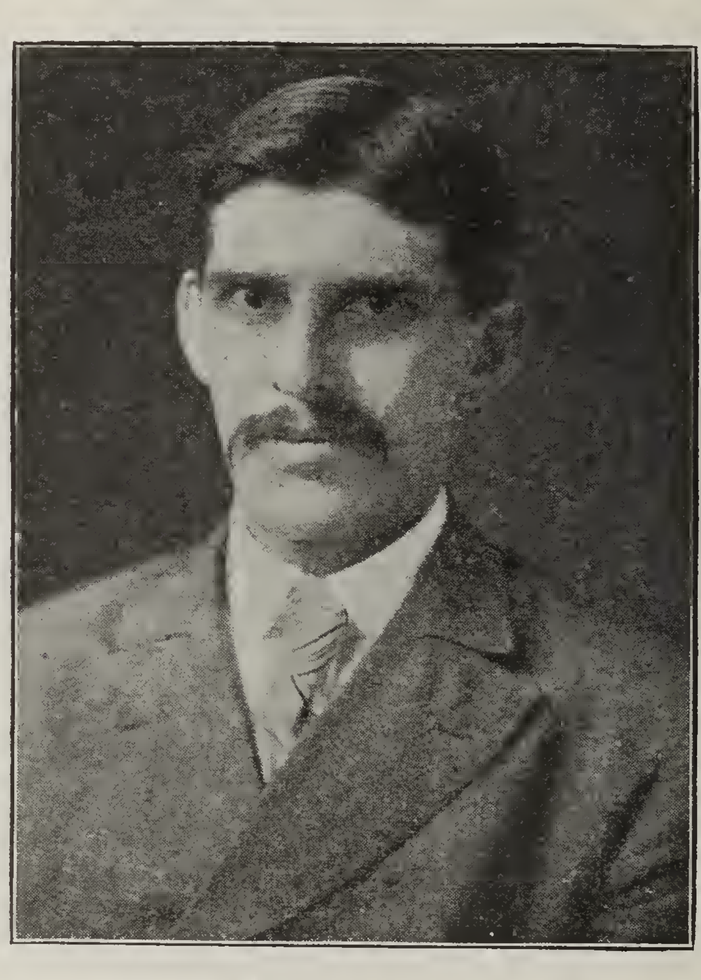
The range of Dr. Wilbert's information was truly remarkable. For example, he was in constant demand as a consultant on various features of the Harrison Narcotic Law, a subject on which he probably was better informed than any other man. Possibly no man in this country had a wider, more intimate and more comprehensive knowledge of the pharmacopeias of the world than he did. He could be depended on for most valuable suggestions and counsel in connection with any subject in relation to his work. Indeed, I do not recall ever having carried any problem to Dr. Wilbert without having received help in unstinted measure.

I think I should mention his self-eliminating helpfulness; he never exploited himself, nor would he allow others to do so. His aim was the good of the cause in which he labored and, this accomplished, he sought no credit for his own share therein. He frequently carried the burdens of others without showing his own hand. His originality and clear headed foresight in outlining problems and suggesting methods and means for their solution did credit to his middle name, Inventius; and he was never too busy to "help out."

Dr. Wilbert's work at the Hygienic Laboratory covered a period of about eight years. During this time he was engaged in the work of the Digest of Comments on the Pharmacopeia and allied subjects, and made numerous contributions to medical and pharmaceutic literature. In this and, in fact, in all that he undertook, he worked harder than any man should work, and within a month before his death he had been admonished to take things a trifle easier; but he could not "let up." He had to work at full pressure in spite of a bodily handicap that would have immobilized the average man.

His loss will be severely felt at the Hygienic Laboratory, and the individual members of the staff have lost a dear and valued friend and counselor.

G. W. McCoy, M.D., Washington, D. C.
Director, Hygienic Laboratory.



Martin I. Wilbert, Phar.D., 1865-1916.

Spirochaeta Pallida or Treponema Pallidum?

To the Editor:—Your editorial comment on this question (The Journal, Nov. 25, 1916, p. 1607) is in error. Schaudinn originally placed the *Treponema pallidum* in the genus *Spirochaeta*. It was only after he discovered that it did not belong to that genus that he named a new genus, *Treponema*. Both your editorial writer and Dr. Pusey should familiarize themselves with the rules of zoological nomenclature as laid down by the International Committee. Dr. Charles Stiles, Washington, D. C., is the secretary of that committee. It is not a matter of sentiment that makes us prefer the term *Treponema pallidum*, but a matter of scientific nomenclature. If you discovered a new organism and named it by a term used previously by zoologists to designate an entirely different organism, the name would not stand in zoological nomenclature, and either you or some successor would have a right to give it an entirely new name. I suggest that you write to Dr. Stiles, care Public Health Service, and get a copy of the rules for zoological nomenclature and publish them, because they will inform your readers in a way that Dr. Pusey's article and your editorial comment do not.

Otto V. Huffman, M.D., Brooklyn.

[Dr. Huffman's letter was referred to Dr. Pusey, who says:]

To the Editor:—Dr. Huffman's sweeping condemnation of the editor and me for being in error is so broad that in general it is probably true. We are doubtless in error about a good many things. But specifically as applied to the facts in my letter, I imagine the question is open to more discussion than his cocksureness would indicate. The facts about the classification of the organism of syphilis are pretty fully answered in my article, particularly in the quotation from Metchnikoff. In my argument for the use of *Spirochaeta pallida*, however, I am not concerned about the classification of the organism. If Schaudinn was uncertain about its classification—and he undoubtedly was—the present opinions about its classification are not an argument so overpowering that they will force the change of a name which is now in almost universal usage. I am not in error in the citations of usage which I give in my article—in saying, for example, that most of the great men in syphilis use *Spirochaeta pallida*. If Dr. Huffman, in saying that the editor and I are in error, means to include Ehrlich, Metchnikoff, Hoffmann, Neisser and Uhlenhuth with the editor and me in this error, I am willing to accept without further argument his ex cathedra condemnation.

W. A. Pusey, M.D., Chicago.

The Marketing of Arsenobenzol

[The following letter from Dr. Schamberg was written in reply to a letter asking if it would not be possible for him again to supply arsenobenzol. While the letter was not originally written for publication, Dr. Schamberg has given us permission so to print it. See pages 1756-1757.—Ed.]

To the Editor:—I beg to acknowledge receipt of your letter of November 8. I am fully in sympathy with your attitude and with that of the medical profession and the public as regards the salvarsan situation. Drs. Raiziss, Kolmer and myself have received numerous letters and requests from physicians and hospitals urging us to go on with the preparation and marketing of arsenobenzol. It must be remembered that the United States government has granted most comprehensive patents on this drug and its congeners.

During the period when salvarsan could not be obtained in this country, we prepared and distributed arsenobenzol, after informing the American licensees of the Farbwerke-Hoechst Company of Frankfurt, Germany, of our intention to do so. The American representative, Mr. Herman A. Metz of New York, said that he would not, on humanitarian grounds, interfere with our supplying the drug as long as he could not obtain the German product, but that when salvarsan was again restored to the American market, he would bring suit for infringement of patents, if we did not then cease the distribution of the drug. Salvarsan is protected by both product and process patents; even though we proved that our drug were biologically different from salvarsan, it would be incumbent on us to demonstrate likewise that in the preparation of arsenobenzol we had not in any manner utilized any of the processes which were patented by Ehrlich.

We have consulted eminent legal counsel and we have been advised that even if it could be proved that our product were 100 times superior to salvarsan, this would not give us any right to market the same if we in any manner infringed on the process patents. The question of infringement of patents would of course have to be ultimately passed on by the court in the event of litigation.

If the marketing of arsenobenzol were a business venture with us, I am free to admit that we would not have ceased its preparation and sale on the resumption of the supply of salvarsan to this country. Our laboratories, however, were primarily organized for scientific research and we were fortunate to be able to step into the breach and supply physicians of this country with arsenobenzol during the period of six months when salvarsan could not be obtained. Having served this purpose in the interests of humanity and the public health, we ceased the marketing of the drug after the German product was forwarded to this country in sufficient quantity for its needs. It is obvious that I could not afford to embroil our laboratories in a protracted and expensive litigation and thus divert our activities from the purposes for which the laboratories were instituted.

We are now working on a series of new compounds both of the arsenobenzol and mercurial series, and we are hopeful that in the not distant future we may be able to prepare something of distinct value.

Jay Frank Schamberg, M.D., Philadelphia.

Carrel-Dakin Solution

To the Editor:—I have just read in The Journal, Oct. 7, 1916, p. 1108, a short note about the formula for Dakin's solution. I believe that the answer will not allow your reader to obtain the proper kind of solution. Therefore, I take pleasure in sending you the description of the technic which is used in my hospital for the making of the solution.

A. Carrel, M.D.,
Hôpital Temporaire 21, Rond-Royal, Compiègne, France.

PREPARATION OF DAKIN'S SOLUTION (DAUFRESNE'S TECHNIC)

Dakin's solution is a solution of sodium hypochlorite for surgical use, the characteristics of which, established after numerous tests and a long practical experience, are as follows:

(*a*) *Complete Absence of Caustic Alkali.*—The absolute necessity for employing in the treatment of wounds a solution free from alkali hydroxid excludes the commercial Javel water, Labarraque's solution, and all the solutions prepared by any other procedure than the following:

(*b*) *Concentration.*—The concentration of sodium hypochlorite must be exactly between 0.45 and 0.50 per cent. Below 0.45 per cent. of hypochlorite the solution is not sufficiently active; above 0.50 per cent. it becomes irritating.

Chemicals Required for the Preparation.—Three chemical substances are indispensable to Dakin's solution: chlorinated lime, anhydrous sodium carbonate and sodium bicarbonate. Among these three products the latter two are of a practically adequate constancy, but this is not the case with the first. Its content in active chlorin (decoloring chlorin) varies within wide limits, and it is absolutely indispensable to titrate it before using it.

Titration of the Chlorinated Lime.—There must be on hand for this special purpose:

A 25 c.c. buret graduated in 0.1 c.c.
A pipet gaged for 10 c.c.
A decinormal solution of sodium thiosulphate (hyposulphite).

This decinormal solution of sodium thiosulphate can be obtained in the market; it can also be prepared by dissolving 25 gm. of pure crystalline sodium thiosulphate in 1 liter of distilled water, and verifying by the decoloration of an equal volume of the decinormal solution of iodin by this solution. The iodin is prepared by disolving 1.27 gm. iodin and 5 gm. potassium iodid in 100 c.c. of water.

The material for the dosage thus provided, a sample of the provision of chlorinated lime on hand is taken up either with a special sound or in small quantities from the mass which then are carefully mixed.

Weigh out 20 gm. of this average sample, mix it as completely as possible with 1 liter of ordinary water, and leave it in contact for a few hours, agitating it from time to time. Filter.

Measure exactly with the gaged pipet 10 c.c. of the clear fluid; add to it 20 c.c. of a 1: 10 solution of potassium iodid and 2 c.c. of acetic or hydrochloric acid. Drop, a drop at a time, into this mixture a decinormal solution of sodium thiosulphate until decoloration is complete.

The number of cubic centimeters of the hypochlorite solution required for complete decoloration, multiplied by 1.775, gives the weight of the active chlorin contained in 100 gm. of the chlorinated lime.

This figure being known, it is applied to the accompanying table, which will give the quantities of chlorinated lime, of sodium carbonate and of sodium bicarbonate which are to be employed to prepare 10 liters of Dakin's solution.

QUANTITIES OF INGREDIENTS FOR TEN LITERS OF DAKIN'S SOLUTION

Titer of Chlorinated Lime	Chlorinated Lime, Gm.	Anhydrous Sodium Carbonate, Gm.	Sodium Bicarbonate, Gm.
20	230	115	96
21	220	110	92
22	210	105	88
23	200	100	84
24	192	96	80
25	184	92	76
26	177	89	72
27	170	85	70
28	164	82	68
29	159	80	66
30	154	77	64
31	148	74	62
32	144	72	60
33	140	70	59
34	135	68	57
35	132	66	55
36	128	64	53
37	124	62	52

Example: If it required 16.6 c.c of the decinormal solution of the sodium thiosulphate for complete decoloration, the titer of the chlorinated lime in active chlorin is:

$$16.6 \times 1.775 = 29.7 \text{ per cent.}$$

The quantities to be employed to prepare 10 liters of the solution will be in this case:

Chlorinated lime	154 gm.
Dry sodium carbonate	77 gm.
Sodium bicarbonate	62 gm.

If crystalline sodium carbonate is being used, then instead of the 80 gm. of dry carbonate it must be replaced by:

Crystalline sodium carbonate	220 gm.

Preparation of Dakin's Solution.—To prepare 10 liters of the solution:

1. Weigh exactly the quantities of chlorinated lime, sodium carbonate and sodium bicarbonate which have been determined in the course of the preceding trial.

2. Place in a 12-liter jar the chlorinated lime and 5 liters of ordinary water, agitate vigorously for a few minutes, and leave in contact for from six to twelve hours, over night, for instance.

3. At the same time dissolve, cold, in the five other liters of water the sodium carbonate and the bicarbonate.

4. Pour all at once the solution of the sodium salts into the jar containing the maceration of chlorinated lime, agitate vigorously for a few moments, and leave it quiet to permit the calcium carbonate to settle as it forms. At the end of half an hour, siphon the liquid and filter it through double paper to obtain an entirely limpid product, which must be protected from light.

Light, in fact, alters quite rapidly solutions of hypochlorite, and it is indispensable to protect from its action the solutions which are to be preserved. The best way to realize these conditions is to keep the finished fluid in large wicker-covered demijohns of black glass.

Titration of Dakin's Solution.—It is a wise precaution to verify, from time to time, the titer of the solution. This titration utilizes the same material and the same chemical substances as are used to determine the active chlorin in the chlorinated lime:

Measure out 10 c.c. of the solution, add 20 c.c. of 1:10 solution of potassium iodid, and 2 c.c. of acetic or hydrochloric acid. Drop, a drop at a time, into this mixture a decinormal solution of sodium thiosulphate until decoloration is complete.

The number of cubic centimeters employed multiplied by 0.03725 will give the weight of the sodium hypochlorite contained in 100 c.c. of the solution.

A solution is correct when, under the conditions given above, from 12 to 13 c.c. of decinormal thiosulphate are required to complete the decoloration:

$$13 \times 0.03725 = 0.485 \text{ per cent. of } NaOCl$$

The Test for the Alkalinity of Dakin's Solution.—It is easy to differentiate the solution obtained by this procedure from the commercial hypochlorites and from Labarraque's solution:

Pour into a glass about 20 c.c. of the fluid, and drop on the surface a few centigrams of phenolphthalein in powdered form. Dakin's solution, correctly prepared, gives absolutely no change in tint, while in the same conditions Javel water and Labarraque's fluid give an intense red coloration which indicates in the latter two solutions the presence of free caustic sodium.

Apparatus Required for Sterilization of Wounds.—1. One liter bottles, the lower opening with an interior diameter of 7 mm.

2. Distributing tubes with one, two, three or four branches (Gentile).

3. Connecting tubes: (*a*) cylindric tubes, 2.5 cm. long, interior diameter 4 mm.; (*b*) cylindric tubes, 4 cm. long, interior diameter, 7 mm.; (*c*) Y tubes, interior diameter, 7 mm.

4. Mohr pinch-cocks.

5. Irrigating tubes. Drain tubes No. 30 (interior diameter, 7 mm.).
6. Connecting tubes. Drain tubes No. 16 (interior diameter, 4 mm.), closed at one end. Above this end these tubes are perforated with holes from 0.5 to 1 mm. in diameter:

(*a*) Tubes perforated for 5 cm., 30 cm. long; (*b*) Tubes perforated for 10 cm., 30 cm. long; (*c*) Tubes perforated for 15 cm., 40 cm. long; (*d*) Tubes perforated for 20 cm., 40 cm. long.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DUNCAN'S AUTOTHERAPY

To the Editor:—I have recently received through the mail a set of reprints from several of the leading medical journals of America (The Journal excepted) on the subject of autotherapy. These reprints include the *American Journal of Surgery,* October, 1913; the *American Practitioner,* July, 1913; the *Medical Record,* date not given; *American Medicine,* Vol. X, No. 10, pages 772-776, October, 1915, and others.

In them the author, Charles H. Duncan, M.D. of New York, claims to have had great success in treating wounds and other surgical conditions by a startling new method. This method consists of injecting hypodermically, or giving by mouth, material collected from the wound and passed through a filter. If these claims are true and if the filtering process is practicable and not too expensive, autotherapy ought to revolutionize my work. I cannot help wondering, however, why I have not seen anything of it in The Journal of the American Medical Association. Would such a method be dangerous, and are Dr. Duncan's claims unfounded?

Charles D. Leach, M.D.,
Huchow Union Hospital, Huchow, Chehkiang, China.

Answer.—No satisfactory evidence has been produced to substantiate the claims made in favor of the treatment called "autotherapy." The hypodermic injection of purulent material filtered absolutely free from bacteria would not cause infection, provided aseptic precautions were observed, but there might be serious danger of acute intoxication from the introduction of poisonous protein products. Although this is a modified form of autogenous vaccine therapy, it is incapable of any form of standardization. The introduction of infectious material into the mouth for curative purposes, although also a kind of treatment with autogenous vaccines, does not permit standardization for many reasons, but especially because so much of the vaccinating material introduced in this way would be digested and rendered inert in the stomach. Neither method is at present of any practical value, nor are they apparently endowed with any miraculous curative properties.

The latest contribution of Dr. Duncan is to the effect that the male spermatozoa and the secretions of the vaginal tract when "injected subcutaneously" or "otherwise absorbed" by the opposite sex "act as a powerful aphrodisiac."

CHOLESTERIN INJECTION TO REENFORCE THE NATURAL MEANS OF DEFENSE

To the Editor:—In The Journal, Nov. 11, 1916, p. 1478, in an abstract of an article by Barbary in the *Bulletin de l'Académie de médecine,* there is described a mixture of cholesterin, camphor, strychnin sulphate and olive oil. Could you give me some more information concerning this; whether the amounts given are for a single dose; the frequency of the dose, and the manner of administration?

Elmer E. McKee, M.D., Reading, Pa.

Answer.—The following is a translation of that part of Barbary's communication relating to the technic:

> The preparation finally adopted after numerous trials contains 20 cg. of pure cholesterin, 50 cg. of camphor, and 0.5 mg. of strychnin sulphate for one ampule of 5 gm. olive oil washed in alcohol and sterilized.
>
> 1. The cholesterin must be chemically pure. 2. The solvent, pure olive oil, must be washed and rewashed in 90 per cent. alcohol.
>
> The solution, even in large doses, is not toxic.
>
> In men severely wounded we inject from one to three ampules, that is, from 5 to 15 gm. every twenty-four hours. As soon as the lowering of the temperature shows that the infection is diminishing in intensity, one ampule is injected daily; later, injections at intervals of ten days.
>
> In case of operations, we make one or two injections the day before and the day of the operation, following with the injections in series.
>
> In convalescents, a daily injection at intervals of ten days.
>
> This method of rousing the defense of the infected organism after extensive wounds, in the sick, in those exhausted from the stress of war, is extremely simple as it is reduced to injections of 5 gm. of fluid under the rules of ordinary asepsis, which can be done at all places, under all circumstances.

THE FRATERNAL PHYSICIAN SCHEME

To the Editor:—I was fooled, and I wish to save others from the same fate. A man came to me two weeks ago posing as Mr. B——, an organizer of societies. At present he is organizing a branch of the "Protective and Benevolent Order of Beavers" of New York. He produced credentials which seemed to prove absolutely that he was on the level, and no one could doubt his word after reading them. I was supposed to join this branch as physician, as many others have done through his clever ruse. This Mr. B—— takes any amount given, although the initiation fee, as stated on the enclosed card, is $5. Kindly publish this in The Journal, as I am sure it will save other young physicians from falling his prey.

B. B. Pitt, M.D., Brooklyn.

THE RECTAL TUBE AND HIGH INJECTIONS

To the Editor:—The sigmoid flexure can certainly be passed with a rectal tube (The Journal, Dec. 2, 1916, p. 1688) if the patient is placed in the knee-chest position, the tube inserted into the rectum, and the fluid allowed to flow gradually till the rectum is filled. The tube can then be caused to pass the flexure. By no other means can it be prevented from doubling up.

L. E. Barton, M.D., Malta, Ill.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. W. H. Sanders, Montgomery.
Alaska: Juneau, Jan. 3. Sec., Dr. H. C. DeVighne, Juneau.
Arizona: Phoenix, Jan. 2. Sec., John Wix Thomas, 306 Goodrich Bldg., Phoenix.
California: Sacramento, Jan. 9. Sec., Dr. C. B. Pinkham, Forum Bldg., Sacramento.
Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
Delaware: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Indiana: Indianapolis, Jan. 9-11. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.
Kentucky: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.
Maryland: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
Minnesota: Minneapolis, Jan. 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
Missouri: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.
New Hampshire: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.
New Mexico: Santa Fe, Jan. 8. Sec., Dr. W. E. Kaser, East Las Vegas.
North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.
Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.
Oregon: Portland, Jan. 2. Sec., Dr. Herbert S. Nichols, 802 Corbett Bldg., Portland.
Pennsylvania: Philadelphia, Jan. 9-11. Sec., Nathan C. Schaeffer, Capitol Bldg., Harrisburg.
Rhode Island: Providence, Jan. 4-5. Sec., Dr. C. T. Swarts, State House, Providence.
South Dakota: Pierre, Jan. 10. Sec., Dr. P. B. Jenkins, Waubay.
Virginia: Richmond, Dec. 12-15. Sec., Dr. J. N. Barney, Fredericksburg.
Washington: Spokane, Jan. 2. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.
Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. 2nd St., Ashland.

Report of First Examination of the National Board of Medical Examiners

As already stated in The Journal (General News, Nov. 18, 1916, page 1534) the first examination of the National Board of Medical Examiners was held in Washington, D. C., Oct. 16-21, 1916. Of the thirty-two physicians who applied for the examination, only sixteen were found to have the essential preliminary and medical qualifications, and only ten of these appeared for the examination. Of the ten, three had not served the entire year required as an intern in a hospital or laboratory, but were admitted to the examination with the understanding that should they pass, the certificate would be withheld until the hospital year had been completed. Two were applicants for admission to the Army Medical Service.

The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry and physics, 75; pathology and bacteriology, 100; materia medica, pharmacology and therapeutics, 75; medicine, 200; surgery, 200; obstetrics and gynecology, 100; hygiene and sanitation, 50; medical jurisprudence, 25. A percentage of 75 was equired to pass. Falling below 65 in more than two subjects, or below 50 in more than one subject, constituted a failure. The following colleges were represented:

College	PASSED	Year of Grad.
Rush Medical College		1911
Rush Medical College		1907
ohns Hopkins University		1915
ohns Hopkins University		1916
University of Michigan		1915

College	FAILED	Year of Grad.
Ioward University		(1912)
Rush Medical College	(1914)	(1915)
ohns Hopkins University		(1916)
University and Bellevue Hosp. Med. College		(1916)

AVERAGES OBTAINED

Subjects	Candidates by Number										General Aver. by Subject
	1	2	3	4	5	6	7	8	9	10	
Anatomy	63	69	84	70	87	95	70	78	64	55	73.5
Chemistry and physics	24	84	84	76	88	82.6	82.4	92	82.4	86	78.1
Physiology	74	52.5	83	86	87.5	83	95	79.5	79	81	80
Pathology	66	52	58	90	92	88	74	68	62	60	71
Bacteriology	50	52	75	81	79	75	75	63	70	70	69
Pharmacology, materia medica and therapeutics	84	80	88	84	84	86.6	96	88	81.5	90	86.2
Medicine	57	54	77	76	88	53	88	83	75	83	73.4
Surgery	58	53.5	80	77.5	73	78	68	78	62	61	68.9
Obstetrics and gynecology	85	67	77	82	66	70	68	80	75	70	74
Hygiene	69	68	72.3	73.3	73.3	66.6	66.6	71.6	65.8	69	69.6
Medical jurisprudence	58	55	80	75	80	70	63	75	86	75	71.7
Eye, ear, nose and throat	60	65	90	65	80	90	95	75	75	75	77
General aver. of candidates	62	62	78	78	81	80	70	80	71	72	

EXAMINATIONS AND TIME ALLOWED

Subject	Kind of Examination	
	Written	Other and Remarks
natomy	3 hours	Oral with prepared specimens; 20 minutes for each candidate
hemistry and physics	3 hours	2 hours laboratory in physiologic chemistry*
Physiology	2 hours	Laboratory, 2 hours
Pathology	4 hours	Laboratory examination, 20 minutes, each candidate
acteriology	2 hours	Laboratory, 2 hours
harmacology, materia medica and therapeutics	2 hours	Laboratory, 2 hours
ledicine	3 hours	Clinical laboratory, ½ hour each candidate; chemical examination, 2 hrs.*
urgery	3 hours	Lab., Op. Surg. and Appl. Anat., 2 hours;* clinical examination, 2 hours*
bstetrics and gynecology	3 hours	Oral, 20 minutes each candidate
ygiene	3 hours	
ledical jurisprudence	2 hours	
ye, ear, nose and throat	....	Clinical examination, 2 hours*
ermatology	....	Clinical, 20 minutes each candidate

* For each group of five candidates.

The examination consisted of written, oral, laboratory and linical tests. The questions asked were as follows:

ANATOMY

(a) *Written Examination.*—Answer any three of the following ques- ons: 1. Describe the shoulder joint with overlying structures and uscular attachments in immediate vicinity. 2. Describe minute anat- my of the kidney. 3. Attachments, action and nerve supply of fol- wing muscles: digastric, biceps femoris, internal oblique, soleus, ectoralis minor. 4. Name the layers of the blastodermic vesicle, and ve the derivatives of each.

(b) *Oral Examination.*—Candidates examined individually for twenty inutes each during course of written examination. Questions asked: Osteology: Scapula, axis, atlas and middle cervical, dorsal and lum- ar vertebrae; temporal bone, femur, humerus. 2. Neurology: Brain odels, casts, spinal cord. 3. Dissections: Showing knee and face nd neck. 4. Microscopic slides for identification; bone, cartilage, ood, epithelium, and spinal cord.

CHEMISTRY AND PHYSICS

(a) *Written Examination in Chemistry.*—Answer any four of the llowing questions: 1. How would you proceed in the identification nd estimation of arsenic in a toxicologic investigation? 2. What are e essential steps in the chemical examination of drinking water? Write on the chemistry of nucleic acid and its purin derivatives. Give methods of estimating the amount of sugar in urine. 5. Give ethod of determining the amount of CO_2 in alveolar air. 6. Give the hemical formulas for calomel and corrosive sublimate and detail the hysical and chemical tests by which one of these substances may be distinguished from the other. 7. Give at least one method of estimating urea in urine. 8. Give the general properties (physical and chemical) of proteins. Give some of the most characteristic reactions used in their identification. Classify proteins. 9. What is an amino acid? What are some of the amino acids in the protein molecule? What is a peptid and polypeptid? 10. Define a carbohydrate; what are the chief carbohydrate constituents of foods; what are the final products of carbohydrate metabolism? 11. Define a neutral fat; what are the chief neutral fats in foods; what are the final products of the metabolism of fats? What is soap; how and when are soaps formed in the animal body? 12. To what acid is the acidity of normal gastric juice due? How would you determine the presence or absence in the stomach contents of this acid? 13. What are the chief constituents of milk, and how would you determine the amount of each? 14. How would you estimate the acidity or alkalinity of an aqueous solution? What is a normal or decinormal alkali or acid?

(b) *Laboratory Examination in Physiologic Chemistry.*—Candidates divided in two groups of five each. Each group allowed two hours. Questions asked: 1 and 2. Analyze urine for sugar. (a) Positive. (b) Negative specimen. 3. Do a complete analysis of urine including urea estimation. 4. Gastric contents, titration for acidity. 5. Quantitative sugar. Estimation in given specimen.

(c) *Written Examination in Physics.*—Answer any four of the following questions: 1. What is a lever? What is meant by its mechanical advantage? Name the various classes of levers and draw figures to represent them. Derive the equation which applies to them. 2. What is meant by density? By specific gravity? How are the densities of solids obtained, (a) if regular in shape, (b) if irregular in shape? How are the densities of liquids obtained? Derive formulas to be used in each case. 3. What is meant by a solution? Give several examples of quite different types of solutions. What is meant by an emulsion? Give example. What is meant by osmosis, osmotic pressure? State some of the laws governing variation of osmotic pressure in dilute solutions. Give illustrations of osmotic pressure as shown in nature. 4. In what state or condition is a body while acting as a source of sound? Of a musical note? Define the terms pitch, intensity and quality as applied to the description of a sound. What is the mathematical equation connecting velocity, wave length, and vibrational frequency of a sound? 5. What is meant by resonance? Give a way of producing it by experimental means. Derive equation representing the necessary conditions for resonance in the method used. Give several instances of resonance occurring in nature. 6. What is meant by vaporization? Why is it a cooling process? Why does water boil at a constant temperature usually? Why is the boiling point changed by a change in pressure? A dissolved gas? 7. State Ohm's law. Draw a simple electrical circuit, containing a single electromotive force, give numerical values to its various parts and compute the current flowing. What is the expression for the heat produced in the external circuit? 8. What are induced electromotive forces? What are some simple experimental ways of producing them? Where are they produced for practical purposes? How may they be made of large value? 9. What is meant by electrical capacity? Describe the construction of a condenser. What is its use in an induction coil? (Use figure in explanation.) 10. What is the electrolytic dissociation theory? Illustrate with (a) NaCl; (b) with H_2SO_4. How does it explain passage of electricity through liquid conductors? 11. What is meant by the refraction of light? Illustrate, using a convex lens. Draw figure showing structure of compound microscope, and explain the function of its various parts. 12. What is meant by a spectrum? What kinds are there and how are they produced? What practical uses are made of these various types of spectra?

PHYSIOLOGY

(a) *Written Examination* (two hours allowed).—1. Give the site of formation and the specific properties of the various internal secretions. .2. Draw a diagram representing simultaneous pressure changes within the jugular vein, the auricle, the left ventricle and the aorta. 3. Describe briefly the ferments and specific secretions of the pancreas and of the intestinal mucosa. 4. Discuss briefly the theories of renal secretion. 5. What stimuli and mechanisms are involved in the physiologic movements of the pupils of the eyes? 6. Sketch the factors involved in coagulation of the blood.

(b) *Laboratory Examination* (two hours allowed).—Each applicant required to solve at least one and at most three of the following problems: 1. Put up the apparatus and prepare the gastrocnemius muscle of a frog, with its attached nerve, and demonstrate on it the curve of single muscular contraction and the synthesis of tetanus. Show that nerve conduction is a vital phenomenon. 2. Demonstrate the "independent irritability" of muscle in a frog. Set up the apparatus and demonstrate Pflüger's law of contraction on the nerve-muscle preparation of a frog. Construct a table representing the facts. 3. Demonstrate reflex action on a cerebrum-free frog, and the influence of inhibitory mechanisms and processes. 4. Prepare apparatus, and the body of the rabbit provided, for the demonstration of arterial blood pressure and the effects on it of stimulation of the cardiac nerves. Isolate the pneumogastric, the sympathetic and the depressor nerve in the neck. Draw tracings illustrating arterial blood pressure in the rabbit and the influence on it of excitation of the cardiac nerves. 5. Prepare from the material provided a schema for the conversion of an intermittent into a continuous flow of fluid, and apply it to the explanation of the phenomena of the animal circulation. 6. (a) Set up an experiment for recording blood pressure in carotid artery of rabbit. Isolate vagus nerve and depressor nerve of heart. (b) Make synchronous tracings of venous and carotid pulse and analyze findings. 7. Record human arterial blood pressures by the auscultatory method; determine the length of each auscultatory "phase" and discuss its suspected relation to cardiac efficiency. 8. Draw tracings illustrating the following physiologic phenomena: 1. Arterial blood pressure in the dog; the effect on it of vagus inhibition; of stimulation of the accelerator nerves; of asphyxia. 2. Blood pressure in the rabbit; effects of vagus stimulation; effect of depressor stimulation; 3. Draw and analyze three sphygmomanographic tracings of the radial artery indicating the outflow period of the heart and variable states of peripheral resistance. 9. Demonstrate cardiac action in a pithed frog. Isolate the vagus nerve and demonstrate its inhibitory action. Show the relation of atropin to vagus inhibition. Perform and discuss the experiment of Stamius. 10. From the specimen of defibrinated blood provided, prepare a dilute solution of hemoglobin. Determine its absorption spectrum and depict on the blank scale provided, on which are marked the Frauenhofer lines B to F, first having located the spectrum of sodium vapor. Note the change in the spectrum from increasing the concentration of the hemoglobin solution. Prepare reduced hemoglobin with Stokes fluid and obtain its spectrum; reoxidize this and describe the color changes. Prepare carbon monoxid hemoglobin and determine its spectrum; try to reduce it; try to convert it to oxyhemoglobin. Prepare crystals of hemin from a blood stain. 11. Demonstrate on the spirometer the various possible volume changes in the lungs. Determine as far as possible, and illustrate by a diagram the quantitative relations of the complemental, supplemental, tidal and residual air; the "dead space" and the "vital capacity." 12. Demonstrate the action of the intercostal muscles. 13. Prepare a 1 per cent. starch mucilage; a 5 per cent. aqueous dextrin and a 0.1 per cent. solution of dextrose and some of your own saliva. With the reagents provided test the solutions. Demonstrate the reaction of the saliva and the result of incubating it with the starch. From time to time test the resulting chemical changes. Place crystal of sugar on the back and on tip of tongue in succession and describe the sensory results; repeat with a crystal of quinin on the tip of the tongue. 14. Closing one eye and looking at an upright needle through a card pricked with two holes closer together than the diameter of the pupil; determine the *near* and *far* points of vision; note that the image of the needle becomes double when the eye is focused on points nearer or farther. Close one of the holes under each condition and note which image disappears. Draw and explain a diagram illustrating the course of light rays in the eye under the various circumstances. Obtain and describe a series of negative after-images by means of the various disks of cardboard provided. Draw the outline of the "blind spot" in the eye. 15. With a pair of compasses determine the relative fineness of localization on the tip of the tongue, tips of fingers, palm of hand, cheek, back of hand, forehead, back of neck. With a warm metallic knob determine sensitiveness to temperature in these parts. With a pointed metallic rod determine the distribution of temperature points on the flexor surface of your wrist. Compare your appreciation of small differences in weight through pressure sense alone and combined pressure and muscular sense. Show how to demonstrate Weber's law.

PATHOLOGY

(*a*) *Written Examination.*—Answer the first three questions and any two of the last four questions: 1. Discuss the criteria of malignancy. Name five tumors, giving sites, which are usually malignant. Name five, giving sites, which are not malignant. 2. A male, 60 years of age, has died of gastric cancer (a clinical diagnosis based on a two-year history). Describe the necropsy technic and the probable gross and microscopic findings. 3. Describe the process of healing in an incised, uninfected wound through the skin, fascia and muscles. What modification of the process would occur if the wound were infected at the time it was made with *Staphylococcus pyogenes-aureus* of moderate virulence? 4. Discuss the pathology of lobar pneumonia. 5. Differentiate, in parallel columns, the blood picture found in lymphatic leukemia and in pernicious anemia. 6. Describe the pathologic lesions in typhoid fever. 7. Discuss the pathology of nephritis.

(*b*) *Laboratory Examination.*—During course of written examination each candidate was given gross specimens and microscopic sections chosen from the following:

Gross Specimens: Cancer of lip; hyperplastic thyroid; cancer of breast, mastitis; miliary tuberculosis of lung; cavity formation in tuberculosis of lung; pneumonia, red hepatization; cirrhotic liver; chronic atrophic nephritis; nephroma ("hypernephroma").

Microscopic Specimens: Ulcer of lip; epithelioma of lip; mammary cancer, advanced; cancer, early; mammary adenoma; miliary tuberculosis of lung; pneumonia, lobar, hepatic cirrhosis; chronic diffuse nephritis; acute nephritis, early.

BACTERIOLOGY

(*a*) *Written Examination.*—Time allowed two hours. Questions asked: 1. Give morphologic and cultural characteristics distinguishing *Streptococcus pyogenes* from the pneumococcus. 2. What do you understand by a filterable virus disease? Give a list of such diseases affecting man. 3. (*a*) How do we differentiate the typhoid, enteritides (Gaertner) and colon groups by fermentation reactions? (*b*) How do we differentiate the paratyphoid organisms from one another? 4. (*a*) Name the anaerobes pathogenic for man. (*b*) Give the morphologic and cultural characteristics of *B. aerogenes capsulatus* (gas bacillus) and briefly discuss its pathogenic importance. 5. (*a*) Define the following terms: Antigen. Passive immunity. Opsonin. Inactivation. Substratum. (*b*) Discuss briefly the principles of immunity involved in the carrying out of the complement fixation test.

(*b*) *Laboratory Examination* (time allowed, two hours).—1. Stain culture by Gram's method and report as to presence or absence of organism having morphologic and Gram staining characteristics of the meningococcus. 2. Examine throat culture for the diphtheria bacillus. 3. Make microscopic agglutination of unknown organism with typhoid serum. 4. Given an animal parasite for identification. 5. Given a stained blood smear for examination as to presence of the malarial parasite. 6. Given specimen of feces containing ova of intestinal parasites—identify one ovum.

PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS

(*a*) *Written Examination.*—Answer the first six questions; from Questions 7 to 12 chose four: 1. Give source and physical properties of atropin. What is its effect on the heart beat? In which disease of the eye has it an important diagnostic significance? In which disease of the eye is it contraindicated? 2. Describe the effect of chloral hydrate on the central nervous system. In what condition of disease is its use especially dangerous? Why? Write a prescription for the administration of chloral hydrate, with full directions for the patient. Indicate the condition for which this is prescribed and the dose intended. 3. Explain the constipation effect of opium. Describe the effect of morphin on the respiratory center. What are the signs of an overdose of morphin? 4. Describe the dominant action of strychnin on the central nervous system. Discuss the use of strychnin as a heart tonic. 5. Explain the therapeutic effect of quinin in the treatment of malaria, and outline the proper dosage. 6. Name three important members of the digitalis group. Describe briefly the action of digitalis on the heart and the circulation. Give a method of standardizing digitalis. 7. Outline the therapeutic use of digitalis in mitral insufficiency with broken compensation. Name three conditions of heart disease in which digitalis should be used with caution, and give reasons. 8. Discuss briefly the general action of diuretics. Explain the diuretic action of digitalis. 9. Outline the method of using sodium salicylate in acute rheumatic fever. Indicate the dosage. Write an appropriate prescription, with full directions for the patient. 10. Describe the condition known as delayed chloroform poisoning, indicating the principal organ affected, the pathologic change in the same, and the effects on the system. 11. Describe the action of the insoluble bismuth salts on the gastro-intestinal mucous membrane. Discuss the use of bismuth preparations in the local treatment of ulcers. Give the principal signs of bismuth poisoning. 12. What is the essential element in dried thyroid gland? Describe its action when given in therapeutic doses. Name three conditions in which it is used as a therapeutic agent. What are the signs of its excessive action?

(*b*) *Laboratory Examination.*—The first of the practical examination consisted of a demonstration on a dog that was prepared as follows: Anesthetized with ether, trachea exposed and severed, after which tracheal cannula was inserted and connected with ether bottle, artificial respiration being continued. Carotid artery was exposed and arterial cannula inserted, connected with manometer. Vagus nerve exposed but intact. Right femoral vein exposed and cannula inserted.

Various drugs were introduced into the animal, and the candidate was required to note his observation as to the effect on the blood pressure and the respiration, and to interpret the same. The following was the order. 1. Effect of ether. 2. Electric stimulation of vagus. 3. Effect of amyl nitrite inhaled into tracheal cannula. 4. Effect of epinephrin (intravenous). 5. Electric vagus stimulation (second time). 6. Effect of chloroform (tracheal cannula). 7. Effect of digitalis (intravenous) large dose tincture (alcohol free).

(*c*) *Individual Laboratory Tests in Pharmacology.*—In this test each candidate was required to carry out one of the following: Six frog experiments: Injection of unknown solutions: strychnin; caffein; chloral. Four cat's eye experiments: Introduction of unknown solutions: atropin; physostigmin. The candidate was requested to carry out the experiment on the animal, record the results with his interpretation, and write as complete a protocol as possible.

MEDICINE

(*a*) *Written Examination.*—Answer ten of the following questions: 1. Give the physical signs and outline the treatment of mitral stenosis. 2. Discuss the etiology of acute pleurisy with effusion. Give the physical signs of a typical case. What are the indications for aspiration? 3. Outline the differential diagnosis between duodenal ulcer and gallstones. 4. Contrast the blood findings in pernicious anemia and chlorosis. Discuss the prognosis of each. 5. Describe a typical case of myxedema and outline the treatment. 6. What changes in the knee jerk are characteristic of: Tabes dorsalis? Motor hemiplegia (cerebral)? Diphtheric neuritis? Multiple sclerosis? Acute poliomyelitis (lumbar region)? 7. Name three forms of peripheral neuritis, and give characteristc diagnostic signs of each. 8. Discuss the relation of general paresis to syphilis. 9. At what time in the course of scarlet fever is acute nephritis most likely to develop? Describe the urinary findings in a typical case. Treatment. Prognosis. 10. Give the diagnostic signs of infantile scorbutus. Outline treatment. 11. Give the diagnostic characteristics of the cerebrospinal fluid in the following conditions: tuberculous meningitis; epidemic cerebrospinal meningitis; acute anterior poliomyelitis. 12. Discuss briefly the principal theories that have been held as to the etiology of pellagra. Which do you consider the most reasonable, and why? 13. Discuss briefly the question of prophylaxis against malaria.

Clinical Laboratory (one hour).—1. Specimen of urine, chemical analysis and microscopic examination of sediment. 2. Recognition of hookworm ova, taenia scolices, *Trichina spiralis*, and different types of plasmodium. 3. Clinical examination at Garfield Memorial Hospital covering a period of two hours. To each candidate were assigned three patients, referred to as one long and two short cases.

The candidate was given one hour and twenty minutes for the examination of the long case, and required to present a written clinical history, including the physical examination. He was expected further to ask for the laboratory tests required by the nature of the diseased condition, and to stand an oral examination on the clinical history and diagnostic conclusions.

The two short cases were accorded twenty minutes each, and the examination was confined to the physical examination of a well-defined condition, as a typical heart lesion, aortic aneurysm, exophthalmic goiter or enlarged liver.

The patients assigned for examination represented the following diseases: Typhoid (1); tuberculosis of lung (3); acute endocarditis (1); aortitis with aortic insufficiency (2); aortic insufficiency (1); aortic aneurysm (2); chronic nephritis (1); bronchial asthma (2); chronic myocarditis (1); exophthalmic goiter (1); pernicious anemia (1); diabetes mellitus (2); hypertrophic cirrhosis of liver (1); tabes dorsalis (1); motor hemiplegia (1).

SURGERY

(*a*) *Written Examination.*—Answer five of the following questions: 1. Etiology and symptomatology of acute pancreatitis. Discuss briefly surgical treatment. 2. Discuss the differential diagnostic value of hematuria as a symptom. 3. Give treatment of compound, comminuted infected gunshot fracture of lower end of femur. 4. Discuss the routes and manner in which metastases may occur from carcinoma of the breast. 5. Discuss the pathology, symptoms and treatment of osteomyelitis of the tibia in the acute and chronic stage. 6. Discuss the signs, symptoms, differential diagnosis, and briefly the surgical treatment of extradural hemorrhage.

(*b*) *Laboratory Examination in Operative Surgery and Applied Anatomy.*—Candidates examined in two groups of five; two hours allowed each group.

First test (dogs were supplied which had been killed on preceding evening at the "pound"): Remove a portion of the small intestine about 10 inches in length, making two "blind ends" and a lateral anastomosis. For this one hour was allowed and the suture lines tested under water pressure. Candidates were then given living models on whom they were to point out; 1. The different incisions used in exposing the gallbladder, and discuss the advantages and disadvantages of each. 2. Determine by measurements point at which trephining would be done for hemorrhage from the anterior branch of the middle meningeal artery. 3. Outline the surface measurements for locating the fissure of Rolando. 4. Outline the incisions used for amputation at the shoulder joint and discuss methods of control of hemorrhage.

(*c*) *Clinical Examination.*—Candidates were examined in two groups of five each, two hours for each group. Each candidate was given one long case which he could examine for one-half hour, then being examined on it for ten minutes, and two short cases which candidates could examine for fifteen minutes each, then being examined for five minutes on each case.

Long cases: Tumor of liver (probably sarcoma); tumor of groin (carcinoma of inguinal glands); osteoma of femur; gastric ulcer; tumor of neck (carcinoma of the cervical glands following carcinoma of the tongue).

Short cases: Intracapsular fracture of hip; tuberculous epididymitis; hydrocele; united fracture of clavicle; myostitis ossificans of vastus internus; hernia (complete indirect inguinal); bone graft (Albee) for Pott's disease; cancer of mouth; varicose veins; subsiding appendicitis.

In addition to the surgical cases there were two patients with skin disease present. Each candidate was taken over then by the examiner on skin diseases. These patients were: 1. Negress, aged about 23, with seborrheic eczema; 2. Negress, aged about 29, purpura (or peliosis) rheumatica.

OBSTETRICS AND GYNECOLOGY

(*a*) *Written Examination in Obstetrics.*—Answer six of the following questions: 1. Give a brief description of the anatomy of the female pelvis, including the principal diameters. 2. Describe the normal mechanism of labor in a head presentation, the occiput to the rear. 3. What prophylactic measures should be observed in the conduct of the third stage of labor to prevent a postpartum hemorrhage? 4. Give a brief description of a Naegele oblique pelvis and the treatment of such a case at full term. 5. Give clinical history, diagnosis and management of a typical case of toxemia of pregnancy during the last few weeks. 6. Under what circumstances would you perform craniotomy? 7. Give a short review of the operation of ischiopubiotomy and its modern indications.

(*b*) *Written Examination in Gynecology.*—Answer all the following questions: 1. Describe three varieties of ovarian tumors, and give the differential diagnosis of each variety. 2. Indications and contraindications for ventral suspension or ventral fixation of the uterus. 3. Diagnosis, pathology and clinical history of carcinoma of the body of the uterus. 4. Management of a case of undeveloped uterus with so-called anteflexion.

(*c*) *Oral Examination.*—During the course of the written examination each candidate was examined for twenty minutes orally. Questions asked: 1. Forceps: Classification of operations; indications and limitations of the high operation; indications for the low operation. 2. Mechanism of labor in a simple flattened pelvis: Engagement and movements of mechanism, including internal rotation. 3. Repair of lacerations after labor: Indications and advantages of the immediate operation; technic. 4. Cesarean section: Indications for the modern operation. Limits of contraction in the absolute indication. 5. Indications for the induction of premature labor: Indications, advantages over cesarean section in contracted pelvis. Relative indications in treatment of toxemia of pregnancy and of placenta praevia. 6. Salpingitis: Varieties, causes (including bacteriology), clinical history, diagnosis. 7. Cystocele: Definition, ordinary complications, symptoms and treatment. 8. Ectopic gestation: Definition, clinical history, diagnosis, treatment.

In addition to these, each candidate was asked one or two random questions, such as the use of anesthetics in obstetrics, the use of pituitary extract, displacements of the uterus, hemorrhage from the uterus, and disorders of menstruation.

HYGIENE

Written Examination.—Answer the following questions: 1. How would you determine the purity of a public water supply? 2. Discuss the hygiene of the mouth. 3. What measures would you adopt for the control of an epidemic of diphtheria among schoolchildren? 4. Name the diseases which may be conveyed by meat. 5. Name the insect-borne diseases and the insect host of each. 6. Describe a sanitary privy.

MEDICAL JURISPRUDENCE

Written Examination.— Answer the following questions: 1. How would you determine that a blood stain was made by human blood? 2. Describe some of the wounds falling within medicolegal consideration. 3. What means should be employed to establish personal identity (*a*) in a living person; (*b*) in a dead person. 4. What are the signs of death? How would you determine that a person is dead? 5. What is rape? Give the more prominent signs of rape, and indicate the steps essential to determine the fact that rape has been committed.

EYE, EAR, NOSE AND THROAT

Clinical Examination.—This consisted in demonstration of the candidate's ability to use special instruments required in eye, ear, nose and throat examining.

Oregon July Report

Dr. Herbert S. Nichols, secretary of the Oregon State Board of Medical Examiners, reports the practical and written examination held at Portland, July 5-7, 1916. The total number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 34, of whom 24 passed and 10 failed. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
College of Medical Evangelists	(1916)	1
College of Physicians and Surgeons, San Francisco	(1916)	1
Chicago College of Medicine and Surgery	(1916)	1
Hahnemann Medical College and Hospital, Chicago	(1916)	1
Rush Medical College	(1908)	1
State University of Iowa, College of Medicine	(1897) (1908)	2
Baltimore Medical College	(1895)	1
Johns Hopkins University	(1916)	1
University of Michigan Medical School	(1906)	1
University of Minnesota	(1915)	1
Albany Medical College	(1914)	1
University of Oregon	(1909) (1916, 7)	8
Willamette University	(1905) (1907)	2
Jefferson Medical College	(1916)	1
University of Vienna	(1910)	1
FAILED		
College of Physicians and Surgeons, San Francisco	(1916)	1
Hahnemann Medical College of the Pacific	(1916)	1
Kentucky School of Medicine	(1906)	1
University of Louisville	(1907)	1
Johns Hopkins University	(1913)	1
University of Michigan Medical School	(1916)	1
St. Louis College of Physicians and Surgeons	(1915)	1
University of Oregon	(1916)	2
Tohoku Imperial University, Sendai	(1913)	1

Book Notices

Mortality Statistics, 1914. Fifteenth Annual Report. Cloth. Pp. 714. Washington: Government Printing Office, 1916.

In this report of mortality in the registration area, which now comprises 66.8 per cent. of the total population of the United States, a brief history is given of the development of the registration area to its present proportions. Interesting comment is made on the accuracy of statistics of causes of death as they are at present recorded. The difficulties of the collation and compilation of the numerous tables contained in the report are many. Statements of the specific causes of death, even under the International List, which is supposed to be followed at present, are defective. To attempt the tabulation of each cause of death reported on death certificates would mean their tabulation on an alphabetical basis, which would be impracticable. Several hundred thousand certificates are received each year on each of which the names of two or more diseases appear, while present classifications are based on the principle that each death must be ascribed to a single cause. The cooperation of local registration officials has been asked and received in hundreds of instances to correct such defective reports in order that proper classification of causes of death may be made. This has entailed a large amount of extra work on the part of the bureau and the registration officials, and of course could not be carried out for the entire number of certificates. So far as it has been done, the communication of registration officials with physicians, coroners, midwives and others has had an excellent educative effect which has been shown in subsequent returns. The bureau has also sent to physicians pamphlets on "Relation of Physicians to Mortality Statistics," and "Physicians' Pocket Reference to the International List of the Causes of Death" in the effort to improve the death data. As an indication of the possibilities of improving these data, the bureau sent letters and the last named pamphlet to physicians who had signed certificates with causes of death which would not admit of satisfactory classification, calling their attention to the defective terms used, and out of 2,000 replies received with additional information there was a net change in classification of 57.1 per cent. Of course the value of mortality or morbidity statistics in their applicability to the study of health problems depends on their accuracy, and the foregoing figures show the great need for improvement. It is the duty of physicians to acquaint themselves with the requirements of uniform and accurate reporting as provided in the International List.

Epidemics Resulting from Wars. By Dr. Friedrich Prinzing. Edited by Harald Westergaard, Professor of Political Science in the University of Copenhagen. Cloth. Price, $2.50. Pp. 340. Carnegie Foundation for International Peace, Division of Economics and History. New York: Oxford University Press, 1916.

This book is published under the auspices of the Carnegie Endowment for International Peace. It is a historical survey of epidemics resulting from war, and especially of the incidence of such epidemics in the civil population. After an introductory note and a general consideration of war pestilences, the systematic treatment commences with the Thirty Years' War (1625) and is carried up to the siege of Port Arthur (1904). Three great epidemics, the pestilence which accompanied the Thirty Years' War, the typhus fever in central Europe in 1812 and 1814, and the world-wide epidemic of smallpox which followed the Franco-Prussian War of 1870-1871 receive extended discussion. It does not appear whether or not Dr. Prinzing is a physician. It seems unlikely that he is, however, because of the remarkable statements that dysentery is not very dangerous as far as the patient's life is concerned, that bacillary dysentery is caused by the *Bacillus pyocyaneus* (p. 7), and that cholera is a disease characterized by frequent vomiting, without any mention of diarrhea (p. 6). The experience of the present war seems to show that the modern military sanitary service has this matter much better in hand than at such a comparatively recent date as the Spanish-American War of 1898, or the Russo-Japanese War of 1904. There is some hope, therefore, that the subject matter of this book has already become of purely historical interest.

Social Medicine, Medical Economics and Miscellany

THE DIFFICULTIES OF IMPARTING CLEARLY SURGICAL FACTS IN EXPERT TESTIMONY

LEVI J. HAMMOND, M.D.
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Philadelphia

Diversity of opinion arises, not from some persons having a larger share of good sense than others, but because they direct their thoughts along different ways, and hence do not fix their attention on the same object or purpose.

The difficulties, therefore, of our imparting knowledge, in a strictly forensic sense, arises from the fact that the nature, use and significance of terms employed by surgeons cannot with clearness and distinctness be understood by lawyers. To the surgical witness, there seems always a desire on the part of the counsel for matters of evidence rather than facts and conclusions. The surgeon cannot discover or expound new laws of physical nature at will, but should rest content with understanding existing laws, and should shape his testimony accordingly. He is in duty bound, therefore, to acquire sound knowledge and skill above the average in order to present intelligently the professional phase of the controversy, since the consequences involved are of the greatest moment, and for a proper consideration of which he is responsible to his conscience, to society and to justice. His testimony, therefore, must be grounded on plain and evident reasoning. There should be no attempt at reply to obscure, indistinct and vague questions, for, as yet, it is undetermined how far our understanding can extend its views, how far it has faculties to attain certainty, and in what instances it can only judge and guess.

We early learn that our understanding at best falls short of the possibilities which an individual occurrence may put within the reach of discovery; but in every instance there will be found enough to lead us to an intelligent performance of our duty, even though we may not grasp everything desired by the counsel. Nor will there be much reason to complain of the narrowness of our minds, if we employ them about the medical facts at issue, and not concern ourselves about the effect thus produced. We should not undervalue the advantage of our knowledge of the surgical phase of the subject, provided we have not neglected to improve our minds to the ends for which we are striving, namely, to inform and instruct the court and jury in surgical problems of which they at most hold only an abstract knowledge.

Under such circumstances there can be no just cause for complaint when probability is the most that can be asserted, especially when such knowledge is sufficient to govern intelligently the circumstances which at the time concern us. I take it that the intelligence of a court would not go to the length of disbelieving everything because the surgeon cannot with certainty know all things, or peremptorily or intemperately to require demonstration and demand certainty when there is only probability. It is impossible to make clear and distinct at all times a knowledge of surgical facts to those whose education and training have been constantly out of relation to the nature, use and significance of our descriptive language; for though it is proper always to express oneself in the most usual and familiar way by common words and expressions (by which means alone we can make known our views clearly to another), this is not readily done in surgery so as still to retain the full significance of these terms. For reasons of clearness, doubtful expressions which have scarcely any significance should never be employed; nor will they be if the surgeon examines critically what he knows before answering. The counsel attempts to secure positive assent to his forensic questions in the terms in which they are proposed by him and as only he clearly understands. It is evident, then, that the prime requisite, in addition to hearing the question, is that its meaning shall be rightly understood. Only obvious inquiries can be assented to on first hearing, for they promptly call into action knowledge gained by observation and experience. More general and abstract inquiries require a longer time for comprehension.

Because of this it is better that we grow fully acquainted with simple truths before they are proposed, for thus abstract inquiries in their turn will be found less difficult to grasp than at first believed. With statements expressed in unfamiliar words, the surgeon can neither agree nor disagree; he is obliged to confess ignorance, as such words are but empty sounds. The answer to a question may be entirely correct, yet not equally evident. Some questions are so obvious that they carry their own meaning with them, requiring neither profound reasoning nor undue exercise of the mind to discover clear and distinct answers; while others are so speculative in character as not possibly to be assented to on first hearing.

Again, the words in themselves may be easily understood, yet the significance of their precise meaning, when expressed in forensic terms, may not be grasped, especially when they have never even been thought of or heard of before; for education and learning along different lines cannot instantly and at will cast thought into molds. Some lawyers, however, at times imagine that our minds lie open to every one of their views, as though the latter were native and original impressions, though in many instances they may be entirely new to us. This attitude assumes that a surgeon is prepared at all times to reply categorically to a question, leaving no doubt of the innate existence of special legal ideas. Such would surely be evidence of universal knowledge.

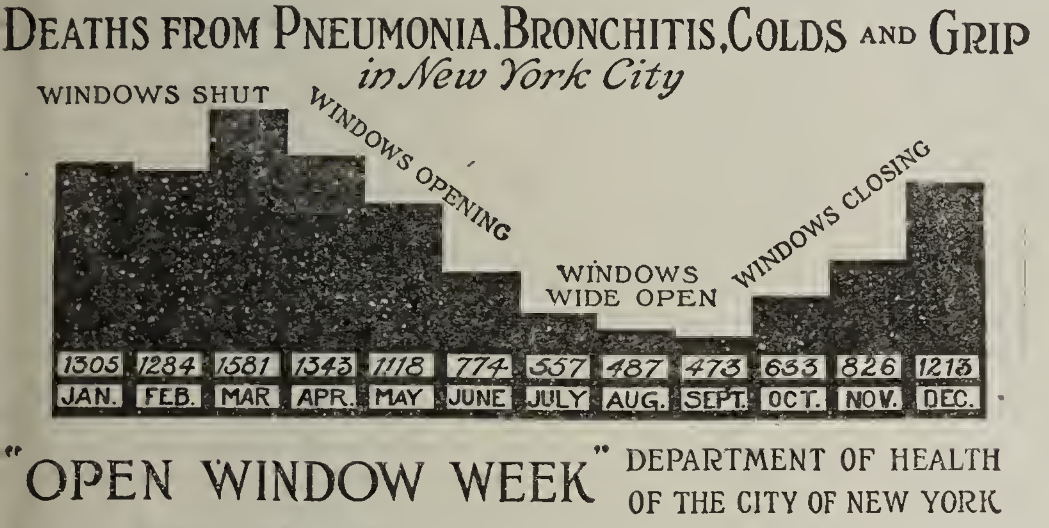
If I am correctly informed, knowledge comes to us in various ways: that of our being, by intuition, reasoning, and by sensation. The latter is the source through which the greater extent of knowledge is acquired; hence the necessity of actually receiving information from another. It may be that some of the legal inquiries to which we at times object are capable of demonstration, and it is our fault that we do not readily grasp them, provided they concern subjects on which there is agreement, and they are presented in unequivocal terms. It is possible that even practical truths, when stated by the surgeon and not fully comprehended by the counsel, may be so restated by him as not to be received without doubt or question by a jury. Under such circumstances, the witness may be so put off as to be unable longer to keep faith or even observe the rules of justice toward the counsel. Under such circumstances, his further replies to inquires may not interpret either his practice or his thought. One, I take it, should be regarded as void of good sense who failed to demand proof of the truth of an inquiry, for when such information is at hand, it carries its own light and evidence with it. One who understands the terms, if properly qualified, is ready promptly to agree or disagree according to his convictions. If a question is proposed to one who never before heard it but has capacity to learn its meaning, might he not, without being in contempt or even appearing presumptuous, ask a reason, and should not the counsel who proposed it be bound to make its significance clear to him?

It is the conviction of many that if a common understanding could be caused to exist between the legal and medical professions as to the particular information necessary intelligently to instruct a court or jury, much of the vague, obscure and, at times, unintelligent medical testimony would not longer be exhibited, but in its stead would be developed a greater promptitude of thought, a greater clearness and distinctness of imagination, and a greater fulness and readiness of memory.

1222 Spruce Street.

Open Window Campaign in New York

The New York City Department of Health has inaugurated a general campaign for better ventilation. The week of December 4-10 was designated as "Open Window Week," taking the place of what was formerly Tuberculosis Week. Each day of the week is marked by a special feature. Monday is Open Window Day; Tuesday, Medical Examination Day; Wednesday, Walk to Work Day; Thursday, Sanitary Workshop Day; Friday, Children's Health Day; Saturday and Sunday, Sunshine Days. A diagram showing deaths from pneumonia, bronchitis, colds and grip in New York City for each of the months of the year and the close relation between closed windows and increased death rate is being displayed in 3,000 surface, elevated and subway cars. The change from Tuberculosis Week to Open Window Week is significant as showing the greater emphasis which is being laid on health and the decreasing emphasis on disease.



Relation between closed windows and increased death rate.

Medicolegal

As to Enjoining Publication of Charge of Malpractice

(Wolf vs. Harris (Mo.), 184 S. W. R. 1139)

The Supreme Court of Missouri, Division No. 2, reverses a judgment obtained by the plaintiff, a physician, who brought this action in equity to restrain perpetually and enjoin the defendant from publishing certain alleged false, defamatory and libelous statements concerning him. The court says that the plaintiff averred that he was a practicing physician and surgeon, had been such for nearly a quarter of a century, reciting the extent of his studies, practice, and experience, that he was called to treat a young daughter of he defendant, and, though exercising in that behalf the utmost care and skill, the patient, without fault of the plaintiff, died, that thereafter the defendant demanded of the plaintiff in divers ways and at divers times and places the sum of $10,000 because of the death of said patient, and hreatened that, unless said sum was paid, the defendant, by circulating charges of criminal negligence of the plaintiff in connection with the death of said patient, would destroy he reputation, business, and professional standing and ncome of the plaintiff, which the plaintiff averred to be ucrative and large, and that in pursuance of said threats he defendant published and circulated more than 1,000 copies of a false and libelous writing concerning the plaintiff, which was set out in the petition, and which was, if untrue, maniestly libelous. It was further alleged that thereafter the defendant, with the same malicious intent and design, pubished and circulated among the plaintiff's patients, friends and acquaintances more than 5,000 copies of a pamphlet in which were repeated the same or similar false, defamatory nd libelous statements, and that subsequently the defenant procured the printing of a large placard, likewise conaining false and libelous statements concerning the plainiff, and that all this was done for the purpose of wrongully extorting from the plaintiff the said sum of $10,000. It was further alleged that the defendant threatened to coninue, and until and unless restrained and enjoined would ontinue, to print, publish and circulate the same or similar belous statements touching the plaintiff, etc. But the court s constrained to hold that the petition stated no cause of ction, because injunction (when, as here, that is the sole relief prayed for) will not lie to restrain the threatened pubcation of either a libel or a slander. Any other view overooks the spirit, if not the letter, of the state constitution, which substantially guarantees to the citizen the privilege of saying, writing and publishing whatever he desires on any matter, subject only to liability (either civil or criminal, or both) for any abuse of that privilege. It follows that, if the statements made were true, the defendant was permitted to publish them when and where and as often as he would, and that he was entitled to a jury of his countrymen to determine whether the statements were true or false. That the statements on which this action was bottomed seemed on their face to be malicious and obviously untrue did not change the case. However, after an action at law in which there was a verdict finding the statements published to be false, the plaintiff, on an otherwise proper showing, could have injunction restraining any further publication of that which the jury found to be actionable libel or slander, and of slanders or libel of a like or similar import. If the plaintiff had gone to a jury with this alleged libel and obtained a judgment, which, owing to the insolvency of the defendant, he was unable to collect, further publication of a libel of like or similar import ought to be enjoined. Or, even if the plaintiff had joined a count at law for damages for libel with a count for injunction on the theory of a threatened continuance of the false publication, and had alleged and proved, either the inadequacy of remedy by reason of the libeler's insolvency, or the legal necessity of the remedy sought in order to avoid a multiplicity of suits, the court, on a finding by the jury of the libel, and by the court of the said necessary facts on the equity side, could have enjoined continued publication thereof.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
American Physiological Society, New York, Dec. 28-30.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

NEW ENGLAND PEDIATRIC SOCIETY, NEW JERSEY STATE PEDIATRIC SOCIETY, NEW YORK STATE SOCIETY, PHILADELPHIA PEDIATRIC SOCIETY, AND PEDIATRIC SECTION OF NEW YORK ACADEMY OF MEDICINE

Joint Meeting, held in Boston, Nov. 4, 1916

Dr. Alexander Eastman, President of the New England Pediatric Society, in the Chair

Medico-Educational Problems in the Treatment of Atypical Children

Dr. G. Hudson Makuen, Philadelphia: The factors that determine the psychophysical condition as well as the personality of children are heredity and environment. Environment is subject to change. The most important feature in the child's environment is his education and training, and the most important and neglected period in the life of any individual is that which comes prior to the so-called school age. Teachers assert that the failures of pupils are due chiefly to faulty habits formed before their entrance into the schools and colleges. The so-called fixed habits are the early ones, formed during the child's physical and mental development in the first years of his existence. The general physical condition of the child may be influenced for good or ill by the character of its mental and emotional activities. Medico-educational methods become real measures of prevention only when they begin to be employed during infancy. Nervousness is the most characteristic malady of children, and its treatment should be, first, preventive and, second, remedial or curative. Preventive treatment is applicable in the earliest infancy, and it consists largely in an attempt to control the child's physical activities through a careful direction of his psychic and emotional activities. If the child is normal physically, this treatment should result in the development of normal physical and emotional faculties; but if the child inherits physical abnormalities, such as cleft palate or other irregularities of structure, surgery and some form of medication may be indicated in addition to the psychophysical training. Punishment should never be necessary, except, perhaps, at the very beginning and before the child is mentally susceptible to medico-educational measures. The remedial and curative treatment of atypical children is an effort to improve their condition through their physical activities. The personality of the child is modified and molded by what some one has called the reflex influences of its own acts and expressions. The Japanese have a theory that for one to be what he would like to be it is only necessary for him persistently to act the part. Doing things with purposeful intent is found to have a greater educational value than doing them carelessly or even in play. The play instinct is an important factor in child development, but at present it is overworked. The "work instinct" is equally important and is now being greatly neglected in the early training of children. The child should be taught to do things not because they are easy but because they are right, and the greater the difficulty in doing them the greater the educational value. Moreover, work and play should not be commingled, but they should form two distinct factors in education. Correct postural attitudes and good respiratory, phonatory and articulatory habits should have a conspicuous place in all medico-educational methods, because of their esthetic value and because they tend to give to the individual greater self-respect, self-reliance and self-control.

Intestinal Venous Stasis: Diffusion of Bacteria and Other Colloids

Dr. Fenton B. Turck, New York: Emulsions of bacteria injected into the intestine of animals rapidly diffuse through the membranes and tissues. The diffusion route taken by the bacteria from the intestine is the interstitial route taken in the adult. The micro-organisms diffuse rapidly through the mucous wall of the intestine, between the glands into the areolar tissue, and then course along the wall of the intestine between the muscle coat and the mucous membrane. In the new-born there is no arrest of passage by the mucosa labyrinth: a wall impervious to bacteria has not yet been formed. As the body grows, the tissues become less porous to bacteria. When disturbance of the splanchnic circulation and muscular atony of the wall of the alimentary tract is produced, a reversion to the fetal state of the intestine occurs, and the body needs protection from the toxins formed in the zona transformans, and "antianaphylaxis" is automatically established. The bacterial porosity of the tissue is materially increased by mechanical obstruction, interruption of the circulation sufficient to cause atrrophy, and interference with the nerve supply. Permeability is not a matter of "thickness." In order to increase permeability, fundamental changes in the flora of the individual and in the physiology of the organ must be induced. Among the means of bringing about the latter are thirst, hunger, overfeeding and shock. Fat and especially fatty acid increase the diffusion rate of the intestinal bacteria through the intestinal wall and hasten the fatal termination. Lesions due to the permeability of the tissues to bacteria in the upper intestinal tract are more quickly fatal than those in the lower intestinal segments. The passage of the living bacteria into the tissues causes reduction by adsorption of the protective bodies (antiferments), and results in autolysis. The reaction is anaphylaxis. When the condition is acute, the symptoms are shock, distention, prostration, convulsions, etc.; when chronic, the symptoms are wasting, anemia and marasmus. The objects in treatment are the reduction of fatigue of hollow muscle, prevention of fatty acid intoxication and intestinal retention, absorption of intestinal flora, correction of acidosis, reduction of splanchnic venous stasis, increase of immunity, and maintenance of nourishment. In severe acute cases the treatment is gastric lavage, colonic lavage, lavage with weak silver nitrate, followed by sodium bicarbonate, demulcents, venesection, and infusion of sodium bicarbonate solution. In severe cases the continuous bath and transfusion of autoserum is indicated; in moderate and chronic cases, gastric and colonic lavage with gentle pneumatic gymnastics, alkaline demulcents and vaccines. The food should be reduced to minimum fineness of particles as it reaches the pyloric orifice, as, for instance, in albumin milk. The intervals between feedings should be prolonged, and regular feeding periods established to conform to the curve of muscle work and relaxation. Food rich in mineral salts should be provided, as vegetables steamed (not boiled) and made into purées. The intake of fat should be reduced to the minimum requirement. No extractives should be allowed, and for a time the total intake of protein should be reduced. To prevent the passage of bacteria Irish moss or liquid petrolatum should be used. To cause adsorption of bacteria, colloids, fullers' earth, charcoal, or fine bran should be used. If required, laxatives—phenolphthalein and calomel—should be given, and belladonna in case of spasm.

Epidemiology of Bacillary Dysentery

Dr. W. G. Smillie, Boston: The floating hospital furnished conditions favorable to a study of bacillary dysentery, because of the fact that the infants were usually under 15 months of age, whose activities were limited and who came into contact with only a few people and ate at most only a few articles of food. In all, seventy-nine cases were studied, forty-nine of them being house cases, and twenty-six related cases discovered in the course of the investigation. There seems in this series of cases to be no relation between high temperature, high relative humidity and the case incidence. The case incidence seems to be more closely related to flies, rather then temperature, for the hot weather was over before there were many cases of the disease, and reports of cases seemed to come in well through September, though the humid weather had gone. The families chiefly affected were not the illiterate foreigners, but the careless neglectful poorer class American family, more particularly the first generation family. This, we believe, is due to the fact that foreigners nurse their infants. Forty-one homes were scored by a method similar to that used in scoring dairies; the highest score was 94 per cent., the lowest 15 per cent. The average score for those cases of bacillary dysentery which were due to direct contact was only 48 per cent. The average score of those cases which were a source of infection to others was 41 per cent. The average score of those cases due to infection from food was 59 per cent., and the average of those cases for which no source of infection was found was 71 per cent. The sources of infection may be summarized thus: contact with an acute case, 21 cases; contact with a carrier, 2 cases; contact with a house case, 4 cases; condensed milk epidemic, 15 cases; ice cream cones, 9 cases; unknown, 15 cases. An important fact with reference to the contact cases is that many of these cases were in the older members of the family, and in these persons the disease was mild. Undoubtedly many cases of summer "ptomain poisoning" are cases of bacillary dysentery. A mild adult case may readily infect a baby, sometimes with rapidly fatal results. As a general rule it may be stated that in every dirty or careless house in which the sick child remained for more than one week there resulted a contact case. Only four babies developed bacillary dysentery in the wards of the hospital, although patients with virulent bacillary dysentery were on board all summer. No hospital should admit bacillary dysentery unless it has the facilities for isolating these patients, for the most rigid precautions are necessary, particularly fly exclusion.

DISCUSSION

Dr. Henry I. Bowditch, Boston: In 1914, seventy-nine cases came under our observation, of which 68 per cent. gave a positive Flexner organism; in 1915, there were seventy-five cases, and 85 per cent. showed the Flexner infection; in 1916, there were sixty-four cases, and 88 per cent. showed the

Flexner infection. In fifty-one, or three fourths of these cases, the bacteria were recovered from the stools and in the others at necropsy; in a few the diagnosis was made by finding the agglutinins. At the same time we constantly tried to see how much of a factor the gas bacillus, or the *Bacillus aerogenes-capsulatus*, was in these dysenteries. It was found not to play an important part; it disappeared quickly in the early course of the illness and frequently was seen to reappear later when other foods were given. In 1914, a closer investigation than usual of the bacillus was made. Here it was found in 11 per cent. of infectious conditions, in 27 per cent. of digestive disturbances, in 28 per cent. of malnutrition cases, and in 28 per cent. of normal cases. The infectious cases were studied closely, while the other cases were picked at random. Our feeling at present is that the Flexner organism is the main etiologic factor, and that the gas bacillus is a complicating, but probably not the main etiologic factor. This is different from the stand taken some years ago. The mode of treatment carried out on the floating hospital this summer was to keep the child on water for the first twelve hours and then on a food with a high percentage of carbohydrates and moderate protein, as fat 0, sugar 6 and protein 1.2, in the form of a fat-free milk with sugar added. This was continued if the gas bacilli were not present, but when the gas bacilli did occur, the carbohydrates were diminished.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

Seventh Annual Meeting, Held in Milwaukee, Oct. 19-21 1916

The President, Dr. S. McC. Hamill, Philadelphia,
in the Chair

Rural Obstetrics

Dr. Grace L. Meigs, Washington, D. C.: At least 15,000 vomen die each year in this country from causes connected vith childbirth, and about 7,000 of these die from childbed ever. This fact will be brought out in a bulletin soon to e published by the United States Children's Bureau. Deaths rom these causes have long been known to be largely preentable; it is not realized that they are not being prevented.

DISCUSSION

Dr. William C. Woodward, Washington, D. C.: Stillbirths ave not been recorded for a considerable number of years s part of infant mortality because infant mortality unforunately has been, until recently, computed on population, and ot on registered births. In the annual reports of the District f Columbia we give a statement of all stillbirths, the period f gestation at which stillbirth occurs, the causes and race. ore recently we have taken up a more intensive study of tillbirths, in the practice of midwives, physicians, in nd outside of institutions. One difficulty with respect to tillbirth statistics and one that relates with particular force o the occurrence of stillbirths in rural communities is the ase with which the body of the stillborn child is disposed of. Jnder our law any birth must be reported if the child has pparently passed the fifth month of gestation. When the irth is reported, the body must be disposed of as the body f any dead person. In the average rural community the tillborn child is buried on the premises and nothing is said bout it. The relatively high percentage of stillbirths in stitutions is due to the fact that many women are brought o the institution in confinement; in many cases a midwife as bungled the case, and the patient is brought to the stitution in bad condition. I am not satisfied with that. Ve must have the figures to prove it. Among the colored eople the stillbirth rate is much higher than among the hites. Whether or not that is due to syphilis we do not now. I am inclined to think that it is not altogether the esult of syphilis.

Dr. Florence Sherbon, Washington, D. C.: A summer's xperience as an investigator in rural communities has given e a few convictions. I went out to do this rural investigatg with two ideas in my mind: first, that maternity is pathologic, and second, that the mother's greatest menace is the midwife. I have come back from this investigation with the profound conviction that maternity need not necessarily be pathologic; that it was intended to be a normal function; that it is rapidly becoming pathologic for a variety and complication of conditions, social and otherwise, and that this fact should be the starting point of our investigations and observations. I am convinced that so far as the rural mother, at least, is concerned, the country doctor is a far greater menace that the midwife. The practice of rural obstetrics is difficult. These men are sent out from our medical colleges and schools with nothing but a smattering of knowledge of the mechanics of childbirth. These women, who are ignorant and unprepared, but who have had twelve or fifteen children, know something which not one of these country doctors, or any other obstetric specialist of the other sex, can ever find out. They know enough to let well enough alone, and they have patience to wait. A good deal is being asked of the country doctor who is called on to go out 6 or 8 or even 12 miles from the telephone if he is expected to sit down and wait patiently. We found more complications and bad results from that one situation than from any other single factor.

Dr. Lydia De Vilbiss, Topeka, Kan.: The department of health of Kansas has established a mother's confidential registry. The expectant mother registers with us, and we send her a series of nine prenatal letters covering about the material that is given in the children's bureau bulletin on prenatal care. Then she registers the baby, and we send her five more letters. Of course, we often recommend that the mother see a doctor, or have analyses made, but it often happens that the doctor is hopelessly out of her reach. I asked the governor to put up a handsome silver loving cup to be awarded to the healthiest county in Kansas next year, and county health officers, county medical officers, medical societies and school officers are working hard to get that trophy.

Dr. H. M. Bracken, St. Paul: The midwife is a necessary evil in some places, but I hope she will not become permanent in rural work. I would much rather depend on a farmer's wife in the case in which it is necessary to rely on such nonmedical assistance. The encouragement of midwifery practice is not an encouragement of better obstetric practice. There are just two possibilities for helping out in rural districts. One is the small hospital. The point has been raised that the doctor is in a hurry. He is, and he is negligent. It has been said that the doctor often makes only one visit, and fails to inform himself as he should. It is true. When I go about the country, and doctors show me their little hospitals, the first question I ask is, "Do you take obstetric cases here" More and more I get the answer, "Yes" to that question. The doctor does it partly, you may say largely, if you choose, from a selfish point of view. He would rather have the patients come to him than go to the patients. He does not have to spend a lot of time getting to them; it is much better for him. But does the patient benefit by this selfishness? Certainly. If a mother has once gone to one of these hospitals she will go again next time. The country nurse is a great feature, but we cannot depend on the country nurse entirely in obstetric work. Another point is that people have not yet begun to appreciate that the human being is worth something. The farmer looks after his cattle, and is not going to take any chances with them. He can see the dollar there, but he cannot apparently see it in the baby. It is time he was being made to see it.

Dr. Dorothy Reed Mendenhall, Madison, Wis.: I made a little investigation of the conditions in Wisconsin in 1915, and was surprised to find that the number of babies delivered by midwives was relatively low, about one sixth of the whole number. Furthermore, puerperal deaths seemed in inverse relation to midwives. The midwife was a much smaller factor in the situation than the physician.

Miss Katherine M. Olmsted, Milwaukee, Wis.: It has not been my experience that we needed to convince the mothers in the country that they should call the doctor instead of the neighbor. They are anxious to learn. We need to give them some one from whom they can get this knowledge.

I thought when I went out to do rural nursing that it would be a difficult proposition to teach them this. I found it was a difficult thing to teach the farmer that he should sleep with his window open, but the easiest thing in the world to teach the mothers what they should know before delivery. I believe the best progress will be made through the schools. If the nurse can go into the schools, her presence in the community becomes known all over the county, and quickly she is requested by numerous notes and messages to come and visit various mothers; she is asked to have classes; she has unlimited opportunities. But she must have supervision by the doctors. I do not feel that a full time health officer can do a great deal for obstetric patients unless he is willing to go out and take them.

Mrs. G. A. Hipke, Milwaukee, Wis.: Is not the question of better obstetrics synonymous with better economic conditions? Will this not be solved more through health insurance and maternal pensions than in any other way?

Dr. Walter G. Darling, Milwaukee, Wis.: The problem of rural obstetrics is a question of community interest and community responsibility. There should be a county institution; whether it should be a general hospital or a special obstetric hospital must be worked out; a county general hospital I think could be made to serve the purpose almost as well as one devoted exclusively to obstetrics. There is great need for trained nurses. We know too well how the efforts of the country practitioner are entirely for nought when his work is upset immediately after he has left the house. A competent nurse must be there to follow his good work. Community hospitals, similar to the tuberculosis hospitals that are now generally accepted, could not only care for obstetric patients requiring hospital care but could train nurses for rural work. The community hospital plan would have to be supported by some sort of state insurance so that the women of rural communities could afford to have the nurses and could get the proper attention.

Morbidity and Mortality of Measles and Pertussis with Particular Reference to Age

Dr. Borden S. Veeder, St. Louis: The annual average death rate for the registration area for the ten-year period 1904-1913 was 10.5 per hundred thousand population for pertussis, and 10.2 for measles. Between 9,000 and 10,000 deaths occur annually in the United States from each of these diseases. About 80 per cent. of the pertussis deaths are in infants under 2 years, and 99 per cent. in children under 10. Over half of the measles deaths are in infants, and about 90 per cent. in children under 10. The two diseases together are responsible for about one twentieth of the total infant deaths. Both diseases are a much greater factor in the production of infant mortality than either scarlet fever or diphtheria. Pertussis has its highest incidence in the first year, and decreases rapidly after the third year of life. Measles reaches its height in the second year of life, and maintains a fairly level curve until the sixth year. The case fatality rate is high in infancy, and then falls with great rapidity in both diseases.

Measles from the Standpoint of Prevention

Dr. J. G. Wilson, Ellis Island, N. Y.: Existing social and housing conditions practically prevent the entire stamping out of a disease which is theoretically entirely preventable. Daily inspection and prompt isolation of every child with any degree of fever is entirely successful in preventing epidemics of measles in modern up-to-date institutions. At the immigrant station at Ellis Island, this method has sufficed to prevent any epidemic outbreak. This procedure may in a modified manner be applied to the ordinary civil community without working undue hardship. To protect the community in the same sense that it can now be protected against smallpox, typhoid and diphtheria, some safe method of vaccination or antitoxin protection must be evolved.

Pertussis from the Standpoint of Prevention

Dr. Issac A. Abt, Chicago: The mortality from whooping cough is considerable. During 1911, 6,251 patients died of the disease in the United States. Since the disease is carried by persons who are ill with the disease or who are carriers for the micro-organisms which cause the disease, quarantine and isolation are desirable. Health boards, parents, teachers and all who are concerned in the prevention of disease and saving life should cooperate in enforcing such regulations as will prevent the sick from attending school, visiting the playgrounds and public conveyances, and in isolating the sick and those who are suspected during the catarrhal stage.

DISCUSSION

Dr. Frank C. Neff, Kansas City, Mo.: The great drawback and failure of notification and placarding has been that it has been nobody's business to notify except the physician's. Probably three fourths of these patients never see a physician. Inspectors from boards of health, at least during the period of an epidemic, should visit the various districts of a city and ascertain if these contagions exist there. Extension of the very efficient district nursing work to this particular line of epidemic would help greatly in disclosing the presence of infectious diseases that are ordinarily concealed from the public.

Dr. H. L. K. Shaw, Albany, N. Y.: One of the sanitary supervisors in the New York State Department of Health worked out a plan which was followed last year during an outbreak of the measles. According to this plan, the health officer notifies the teacher in the school when a case of measles occurs among the pupils. Another ingenious method was the employment of a junior health officer. The teacher appoints a boy or girl each week to hold this office. These junior officers have a report blank, and, armed with this, go to the homes of any children who have been absent to find out if there is any disease. At the end of the quarantine, a special note has to be returned signed by the health officer, because the family physician will often sign without recording the date. The state of New York two years ago formulated a new sanitary code, and relegated the door placard to the past. The health officer is now required only to placard the room. We allow the parents, the wage earners, to go out and in freely, as long as the health officer is assured that they do not enter the room.

Propaganda Work from the Point of View of Public Authority

Dr. H. L. K. Shaw, Albany, N. Y.: With a carefully prepared plan of public health education, it is possible to accomplish much, particularly along the lines of infant welfare. Our first step in undertaking an infant welfare campaign is to make a survey of the community affected. It is immensely valuable to the public health nurse who is sent into the community. The local authorities are only too glad to have this cooperation of the state department. In many instances, local conditions are such that a natural spirit of cooperation between all of those interested in the subject of infant welfare is a possibility. The state department, therefore, becomes a sort of intermediary, and through its efforts molds all individuals and organizations into a compact body having a definite program of accomplishment.

DISCUSSION

Dr. Henry F. Helmholz, Chicago: The problem of propaganda from the standpoint of the private organization is essentially different from that of the state or city institution. The private organization usually represents pioneer work. We have two lines along which the private organization must work. First, to enlighten the public on the question of the necessity of infant welfare work, interesting it to support the work which the organization is doing, and, second, to make the public realize that infant welfare work can only be carried on adequately if supported by the municipality. The second line of propaganda is the one almost universally neglected, and it is the most important.

Work of the University Extension Department in Educating the Mother Along the Lines of Prenatal Care

Dr. Dorothy Reed Mendenhall, Madison, Wis.: In Wisconsin, during the past four years, the teaching along prenatal and natal lines has developed in two ways. A correspondence course on the care of the expectant mother has been offered. This course aims to give the mother the necessary knowledge, presented in a simple, usable way, to enable her to keep herself in good physical condition. Also, during the last three years, at the community institutes held in different villages and small towns in the state under the auspices of the agricultural and university extensions, talks have been given on the care of the mother before and after confinement, and the hygiene of the young child. An informal consultation hour is held after the lecture, for those who do not care to present their problems in the open discussion. These talks are given usually to women; but not infrequently at evening meetings, with a mixed audience, the question of the care of the child-bearing woman as a community problem, and its relation to the health of the community are discussed and arouse considerable interest.

(To be continued)

MEDICAL SOCIETY OF VIRGINIA

Annual Meeting, held at Norfolk, Oct. 24-27, 1916

Surgical Care of Wounds in the European War

Dr. R. C. Bryan, Richmond: I saw few wounds of the face. The number of wounds that were caused by indirect violence, pieces of stone, wood, barbed wire, and hobnails from shoes, driven by explosion of shells, was remarkable. Eight thousand hospitals are scattered through France. I saw only two patients die from tetanus. The Roentgen ray is used constantly to locate foreign bodies. Rifle balls are left in situ. I saw one buried in the greater curvature of the stomach, another just posterior to the neck of the femur, and another at the base of the heart. They were all left alone. All wounds are considered infected until proved otherwise. I was much struck by the mathematical and careful sterilization. No fragment of bone is removed that has periosteal attachment. Turkish toweling is used as dressing, and Carrel tubes are used freely. Among 1,700 men passing under my direct observation I saw not a single case of venereal disease.

What We Know Today About the Tonsils

Dr. D. A. Kuyk, Richmond: There are numerous theories, the protection theory, the hematopoietic theory, eliminating theory, immunity theory, and the physicomechanical theory. The last is not a theory but a fact. The tonsil acts as a fulcrum for the pharyngeal muscles, and as a prop to the soft palate, especially in singers. Its threefold function should be considered carefully before removal.

Cancer of Thyroid

Dr. L. B. Wilson, Rochester, Minn.: One and five-tenths per cent. of simple goiters have been found to be cancerous. Thyroid disease occurs at the cancer age, 70 per cent. of the patients are beyond 40 years of age, and 20 are under 20 years of age. Sarcoma is not preponderating in the young, but occurs in the elderly. One third of all cases are sarcoma, one half carcinoma, and one sixth mixed. About 53 per cent. give a history of enlarged goiter before constricting symptoms appear. The initial symptom is not pain but pressure due to the formation of fibrous tissue, interference with local nerves, and then metastasis. More mistakes are made in diagnosis when adenocarcinoma exists. Treatment is by surgery or radiotherapy. Hope is not great; only twenty-five of our eighty-two patients are alive three years after operation.

DISCUSSION

Dr. Shelton Horsley, Richmond: Have studies shown the route of metastasis, whether by the lymph channels or the blood vessels? Is there any difference in the metastasis of sarcoma and carcinoma?

Dr. L. B. Wilson, Rochester, Minn.: Metastasis varies as to the type of tumor. In sarcoma it is through the blood vessels and generally to the lungs, while in adenocarcinoma it takes place through the lymph channels to the mediastinal glands. The adenocarcinoma and the mixed type do not metastasize as readily.

Dr. A. L. Tyne, Staunton: Dr. White of the Massachusetts General Hospital said that he saw more thyroids in the valley of Virginia in two weeks than he saw in a whole year at home.

Dr. Charles Robins, Richmond: I have observed that a large number of these patients have errors of menstruation, either amenorrhea or menorrhagia. Is there any connection between the sex organs and the thyroid?

Dr. L. B. Wilson, Rochester, Minn.: I do not believe that there is any connection. Kendall seems to have found the key to protein metabolism. He gave dogs amino acids and then alpha iodin. Chemically he burned up the dog; the temperature would go up to 108 or 110 F.

Cranial Decompression for Certain Intercranial Conditions

Dr. William Sharpe, New York: If the patient cannot be benefited, it is not right to make him worse. If this branch of surgery were limited to the removal of brain tumors, it would be discouraging. The earlier the diagnosis the better the prognosis. Tumors of the midbrain are hard to reach, and it is rare that they can be removed. Careful hemostasis is most important in getting good results. Most brain tumors are malignant, and the patient is often blind. Whether or not there is fracture of the base or the vault, it is not necessary to operate unless there is compression. A cerebral lesion may be present, even if there is no fracture. The operation of decompression should be used more frequently.

Efficiency and Economics in the Management of the Insane

Dr. William Gordon, Richmond: Both from the humanitarian and the economic point of view the management of the insane is important. By recent legislation patients may voluntarily be committed to the hospitals without the annoyance of a commission of lunacy. Certain reforms are desirable in our laws. At present warrants may be issued on the statement of irresponsible parties. In toxemias of pregnancy, or uremia, the patients might be pronounced insane. Jails and almshouses are not the place for the insane. I have knowledge of a case of beginning insanity in a young man of prominent family who tried to commit suicide. He was first sent to a private institution, got better, and came home. He had another attack and was confined in jail. Through some intricacy of the law or technicality he was set at liberty, and now he is a menace to the community.

DISCUSSION

Dr. Tom A. Williams, Washington, D. C.: In devising legislation we must have the cooperation of the public. Persons with incipient cases are very unwilling to go to hospitals for the insane. There are several different kinds of early cases: first those in which insight is lost. It is a matter of indifference to these patients where they are removed; second, the excited, maniacal patient detrimental to other people, who must be sent away; third, the patients with insight who are much affected by environment, and whom it would make worse to send to insane hospitals. It is just as hopeless to try to find the causes of surgical diseases in the mortuary as it is to discover causes in far advanced cases, so we must study the incipient cases before destruction has taken place, if we wish to solve the questions. As the patient in incipient cases will not go to the hospital for the insane, we must establish other places.

Alcoholic Injection for Pruritus Ani

Dr. H. B. Stone, Baltimore: This method is frankly symptomatic treatment, but gives relief. It destroys the sensory nerve filaments chemically, not surgically. We want to destroy the sensory but not the motor nerves. Alcohol has no selective affinity, and will destroy the motor as readily as the sensory nerve, and thereby produce incontinence. If injection is into the skin itself, it will produce a slough, but if into the subcutaneous fat it will not. In forty patients the results have been exceedingly satisfactory, more than from any other method. Under anesthesia, local or general, the needle is introduced through the skin and then along under the skin, but not too deep, or the motor nerve will be endangered. If a local anesthetic is used, 90 per cent. grain alcohol is injected: if a general anesthetic is used, 70 per cent.; nothing less than 70 per cent. is effective. We have had two bad sloughs the size of a 10 cent piece or silver quarter, and eight or ten as large as a grain of wheat with no incontinence. If one errs, it should be toward the slough. All patients were completely relieved; one recurred in about a year, and the patient was reinjected. Patients should be kept under observation for about ten days to see if sloughing occurs. There is no trophic disturbance; the slough heals readily.

Dyschylia Gastrica

Dr. Douglas VanderHoof, Richmond: I would suggest dyschylia as a term. Acid gastric secretions have long been regarded as one of the defenses of the body against bacteria. Normal digestion depends, first, on the nerves, and second, on the chemical products of hormone being absorbed and exciting the glandular apparatus of the stomach. Lack of the proper psychic condition may influence such secretion. Partial return of the secretion both of the ferments and of acid has been observed by long treatment with full doses of hydrochloric acid. Achylia may exist in the phlegmatic as well as in the emotional person.

Light as a Cause of Disease

Dr. Thomas W. Murrell, Richmond: Sunlight combines heat and light; the actinic rays may be very destructive. Pigment blocks the progress of light. The negro has not the downy hairs, but has pigment. Excessive bathing may be detrimental to the skin by getting rid of the fatty protective material. So far as I know, no case of skin cancer has ever been reported in a true negro. Milk-crust of children may be a sort of anaphylaxis, with casein as the chief offending agent. Light may be one of the causes of eczema in children with skins already sensitized by dietetic errors.

DISCUSSION

Dr. Mark W. Peyser, Richmond: Excluding white light by substituting red has been of benefit in the treatment of certain skin affections.

Backache and Sciatica, Their Causes and Treatment

Dr. E. E. Feild, Norfolk: Causes of these lesions are: gonorrheal infection, bad teeth, stone in the kidney, stomach ulcer, metabolic affections or subluxation of the sacro-iliac joint. Orthopedic treatment does not obviate dietetic and other medical measures. Manipulation of the sacro-iliac joint under anesthesia is of benefit. Strapping with adhesive as low as the trochanter, but not lower, as this will restrict motion, is a valuable method. It relieves the strain on the back.

DISCUSSION

Dr. John W. Winston, Norfolk: In a case of sciatica I found diacetic acid present, and the trouble was promptly relieved by correcting this.

Dr. Mark W. Peyser, Richmond: I recall a case in which it was difficult to find a cause. The patient did clerical work, and I found that she sat on the edge of a high chair and so compressed the sciatic nerve.

Dr. R. L. Payne, Norfolk: I do not believe that subluxation of the sacro-iliac joint exists. If it did it could not be cured by applying adhesive strips to the soft parts.

Dr. E. E. Feild, Norfolk: It is the stretching of the ligaments that causes the pain. It is not a movement that is perceptible, but enough to cause the pain. In one case the slipping under ether narcosis was very perceptible. As to the strapping, the patients come back and thank you for the relief.

Seminal Vesiculitis

Dr. D. L. Hirschler, Norfolk: The seminal vesicles drain readily in health, but poorly in disease, or not at all. The gonococcus or streptococcus may be found. We should bear in mind how long the gonococcus may remain latent. The sex symptoms are excessive pollutions and frequent erections. Fulness and sense of warmth are present. Vaccines are of no value, and may do harm. The acute cases generally subside into the chronic form.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Ophthalmology, New Rochelle, N. Y.

November, XLV, No. 6

1 Declinations of Vertical Meridians of Retina. G. T. Stevens, New York.—p. 521.

2 Progressive Macular Degeneration in Three Members of Family. M. Feingold, New Orleans.—p. 533.

3 Medical Side of Glaucoma. A. Knapp, New York.—p. 544.

4 Tuberculosis of Retinal Vessels. E. Jackson, Denver.—p. 552.

5 Ocular Anaphylaxis; Reaction to Perfusion with Specific Antigen. A. C. Woods, Philadelphia.—p. 557.

6 Study as to Weight and Percentage of Solids of Cataractous Lenses. C. A. Clapp, Baltimore.—p. 574.

7 Can Development of Myopia Be Arrested and Its Degenerative Changes Be Prevented? Sidler-Huguenin. Zurich.—p. 577.

Archives of Pediatrics, New York

November, XXXIII, No. 41

8 Prognosis and Treatment of Splenic Anemia (Banti's Disease) in Children; Report of Case. E. E. Graham, Philadelphia.—p. 801.

9 Congenital Rigidity of Infancy (Little's Disease); Report of Four Cases. J. S. Wall, Washington, D. C.—p. 812.

10 *Treatmeint of Diphtheria Bacillus Carriers with Special Reference to Staphylococcus Pyogenes-Aureus. A. J. Bell, Cincinnati. —p. 836.

11 *Case of Purpura Fulminans. W. M. Donald, Detroit.—p. 844.

10. **Treatment of Diphtheria Bacillus Carriers.**—Eleven cases are reported by Bell in which he used the method recommended by Schiotz and Page, namely, the application of fresh broth cultures of the *Staphylococcus pyogenes-aureus.* These cases again illustrate the necessity of using a broth culture which is not inert. Eight patients were treated with kaolin. The longest time in obtaining negatives, namely, the beginning of a series of three successive negative cultures, was thirteen days; the shortest time one day; average time a little over six days. The method consisted in spraying the nose and throat every three hours with kaolin powder or eating a half dram of kaolin every hour. The latter seemed to give the better results. Comparing the various methods as outlined by the results enumerated above, the authors may draw the following conclusions: Emphasized in the treatment of diphtheria bacillus carriers, Bell states, that the kaolin treatment, or the various local applications, may be tried first because of their simplicity, especially in private homes, but the desired result is not accomplished as quickly; average time in series over six days. In all probability it is much inferior to the staphylococcus spray in nasal cases. The broth culture of the *Staphylococcus pyogenes-aureus,* when applied properly from a laboratory and clinical standpoint, is a safe and successful method of combating the carrier problem.

11. **Case of Purpura Fulminans**—A boy, aged 4, who had always been perfectly healthy, was taken with an attack of dysentery, August 7. The attack was a sharp one and demanded very close watching, but the patient recuperated nicely in a week. The stools had been bloody and contained mucus, the fever had been moderate in degree (about 102 F.) and the general condition had been that of a patient suffering with a dysentery of moderate severity. About September 27 he complained of general malaise which was attributed to overeating. He was, however, noticeably pale; the urine was negative. Two days later he had a few ecchymotic spots on the body and lower extremities attributed to injuries. Five days later an ugly looking incisor root was removed. The trauma in the gum continued to ooze slightly and the next day his nose on the right side commenced to bleed. Two days later the boy was very ill, with high fever and general disturbance. Temperature was 104 F., pulse 130, respirations 25, and the body the seat of numerous new ecchymoses. Punctate petechiae were scattered all over the anterior surfaces of both legs, from the thigh to below the knee. The nose bleed was still present and the oozing from the gums still more pronounced.

A diagnosis of purpura fulminans was made. Two doses of horse serum forty-eight hours apart gave complete relief from the hemorrhages, but the patient grew steadily weaker, and the symptoms steadily worse. Delirium supervened within a comparatively few hours, the patient refused nourishment, except in the most limited quantities, the bowels and urine were evacuated involuntarily, the pallor increased, suggesting internal hemorrhages, and the condition grew steadily graver. Some small blood clots were found in the fecal evacuations for the first twenty-four hours but the urine remained clear. Seven days after the onset of the severe symptoms the patient succumbed to a cardiac asthenia. The treatment had been purely symptomatic and expectant. Careful blood examinations had been made, but no blood culture secured.

Arkansas Medical Society Journal, Little Rock

November, XIII, No. 6

12 Eye-Strain; Its Relation to General Health. H. H. Rightor, Helena.—p. 115.
13 Relation of Education in Sexual Union to Eugenics and Conjugal Happiness. C. S. Pettus, Little Rock.—p. 118.
14 Cesarean Section Procedure of Election—Less Danger to Mother and Child When Interference Is Required to Effect Delivery; Report of Three Cases. W. Cantrell, Greenville, Texas.—p. 121.

American Journal of Anatomy, Philadelphia

November, XX, No. 3

15 Equivalence of Different Hematopoietic Anlages. (By Method of Stimulation of Their Stem Cells). V. Danchakoff, Philadelphia. —p. 255.
16 Morphologic and Microchemical Variations in Mitochondria in Nerve Cells of Central Nervous System. N. C. Nicholson, Baltimore.—p. 329.
17 Development of Atrial Septum and Valvular Apparatus in Right Atrium of Pig Embryo; Fenestration of Anterior Cardinal Veins. C. V. Morrill, New York.—p. 351.
18 Origin of Sex-Cords and Definitive Spermatogonia in Male Chick. C. H. Swift, Chicago.—p. 375.
19 Morphogenesis of Follicles in Human Thyroid. E. H. Norris, Minneapolis.—p. 411.
20 Effects of Low Temperature on Development of Fundulus. W. E. Kellicott, Woods Hole, Mass.—p. 449.
21 Development of Spiral Coil in Large Intestine of Pig. P. E. Lineback, Boston.—p. 483.

Boston Medical and Surgical Journal

November 23, CLXXV, No. 21

22 Physically Defective. E. O. Otis, Boston.—p. 737.
23 Fractures in Base Hospital. F. A. Coller, Los Angeles.—p. 741.
24 Speculations Regarding Pancreas and Metabolism in Diabetes. H. P. Greeley, Waukesha, Wis.—p. 753.
25 Three Cases of Typhus. M. G. Berlin, Dorchester.—p. 755.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

November, IX, No. 5

26 Summer Diarrhea and Vomiting of Childhood. C. R. Austrian, Baltimore.—p. 72.
27 Thermometer in Diagnosis of Active Pulmonary Tuberculosis. J. Girdwood, Baltimore.—p. 74.

Journal of Biological Chemistry, Baltimore

November, XXVII, No. 2

28 Relation of Oxidase Reactions to Changes in Hydrogen Ion Concentration. G. B. Reed, Cambridge, Mass.—p. 299.
29 *Phosphatids in Ductless Glands. F. Fenger, Chicago.—p. 303.
30 Nutrition and Evolution. J. Loeb and J. H. Northrop, New York. —p. 309.
31 Influence of Parturition on Composition and Properties of Milk and Milk Fat of Cow. C. H. Eckles and L. S. Palmer, Columbia, Mo.—p. 313.
32 *Method for Determination of Nitric Nitrogen. F. M. Scales, Washington, D. C.—p. 327.
33 Mechanism of Diffusion of Electrolytes Through Membranes of Living Cells. Necessity of General Salt Effect on Membrane as Prerequisite for Diffusion. J. Loeb, New York.—p. 339.
34 Id. Diffusion of Potassium Chlorid out of Egg of Fundulus and Relative Efficiency of Different Ions for Salt Effect. J. Loeb, New York.—p. 353.
35 Id. Analogy of Mechanism of Diffusion for Acids and Potassium Salts. J. Loeb.—p. 363.
36 Fate of Alkali Blue in Organism. S. Kuriyama, New Haven, Conn.—p. 377.
37 *Experimental Studies on Growth. Influence of Diet Deficient in Fats, and of Same Diet with Cholesterol Added. T. B. Robertson, Berkeley, Calif.—p. 393.
38 Physiologic and Pharmacologic Studies on Coal Tar Colors. Experiments with Fat Soluble Dyes. W. Salant and R. Bengis, Washington, D. C.—p. 403.
39 Electrically Heated Vacuum Desiccator. T. B. Robertson and C. L. A. Schmidt, Berkeley, Calif.—p. 429.
40 Oxidation of Branched Chain Fatty Acids. Action of Hydrogen on Homologues of Isobutyric Acid. P. A. Levene and C. H. Allen, New York.—p. 433.
41 Mechanism of Cholesterol Absorption. J. H. Mueller, New York. —p. 463.
42 *Pancreatic Diabetes in Dog. Influence of Alkali and Acid on Glycosuria and Hyperglycemia. J. R. Murlin and B. Kramer, New York.—p. 481.
43 *Id. Is Glucose Retained When Sodium Carbonate Is Administered to Depancreatized Dogs Deposited as Glycogen? B. Kramer, J. Marker and J. R. Murlin, New York.—p. 499.
44 Id. Influence of Alkali on Respiratory Metabolism After Total and Partial Pancreatectomy. J. R. Murlin and B. Kramer, New York.—p. 517.

29. **Phosphatids in Ductless Glands.**—The pituitary body and the suprarenals, as well as the pineal, the infant thymus and the corpus luteum of pregnancy, Fenger says, contain considerable amounts of phosphatids in excess of ordinary muscle tissue, indicating that the phosphatids play some part in the internal chemistry of these ductless glands. The thyroid does not contain any more phosphatids than straight lean meat, and it may, therefore, be assumed that this gland performs its secretory functions independent of the phosphatids.

32. **Determination of Nitric Nitrogen.**—Scales claims that his method is accurate and requires only the simplest modification of the regular Kjeldahl apparatus. A zinc-copper couple is prepared in such a way that it can be renewed very easily. This couple decomposes water at the boiling point. The hydrogen is evolved and the oxygen of the water combines with the zinc to form zinc oxid. The advantage in the use of this couple is that neither an acid nor an alkaline reaction is necessary to promote the generation of hydrogen. Therefore only a small amount of fixed alkali is required to expel the ammonia formed by the reduction. The procedure is described in detail.

37. **Influence of Diet Deficient in Fats, and of Same Diet with Cholesterol Added.**—A diet composed of boiled and mashed potatoes, defatted bran and white of egg, with the addition of small amount of chlorophyll and ferric chlorid, when fed to mice 4 or 5 weeks of age, Robertson found leads to initial loss of weight followed by resumption of a retarded growth. Ultimately, however, a sharp decline in weight occurs, accompanied by marked hyperirritability of the skin and terminated by death. The addition of cholesterol to the above diet prevents the initial loss of weight, but does not otherwise improve the welfare of the animals, the average duration of life of the animals receiving cholesterol being actually less than that of the animals which do not receive cholesterol.

42. **Influence of Alkali and Acid on Glycosuria and Hyperglycemia.**—Sodium bicarbonate and potassium bicarbonate administered by stomach tube may be without immediate effect on the glycosuria and the hyperglycemia of the depancreatized dog. A bicarbonate given by mouth to a fasting depancreatized dog may even cause the reappearance of glucose in the urine after it had been "starved out." The normal anhydrous salt of sodium, sodium carbonate, may, on the contrary, reduce the sugar in the urine materially when given by the month, and when given by vein invariably does so, especially when added to Ringer's or Locke's solution to the amount of about 1 per cent. The blood sugar does not undergo a compensating increase in percentage even when the dilution of the blood is accounted for. Dilute hydrochloric acid given by mouth or subcutaneously to the depancreatized dog has just the opposite effect of alkali—increasing the sugar in the urine without affecting materially the nitrogen elimination—and without causing any effect on the blood.

43. **Disposition of Sodium Carbonate in Depancreatized Dogs.**—It is tentatively suggested by the authors that (1) glucose retained as a result of the administration of sodium carbonate to depancreatized dogs is not held back as glycogen, and (2) the sugar is not excreted by way of the saliva, stomach, or small intestine.

Journal of Laboratory and Clinical Medicine, St. Louis

November, II, No. 2

45 *Lipin Content of Liver in Two Cases of Dyspituitarism. A. S. Warthin, Ann Arbor, Mich.—p. 73.
46 Employment of Closed Ether Anesthesia for Ordinary Laboratory Experiments. D. E. Jackson, St. Louis.—p. 94.
47 Diagnosis of Cancer. M. Kahn, Pittsburgh.—p. 103.
48 Utilization of Dextrose in Animal Body. J. J. R. Macleod, Cleveland.—p. 112.
49 Pituitary Standardization. H. C. Hamilton and L. W. Rowe, Detroit.—p. 120.
50 Review of Folin and Denis Methods for Determination of Nitrogen by Direct Nesslerization. R. G. Pearce, Cleveland.—p. 130.
51 *Urinalysis in Relation to Renal Lesions. J. R. Stark, Cincinnati.—p. 134.
52 Technic for Staining Blood, Especially for Plasmodia. W. Krauss, Memphis, Tenn.—p. 138.
53 Convenient Electric Supply System for Physiology Laboratory. C. McPeek, C. I. Reed and F. Beck, Columbus.—p. 139.

45. **Lipin Content of Liver in Dyspituitarism.**—In hypopituitarism there is a peculiar obesity due to infiltration of various cells of the body with a mixture of lipins—glycerin esters and cholesterol esters. This condition of cholesterol liposis is especially marked in the liver and suprarenals, but is scattered all over the body With deficiency of hypophysis function there appears to be associated a cholesterol retention or infiltration. Hypopituitarism must, therefore, be classed among the xanthelasmic conditions, and is related in kind to diabetic liposis and Gaucher's disease. The hypophysis is either directly or indirectly concerned with lipin metabolism, particularly with cholesterol steatosis. Postmortem hyperpyrexia may be associated with hypopituitarism and the obesity resulting from the latter condition. In the livers of two cases of hypopituitarism examined by Warthin there occurred a peculiar intraperipheral zonal necrosis, unlike all previously described forms of zonal liver necrosis. Associated with this necrosis is a reparative fibroblastic proliferation, giving rise to the picture of an early intralobular cirrhosis. The relationship of this hepatic change to the hypophysis conditions remains to be shown.

51. **Urinalysis in Relation to Renal Lesions.**—The relation between urinalysis, the clinical diagnosis of nephritis, which is so frequently directly based on urinary findings, and the anatomic changes in the kidneys was investigated by Stark. The material consisted of 600 clinical histories in connection with which the term nephritis was used in the clinical diagnosis. The clinical history, necropsy protocols, gross material and microscopic preparations were available for study. The term nephritis was often used with such apparent lack of interest or understudy that very frequently there was no clear clinical data to warrant it. For this reason the number of cases useful for investigation reduced itself to 100, and to obtain even this number it was necessary to include those in which the clinical history included such terms as "albumin present," "blood and pus," or "albumin and casts." These 100 cases were divided into three groups: 1. Those in which the clinical and anatomic diagnosis did not agree, 26. 2. Those in which the clinical and anatomic diagnosis agreed, 37. 3. Those in which there was no clinical diagnosis, but in which the clinical data indicated some renal abnormality, 37. Group 1: Nine cases were clinically diagnosed as chronic diffuse nephritis, whereas at the postmortem table they proved to be acute. Seven were just the reverse. In five cases the kidneys were tuberculous. The clinical diagnosis in two of these was acute nephritis; in two, chronic nephritis, and in one, cystitis. There were five other cases belonging in this group. One was diagnosed clinically as tuberculous nephritis and proved to be carcinoma of the kidney; two were clinically acute parenchymatous and anatomically diagnosed as "nephritis" and proved to be chronic diffuse nephritis.

Group 2. Only fourteen out of these thirty-seven cases showed the typical analysis which could warrant its being an aid in the diagnosis. In the other cases the chief factor which was at variance was the specific gravity. In cases in which it was given, it was almost invariably too high by quite a wide margin. In only a few of the sixty-three cases was albumin absent and yet its presence in large amounts was not an indication of the amount of renal damage. The converse proved to be equally correct. Also leukocytes or "pus" are not found where most expected. In five cases showing infarction, acute interstitial nephritis or "surgical kidneys" the urine was free from white blood cells, while in two others in which the report was, "quantities of pus," and the clinical diagnosis cystitis, the postmortem examination revealed pyonephritis. Hence, Stark says, a urinary examination is of as little value, in itself, as a leukocyte count, a Wassermann, a gastric analysis, or other laboratory procedures without other data, and that in the differential diagnosis of kidney lesions the urinary picture is of practically no importance.

Journal of Medical Research, Boston

November, XXXV, No. 2

54 Spontaneous Infection in Guinea-Pig. W. L. Holman, Pittsburgh.—p. 151.
55 *Hyaline Degeneration of Arteries. F. M. Jacob, Pittsburgh.—p. 187.
56 *Sugar Content of Blood and Spinal Fluid of Insane Subjects. P. G. Weston, Warren, Pa.—p. 199.
57 *Etiology of Scarlet Fever. F. B. Mallory and E. M. Medlar, Boston.—p. 209.
58 *Oxidizing Ferment of Myelocyte Series of Cells and Its Demonstration by Alphanaphthol Pyronin Method. G. S. Graham, Boston.—p. 231.
59 Pathology, Bacteriology and Serology of Coccidioidal Granuloma; Report of Two Cases. W. T. Cummins and J. Sanders, San Francisco.—p. 243.

55. **Hyaline Degeneration of Arteries.**—The aorta and its large branches and the arteries of the kidney, spleen, uterus and ovary were examined by Jacob. In each case the group of organs was examined to observe the earliest beginning of hyaline change, as well as to determine the tissues most frequently attacked. Jacob found hyalin a common evidence of degeneration of the arteries, and although it may be observed in all three coats, the intima is most commonly affected. The hyalin of arteries is of two kinds. On the one hand it appears as a degenerative process of connective tissue, under which circumstances nutritional changes of the vessel wall appear to be the important factor of its occurrence. This type is seen in the intimal thickenings of the aorta and arteries of the elastic type, as well as in the unique hyperplasia of the intima in the arteries of the uterus after pregnancy. On the other hand, hyalin also appears as a homogeneous bandlike deposit simulating a cellular secretion and closely allied to amyloid. These deposits may be found about capillaries (ovary, kidney) and beneath the endothelium of the smaller arterioles of the ovary, spleen, kidney and uterus. Jacob suggests that "it is probable that the hyaline masses appearing in the glomeruli of the human kidney (distinguished from the hyaline changes in glomerular fibrosis) are of the nature of tissue secretions primarily appearing in a semifluid state, later forming insoluble colloid deposits. This is also the probable mode of origin of the hyalin appearing in bandlike masses in the arterioles of the ovary, spleen and uterus. Under all conditions the presence of hyalin in the arteries demonstrates retrogressive changes in the vascular tissues.

56. **Sugar Content of Blood and Spinal Fluid of Insane.**—Blood and spinal fluid from each of a series of individuals were examined by Weston for sugar by the method of Myers and Bailey. The series includes twenty cases of dementia praecox, ten of manic depressive insanity, twenty of paresis, six of epilepsy and nine of imbecility. The ratio of sugar found in the spinal fluid to that found in the blood varied from 1 to 1.55 in the epilepsy group to 1 to 1.72 in the general paralysis group. Individual differences are quite considerable, especially in the dementia praecox group, but the averages for the different groups show no considerable deviation from normal.

57. **Etiology of Scarlet Fever.**—A gram-positive bacillus was found by Mallory and Medlar in the tissues of eight persons dying of scarlet fever and in the smears and cultures made from the tonsils, soft palate, pharynx and nasopharynx of sixty patients. Therefore, the authors believe that it seems reasonable to infer that scarlet fever may be due to a strongly gram-positive bacillus (*B. scarlatinae*) which is usually much less virulent than the diphtheria bacillus, but which, as a rule, infects primarily the same localities, the tonsils and pharynx, and in severe cases may extend in the same way to adjoining tissues, namely, the nasopharynx,

larynx, trachea, bronchi, lungs and esophagus. The toxin causes necrosis of the lining epithelium and occasionally of the deeper tissues and leads to an exudation of serum and polymorphonuclear leukocytes. Fibrin formation is usually slight or absent, so that the lesions often appear as shallow erosions or rarely as distinct ulcerations, but sometimes is fairly abundant, especially in the larynx and trachea and forms a definite membrane of moderate thickness.

In uncomplicated fulminating cases of scarlet fever the causative agent is present in large numbers in the lesions in the respiratory tract up to the time of death, but in milder cases the micro-organism seems as a rule to die out quickly in the lesions it has caused, so that after the second or third day following the eruption it is difficult or impossible to demonstrate it. But under certain conditions the bacilli may persist for days or weeks in certain situations, for example, in ulcerations in the tonsils, pharynx, larynx, or esophagus, or in the bronchi, so that the patients harboring them becomes scarlet fever carriers. Secondary infection with streptococci is common, and death in some instances at least may be due to them rather than to the bacillus of scarlet fever. The eruption of the skin and the acute tubular nephritis are probably of toxic origin, due to the elimination of a toxin produced by the causal agent of the disease.

58. **Oxidizing Ferment of Myelocyte.**—The granules of leukocytes and myelocytes contain an oxidizing enzyme of peroxidase type. This enzyme and the granules bearing it, Graham says, can be demonstrated readily in blood smears or in tissues by treatment with an alphanaphthol solution containing small amounts of hydrogen peroxid. Blood smears treated with the alphanaphthol solution followed by pyronin and methylen blue present a picture much like that given by the Romanowsky stains. The granules of leukocytes and myelocytes are, however, much more definitely indicated. In frozen sections, stained with a mixture of the alphanaphthol solution and pyronin and counterstained with hematoxylin, the granule bearing cells are sharply differentiated. The sections can be cleared and mounted in balsam. Graham suggests that the method for blood smears should prove of value in the identification of myelocytes and particularly of the early forms of these cells, such as occur in case of acute leukemia.

Journal of Nervous and Mental Disease, Lancaster, Pa.

November, XCIV, No. 5

60 *Diffuse Sarcoma of Pia Enveloping Entire Cord. P. Bassoe, Chicago, and C. L. Shields, Salt Lake City.—p. 285.
61 *Syringo-Encephalia, Syringo-Encephalomyelia. Function of Pyramidal Tract. W. G. Spiller, Philadelphia.—p. 395.
62 *Anosmia and Sellar Distention as Misleading Signs in Localization of Cerebral Tumor. H. Cushing, Boston.—p. 415.
63 *Diagnosis of Subacute Combined Sclerosis of Spinal Cord Associated with Severe Anemia. W. B. Cadwalader, Philadelphia. —p. 434.

60. Abstracted in The Journal, June 10, 1916, p. 1888.

61. **Syringo-Encephalia.**—On the basis that the terms syringomyelia and syringobulbia are inadequate to express the extensive implication of the central nervous system that syringomyelia may assume, Spiller proposes the term syringo-encephalia, or for a still more general disorder, when both brain and cord are affected, syringo-encephalomyelia.

62. Abstracted in The Journal, June 10, 1916, p. 1886.

63. Abstracted in The Journal, June 17, 1916, p. 2035.

Journal of Parasitology, Urbana, Ill.

September, III, No. 1

64 Parasitic Protozoa. Myxosporidia from Japan; Three New Species. R. Kudo, Yokyo.—p. 3.
65 *Two Free Living Larval Trematodes from North America. H. B. Ward, Urbana.—p. 10.
66 *Anatomy and Relationships of Some North American Trematodes. H. W. Stunkard, Urbana.—p. 21.
67 Dauercystformation of Trichomonas Intestinalis. K. M. Lynch, Charleston, S. C.—p. 28.
68 Two Cestodes from Spotted Sting-Ray. E. Linton.—p. 34.
69 Case of Ascaris Triquetra Schrank in Dogs. A. C. Walton, Boston. —p. 39.

65. **Free Living Larval Trematodes.**—Ward describes the structure and activity of two new cercariae of peculiar type captured free in Lake Erie and Lake St. Clair. They are designated *Cercaria anchoroides nov. spec.* and *C. gorgonocephala nov. spec.*, and are compared with known European species.

66. **Anatomy of Some Trematodes.**—Extended study of North American representatives of the three trematode families, *Polystomidae*, *Aspidogastridae* and *Paramphistomidae* has made possible the first comprehensive treatment in this country of their structure and classification. Stunkard adds four new species to the genus *Polystoma* and three new species of two new genera to the *Paramphistomidae*.

Medical Record, New York

November 18, XC, No. 21

70 Crucial Age of Man. W. S. Gleason, Newburgh.—p. 881.
71 Mental Hygiene. H. M. Friedman, New York.—p. 884.
72 Treatment of Mercurial Stomatitis. D. W. Montgomery, San Francisco.—p. 889.
73 Care of Digestion. M. Einhorn, New York.—p. 893.
74 Ambulatory Types of Thyroid Disease. E. Bertine, New York. —p. 895.
75 Congenital Club-Foot. I. Reitzfeld, New York.—p. 897.
76 Four Years' Study of Kelling Hemolytic Test. B. G. R. Williams, Paris, Ill.—p. 898.
77 Autointoxication from Chronic Intestinal Stasis, Due to Hypertrophy of Sphincter Ani, Simulating Appendicular Colic. A. A. Landsman, New York.—p. 901.

New York Medical Journal

November 18, CIV, No. 21

78 Birth Control. S. A. Knopf, New York.—p. 977.
79 Compression Fracture of Fifth Lumbar Vertebra. J. K. Young, Philadelphia.—p. 982.
80 Diagnosis of Duodenal Ulcer. A. E. Austin, Boston.—p. 984.
81 Value to Operating Surgeon of Thorough Understanding of Therapeutic Agents. A. Vanderveer, Albany.—p. 988.
82 Puerperal Sepsis. A. M. Judd, New York.—p. 991.
83 Surgical Staff Conference. F. E. Adair, New York.—p. 996.
84 Testicular Syphilis. M. Zigler, New York.—p. 998.
85 Female Medical Clinic. M. H. Kahn, New York.—p. 1000.
86 Spinal Fluid of Normal Children. O. H. Petty, Roxborough, Pa. —p. 1004.
87 Public Health. H. Greenstein, New York.—p. 1004.

Northwest Medicine, Seattle

November, XV, No. 11

88 Physician as Business Man. T. O. Boyd, Twin Falls, Ida.—p. 353.
89 Case of Splenic Enlargement. G. A. Dowling, Seattle.—p. 355.
90 Malaria with Special Reference to Surgical Spleen. J. H. Bristow, Portland, Ore.—p. 359.
91 Mechanical Intestinal Obstruction. W. B. Holden, Portland, Ore. —p. 361.
92 Résumé of Present Status of Gallbladder Surgery. J. A. Pettit, Portland, Ore.—p. 365.
93 Indications and Contraindications for Cholecystectomy. M. H. Tallman, Boise, Ida.—p. 367.
94 Fibrosis of Bladder Neck as Cause of Urinary Frequency. H. W. Howard, Portland, Ore.—p. 368.
95 Multiple Peptic Ulcer in Child Aged Ten Years. G. F. Koehler, Portland, Ore.—p. 373.

Pennsylvania Medical Journal, Athens

October, XX, No. 1

96 Asphyxiation and Suffocation. E. B. Bricker, Harrisburg.—p. 3.
97 Laws of Pennsylvania Relating to Industrial Hygiene. F. D. Patterson, Harrisburg.—p. 6.
98 Lead Poisoning. F. D. Patterson, Harrisburg.—p. 13.
99 Workmen's Compensation Law as It Affects Physician. P. N. Furman, Harrisburg.—p. 15.
100 Relation of Extreme Temperatures to Efficiency of Workman. A. Stengel, Philadelphia.—p. 28.
101 Mortality from Diseases of Lungs in American Industry. F. S. Crum, Newark, N. J.—p. 33.
102 Value of Physical Examination as Factor in Prevention of Industrial Injury. J. B. Lowman, Johnstown.—p. 48.
103 What Constitutes "Reasonable" Surgical, Medical and Hospital Services Under Compensation Act? J. M. Baldy, Philadelphia. —p. 55.
104 Inguinal Hernia; Viewed as Anatomic Defect. C. A. Lauffer, Wilkinsburg.—p. 61.
105 Business Features of Medical Society of State of Pennsylvania. C. A. E. Codman, Philadelphia.—p. 63.

Southern Medical Journal, Birmingham, Ala.

November, IX, No. 11

106 Teaching and Practice. W. S. Thayer, Baltimore.—p. 955. To be continued.
107 *Medical Treatment of Gastric and Duodenal Ulcers. S. Harris, Birmingham.—p. 960.

108 Case of Syringomyelia Morvan Type in Negro. W. H. Deaderick, Hot Springs, Ark.—p. 971.
109 Importance of Counting Pus Cells in Urine. E. B. Block and K. Nyun, Atlanta, Ga.—p. 972.
110 Exact Estimation of Complement in Wassermann Technic. J. S. Fleming, Memphis, Tenn.—p. 973.
111 Iodin in Typhoid. J. Kenan, Selma.—p. 976.
112 Intussusception in Acute Intestinal Obstruction; Report of Case Occurring with Round Worms. A. McGlannan, Baltimore.—p. 977.
113 Craigiasis. H. B. Hiatt, High Point, N. C.—p. 979.
114 Chronic Arthritis; Report of Case. G. T. Tyler, Greenville, S. C.—p. 983.
115 Prostatectomy. A. M. Shipley and F. S. Lynn, Baltimore.—p. 985.
116 Prevention of Postoperative Gas Pains. D. W. Queen, Temple, Texas.—p. 988.
117 Chronic Osteomyelitis and Its Operative Treatment. A. Jacoby, Dallas, Texas.—p. 989.
118 Chronic Laryngeal Stenosis; Report of Two Cases. P. S. Mertins, Montgomery.—p. 992.
119 Syphilitic Keratitis. W. D. Hicks, San Antonio, Texas.—p. 994.

107. **Medical Treatment of Gastric and Duodenal Ulcers**—Harris has simplified, modified and Americanized the Lenhartz diet so that it can be carried out with greater accuracy by the average nurse or attendant than that which was originally advised. The nurse prepares enough of a mixture in the proportion of one egg and 1½ ounces of cream to 4 ounces of milk and gives it every hour from 7 a. m. to 7 p. m., in gradually increasing quantities, beginning with ½ ounce the first day and increasing ½ ounce each day. It requires six days to get up to 3 ounces at each feeding, and the quantity is kept at 3 ounces for four days. From the seventh to the tenth day a soft cooked egg and two tablespoonfuls of strained oatmeal may be given with the feeding at 7 a. m. and 7 p. m., and at 1 p. m. two tablespoonfuls of scraped beef lightly broiled and two tablespoonfuls of thoroughly cooked rice with butter. After ten days until the fifteenth day, 3 ounces of the egg, milk and cream mixture are given at 9 and 11 a. m. and 3 and 5 p. m.; and 2 ounces of strained oatmeal with cream and sugar, and one or two thin slices of dry toast and two soft eggs for breakfast at 7 a. m. and supper at 7 p. m.; and chopped or minced chicken or scraped beef, dry toast, rice and ice cream or gelatin at 1 p. m. Butter is allowed after ten days. Beginning with the fifteenth day and for two months, the patient should have small meals three times a day, with an egg and goblet of milk between meals and at bedtime. Harris says that this diet may be begun in forty-eight hours after a hemorrhage and in three or four days after a gastro-enterostomy. In the meantime the patient may receive some nourishment by the rectum. After the sixth week and for a year after treatment the ulcer patient should follow the diet indicated in hyperchlorhydria.

Wisconsin Medical Journal, Milwaukee

November, XV, No. 6

120 Operation of Cranial Decompression for Certain Intracranial Conditions. W. Sharpe, New York.—p. 173.
121 Acute Appendicitis. K. Doege, Marshfield.—p. 183.
122 Hereditary Syphilis from Modern Standpoint. C. A. Baer, Milwaukee.—p. 189.
123 Provision for Medical Care Under Health Insurance. A. Lambert, New York.—p. 191.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

September, X, No. 2

1 *Experimental Researches on Bacteriology of Leprosy. R. Stanziale.—p. 165.
2 Sudanese Maduromycosis. A. J. Chalmers and R. G. Archibald.—p. 169.
3 Sudanese Actinomycosis. A. J. Chalmers and J. B. Christopherson.—p. 223.

1. **Experimental Researches on Bacteriology of Leprosy.**—This is a brief account of the results of Stanziale's experiments in connection with the bacteriology of leprosy, which were begun in 1911. Two rabbits were inoculated into the anterior chamber of the eye with small pieces of a leprous nodule on Aug. 16, 1911. December 3, the cornea was incised and a microscopic examination having shown numerous acid-fast micro-organisms, four other rabbits were inoculated in the same fashion with small pieces taken from the first two animals; in two the inoculation was followed by the production of corneal and iritic nodules. With material from these animals, three other rabbits were inoculated, this being, therefore, the third transplantation or transmission. Two failed to show any permanent lesions, but the third rabbit developed in the course of three months a small gray nodule at the site of the graft, which was surrounded by several minute gray and pink granules which spread over the iris, in addition to a cloudy area on the cornea in the region of the inoculation. This opacity showed very clearly numerous arterioles, which, taking their origin from the outer hazy margin, reached the center of the cloudy oval patch. These lesions gradually disappeared after two months' time, and eventually the only traces to be detected consisted in deformity of the pupil with adhesions, diminution of the anterior chamber and localized opacity of the cornea.

After these initial experiments many attempts have been made with material from eight lepers and numerous rabbits. The leprotic lesions were successfully transferred from the first to the second and third generation, but by no means with uniform results. Numerous and repeated attempts were made to obtain an artificial culture of the bacterium of leprosy on laboratory mediums, but all efforts, with one single exception, were sterile, though many different mediums were employed, both aerobically and anaerobically. Once only, from a rabbit which had been inoculated 128 days previously, Stanziale succeeded in isolating an acid-fast micro-organism, identical in its morphology with Hansen's bacillus, and which he considers to be similar to the bacterium cultivated by Kedrowsky from human lepromas. The culture was obtained on a single tube of egg-yolk agar which was anaerobically incubated during a month at 37 C. White mice, guinea-pigs rabbits and two monkeys have been subcutaneously and intraperitoneally injected with emulsions of this culture, but so far only temporary, localized lesions have been obtained, if at all.

British Medical Journal, London

November 4, II, No. 2914

4 *Possible Functions of Cerebrospinal Fluid. W. D. Halliburton.—p. 609.
5 Incidence and Treatment of Entameba Histolytica Infection at Walton Hospital. C. Dobell.—p. 612.
6 Some Examinations and Treatments for Entameba Histolytica Infections. M. W. Jepps.—p. 616.
7 Search for Dysentery Carriers Among Soldiers Coming from Gallipoli and Egypt. J. O. W. Barratt.—p. 617.
8 Case of Jaundice from Trinitrotoluol Poisoning. H. Thursfield.—p. 619.

November 11, No. 2915

9 Pyrexia or Trench Fever. J. Muir.—p. 641.
10 Case of Acute Myeloblastic Leukemia. R. Hill.—p. 645.
11 *Grafting with Frog Skin. H. W. M. Kendall.—p. 646.
12 *Use of Glycerin and Ichthyol in Treatment of Septic Wounds. T. W. A. Daman.—p. 646.

4. See *Lancet*, abstract No. 13.

11. **Grafting with Frog Skin.**—Fourteen cases are cited by Kendall in which he resorted to this method of grafting. The ideal wound to graft is flat, without much suppuration or excessive protuberant granulations. The rapidity with which the wound commences to heal after the graft has successfully adhered is in marked contrast to its sluggishness before the operation. The wound having been gently cleaned without antiseptics and as gently dried, the loose skin on the inner side of the frog's thigh is carefully pinched up in a pair of dressing forceps, snipped off with scissors, spread out and applied by its under surface to the wound. A strip of gutta-percha tissue smeared with some mild and soft nonirritating emollient is then placed over it, fixed in position at its ends by adhesive plaster, and a dry dressing applied over all. The whole is gently removed in three days, when the site of the graft will be noticed as a purplish spot branching outward to the periphery of the wound. A similar dressing is again applied for two days to avoid unnecessary interference, after which the wound may be dressed daily, without the gutta-percha tissue, with some simple, nonirritating ointment, such

as boracic acid, until healing is completed. The gap in the skin's continuity is by this process filled up and unsightly or inconvenient contraction avoided. In addition to leaving a supple scar, this method is said to have the advantage of transplanting skin free of hair, and is free of diseases possibly conveyed in human skin. No antiseptics are used so as to avoid destroying the delicate epithelium formed from the graft.

12. **Glycerin and Ichthyol in Treatment of Septic Wounds.**—Daman endorses the use of a mixture of ichthyol and glycerin in varying strengths as first suggested by Duggan in every case of an open wound, accompanied by sepsis, induration and pain.

Lancet, London

November 4, II, No. 4862

13 *Possible Functions of Cerebrospinal Fluid. W. D. Halliburton.—p. 779.
14 *Cases of Kala-Azar in Europeans Successfully Treated by Intravenous Injections of Tartar Emetic. L. Rogers.—p. 782.
15 Dental Disease in Nursing Women. H. Waller.—p. 785.
16 Massage and Medical Electricity in After-Treatment of Convalescent Soldiers. F. B. Lambert.—p. 788.
17 Ultraviolet Radiation from Tungsten Arc. W. J. Turrell.—p. 790.
18 Case of Fractured Scaphoid and Os Magnum in Boy Ten Years Old. C. Gouldesbrough.—p. 792.
19 Pregnancy Complicated by Increased Cerebrospinal Pressure. N. Gray.—p. 792.

November 11, No. 4863

20 *Exophthalmic Goiter. H. Mackenzie.—p. 815.
21 Rose Irrigator for Supplying Therapeutic Fluid Continuously and at Standard Temperatures to Whole Surface of Wound. A. E. Wright, H. H. Tanner and R. C. Matson.—p. 821.
22 *Bacteriology of Feces in Diarrhea of Infants. W. R. Logan.—p. 824.
23 *Improved Operation for Intrinsic Malignant Disease of Larynx. H. L. Lack.—p. 827.
24 Origin and Prevention of Cerebrospinal Fever. H. Sutherland.—p. 828.

13. **Possible Functions of Cerebrospinal Fluid.**—The thesis in which Halliburton feels there is some truth is to regard the cerebrospinal fluid as the perfect physiologic medium more perfect doubtless than the artificial fluids made in the laboratory, but in its essential features closely resembling those associated with the names of Ringer and Locke.

14. **Tartar Emetic in Kala-Azar.**—The results obtained by Rogers in eighteen consecutive cases are as follows: cured, 13; greatly improved, 12; improved 12. One patient died from phthisis after the kala-azar parasite had disappeared from his spleen.

20. **Exophthalmic Goiter.**—Briefly, Mackenzie's views on the operative treatment of exophthalmic goiter are: If done at all, operation should be performed under local anesthesia. Local anesthesia is specially indicated in younger subjects. Ligature of the thyroid arteries does not appear to have any appreciable effect on the disease, and therefore, if done at all, it should only be as a forerunner of thyroidectomy. Thyroidectomy does not cure unless a sufficient amount of gland is removed. If possible it is better to remove more than an entire lobe at one operation. Mackenzie does not think the risk will be appreciably increased if this is done. If a whole lobe is left behind it is probable that another operation will be necessary at a later time, unless by means of other treatment a sufficient reduction of the remaining lobe can be brought about.

22. **Bacteriology of Feces in Diarrhea of Infants.**—The flora of artificially fed infants Logan found differs from that of breast-fed infants chiefly in a decrease of the acid tolerant group, an increase of the normal *B. coli* group, and in the appearance of members of the nonlactose fermenting group along with some increase of cocci. The flora of infants suffering from diarrhea shows similar but more marked changes, and the more severe the diarrhea the more marked the changes. Logan suggests that it is probable that the acid tolerant group exerts a beneficent influence in restraining the growth in the intestine of the nonlactose fermenting group. Bacilli of the nonlactose fermenting group were obtained from 6 out of 21 (28.5 per cent.) infants and young children who were free from diarrhea. Bacilli of this group were isolated from 11 out of 14 cases of diarrhea (78.5 per cent.). Bacilli of Morgan's No. 1 group were isolated from 9 per cent. of the normal children, and from 35 per cent. of the cases of diarrhea. True, though nonagglutinable, dysentery bacilli were isolated from none of the normal children, but were obtained from three cases of diarrhea with blood and mucus (dysentery), or 21 per cent. of total diarrhea cases. A certain number of cases of diarrhea of infants are therefore true bacillary dysenteries, Logan thinks. It is doubtful whether the overgrowth of nonlactose fermenting bacilli initiates the diarrhea, or whether it is a secondary and aggravating factor.

23. **Operation for Intrinsic Malignant Disease of Larynx.**—The steps of Lack's operation are briefly as follows: The larynx and the upper rings of the trachea are exposed through the usual vertical median incision and a tracheotomy tube is inserted. Then the soft tissues and perichondrium are turned off the thyroid cartilage on the affected side; the cricothyroid membrane and the ring of the cricoid are laid bare. Next, if desired, thyrotomy is performed by splitting the thyroid cartilage in the median line in the usual way. By gentle traction on the margins of the opening thus made the interior of the larynx can be inspected and the nature and extent of the growth seen. With strong cutting forceps the growth, with a sufficient margin of healthy tissue, is now cut away, together with the overlying cartilage in one piece. The thyrotomy is not always necessary. When it is known that the growth is malignant and that it is limited to one vocal cord there is no need to split the thyroid. With a small saw the thyroid cartilage is divided in the median line from its lower edge upward nearly to the upper margin. A transverse incision is then carried backward just below the upper edge of the thyroid, nearly to the posterior border, and then downward just in front of the posterior border. The square piece of cartilage thus marked out is removed, and subsequently the larynx is opened by dividing the underlying soft parts.

Medical Journal of Australia, Sydney

October 7, II, No. 15

25 Diathermy; Its Use in Surgery. W. K. Hughes.—p. 289.
26 *Acute Renal Infection in Pregnancy and Puerperium. S. H. Harris.—p. 291.
27 Medical Notes on Troops from Australia Landing at Suez. F. Lovegrove.—p. 294.
28 Case of Fractured Base of Skull with Compression Symptoms. A. J. J. Triado.—p. 295.

October 14, No. 16

29 *Etiology of Congenital Mental Deficiency. W. A. T. Lind.—p. 313.
30 Color and Its Relation to Tune. G. H. Taylor.—p. 316.
31 Case of Multiple Abscesses of Kidney Originating in Obstetric Trauma. R. Worrall.—p. 317.
32 Syndactylism. J. G. Edwards.—p. 319.
33 Case of Xanthoma Diabeticorum. N. Paul.—p. 320.

26. **Acute Renal Infection in Pregnancy and Puerperium.**—Ninety cases of renal infection occurring in pregnancy have been observed by Harris. Many of these were mild cases, and seen only on one occasion, the diagnosis being based on ordinary clinical methods. These cases were treated by advice and medicine, and were, as a rule, promptly lost sight of. Several were renal infections, dependent on causes other than the existing pregnancy, and were not true cases of pyelitis gravidarum. Thirty-two of the total number were more or less serious cases of pyelitis gravidarum. They were all subjected to careful cystoscopic examination, and treated by the retained ureteral catheter. The right kidney was involved in every case; in six both kidneys were affected. In no case was the left side alone affected. In the six bilateral cases the left kidney was infected after the right and to a less degree, as though it were a secondary and ascending infection. In every case of the thirty-two of the series a pure growth of *Bacillus coli-communis* was obtained from the catheterized urine from the renal pelvis, though in seven of the cases the bladder urine showed a mixed infection, with staphylococci in six and streptococci in one case.

These findings, Harris believes, warrant the two deductions that pyuria and pain confined to the left side are probably due to causes other than pyelitis gravidarum, and that pyuria in pregnancy associated with other organisms in the renal pelvis than *B. coli-communis* probably owes its origin to some cause other than pyelitis gravidarum. In 18 of the 32 cases, ureteral obstruction was situated from 6 to 8 inches above the ureterovesical orifice, that is, either at or just above the level of the pelvic brim. In three of these 18 cases in which pyelo-ureterograms were made, the obstruction in all was seen to be about 1 to 2 inches above the brim. In two other cases some obstruction was encountered at the ureterovesical orifice. In the remaining 12 cases no obstruction was detected by the ureteral catheter, though in one case in which pyelography was performed, the ureter was seen to be dilated to within about 2 inches of the pelvic brim. Harris suggests that a tense psoas parvus tendon is a contributing cause of the ureteral obstruction, at any rate, in some of these cases.

29. **Etiology of Congenital Mental Deficiency.**—It appears from Lind's investigation of 317 cases that there are two causes of idiocy. The one is phylogenetic degeneration, and the other is disease or trauma of the brain in early life. Either cause can produce congenital mental deficiency, as this condition is now defined. Strictly speaking, the degenerative type only is congenital. Both types produce idiocy. In regard to the relationship of alcoholism to idiocy it is impossible to say with certainty from the evidence obtained during this investigation, whether the alcoholism is an indication of stock degeneration, or one of the causes which produce phyletic degeneration.

Sei-I-Kwai Medical Journal, Tokyo

October, XXXV, No. 10

34 Investigation of Diabetes Mellitus Among Japanese. S. Iwai. —p. 55. To be continued.

Archives des Maladies du Cœur, etc., Paris

October, IX, No. 10, pp. 425-472

35 Experimental Research on the Origin of Extrasystolic Arrhythmia. D. D. Pletnew (Moscow).—p. 425.

Bulletin de l'Académie de Médecine, Paris

October 10, LXXVI, No. 40, pp. 235-258

36 Arteriovenous Aneurysm of Femoral Artery. Quadruple Ligation with Resection of Intermediate Segment of the Vessels. Recovery; Two Cases. J. Boeckel.—p. 239.
37 Transfusion of Venous Blood by Siphon Technic. (Un procédé nouveau de transfusion du sang.) G. Blechmann.—p. 243.
38 Intratracheal General Anesthesia. (De l'anesthésie générale par l'intubation directe dans les opérations sur la tête et sur le cou.) Guisez.—p. 245.
39 *Spirochete Hemorrhagic Jaundice. (Trois cas de spirochétose ictérohémorragique en France.) L. Martin and A. Pettit.—p. 247.
40 Meningeal Symptoms in Relapsing Fever. (Le syndrome méningé au cours de la fièvre récurrente, see rapports avec l'augmentation de la pression du liquide céphalo-rachidien. Réaction méningée puriforme aseptique. Efficacité du traitement par le 606. Essai sur le traitement par l'electrargol et le mercure.) Petzetakis.—p. 253.
41 *Biologic Tests with Pus from Liver Abscess. (Pyodéviation du complément et abcès du foie.) L. Tribondeau and Fichet.—p. 256.

39. **Spirochete of Hemorrhagic Jaundice.**—The spirochete isolated and the syndrome produced by it seem to be identical with the *Spirochaeta icterohemorrhagiae* described recently by Inada and Ido. This hemorrhagic jaundice was encountered in a number of the soldiers, and its contagious nature is beyond question. The urine seems particularly liable to transmit the infection. Two guinea-pigs injected with 5 c.c. of urine from one patient died in seven and ten days, while those injected with blood from this same patient were not appreciably affected by it. The disease seems to have an incubation period of about seven days. The onset then is stormy. Serotherapy seems promising. Every case of febrile jaundice with relapses, with or without hemorrhages, should be regarded as an infectious disease. Infectious jaundice of a typhoid type was described by Landouzy and Lancereaux in 1882 and others in France before these, Larrey describing in Napoleon's day an "icteroid typhoid" similar in every respect to the spirochete disease.

41. **Biologic Test for Differentiation of Abscess in the Liver.**—Pus from an abscess in the liver is capable of inducing deviation of complement when used as an antigen in the biologic test applied to patients with liver disease. It is stated that pus from abscesses elsewhere does not possess this antigenic property. This pyodeviation has rendered good service in differential diagnosis of certain puzzling cases.

Lyon Médical, Lyons

October, CXXV, No. 10, pp. 417-464

42 Advantages of Turpentine Fixation Abscess in Treatment of Pneumonia. De Teyssier.—p. 417.
43 Sudden Death from Rupture of Latent Pedunculated Abscess in Interior of Fourth Ventricle. A. Espenel and J. Haour.—p. 423.
44 Suppurative Arthritis after Metallic Fixation of Compound Fracture; Two Cases. Aisopos.—p. 427.

Paris Médical

October 28, VI, No. 44, pp. 361-376

45 *Clinical and Bacteriologic Study of the Choleriform Enteritis at the Dardanelles. C. Richet, Jr.—p. 361.
46 Immediate Postoperative Treatment of War Fractures and of Wounds of Joints. R. Lataste.—p. 368.
47 Radioscopic Localization of Foreign Bodies. (Un nouveau procédé de localization radioscopique.) Laplaze.—p. 371.
48 Constriction of the Jaws and Its Mechanical Treatment. (La constriction des machoires et son traitement mécanothérapique.) J. Rouget and H. Chenet.—p. 373.

45. **Choleriform Enteritis in the Dardanelles Campaign.**—Richet was unable to find any special germ responsible for the choleriform enteritis that was common among the French troops during the first of the campaign. The only reliable means of differentiating it from actual cholera was the absence of cholera vibrios and the rapid recovery. There was not a case of true cholera in the whole expeditionary corps, and he ascribes this freedom from cholera to the vaccination against it and to the strict way in which hygienic measures were enforced.

Presse Médicale, Paris

October 23, XXIV, No. 59, pp. 469-480

49 *The Oculocardiac Reflex in Heart Disease. (Les modifications des bruits cardiaques sous l'influence de la compression oculaire dans les lésions organiques du coeur.) C. Laubry and P. Harvier. —p. 469.
50 *Anaphylaxis is a Reaction on the Part of the Nervous System. (Essai doctrinal sur l'anaphylaxie.) L.-C. Soula.—p. 471.
51 *Scraping Out Fistulas in Bones. (Cure radicale des fistules osseuses par l'évidement.) S. Mercadé.—p. 473.
52 *Technic for Preparing Surgical Hypochlorite Solutions. (Différence entre la solution de Dakin et celle de Labarraque.) M. Daufresne.—p. 474.

49. **The Oculocardiac Reflex in Heart Disease.**—Laubry and Harvier have been making a systematic study of the modification of the heart rhythm under the influence of pressure on the eyeball, and call attention to the way in which this affects the contraction of the heart. They describe seven cases in which the men suffered from palpitations and were unable to run or march for any length of time. Repeated examinations failed to disclose organic trouble, but under pressure on the eyeballs the heart rhythm changed to that typical of pronounced mitral stenosis. These changes in one case did not occur until the pressure had been kept up for two minutes, but in all the other cases they followed at once. The experiences related demonstrate that the oculocardiac reflex is a complex phenomenon. Besides the modification in the rhythm, the contraction of the heart muscle is directly influenced. These responses may be variable in different persons and in the same person at different times, but even allowing for this uncertainty, pressure on the eyeball may prove an important differentiating measure, eliciting symptoms that betray organic mischief otherwise impossible to detect.

50. **Nature of Anaphylaxis.**—Soula here reports the results of extensive research at the Physiologic Institute at the University of Toulouse on the nature of anaphylaxis. It showed among other things profound changes in the lipoid formula of the nerve centers in the course of the period of anaphylactic sensitization. Anaphylaxis appears to be a general phenomenon resulting from the action of the poison on the nervous system. The humoral reactions which have hitherto been considered primordial characteristics of anaphylaxis are pos-

sibly only the repercussion of the chemical upset in the nerve substance.

51. **Treatment of Fistulas in Bone Substance.**—Mercadé refers to fistulas that keep up interminably, refusing to heal through months. The trouble, he declares, is that they are treated too timidly. They should be enlarged to expose the whole cavity behind them, chiseling and gouging away the wall until we have an open cup or saucer-like cavity, cleared out into sound tissue on all sides. This cavity is rinsed out daily with weak hydrogen dioxid, rapidly dabbed dry and tamponed in such a way that the cavity can grow up from the depths toward the surface. With this single radical operation he succeeded in promptly curing his sixty-five patients with these rebellious fistulas into long bones.

52. **Preparation of Surgical Hypochlorite Solution.** — Daufresne is one of the workers at the hospital of the Rockefeller Institute at Compiègne, in charge of Carrel, and he gives the minute details for the preparation of Dakin's antiseptic fluid and for a modification of it which has been used at the hospital, instead of the original Dakin, during the last few months. He expatiates on the difference between the Dakin, Labarraque and Javel formulas, and reports results of tests showing the difference of their action on phenophthalein and on the skin. To make 10 liters of the modified Dakin solution he weighs exactly 200 gm. of chlorinated lime (with 25 per cent. active chlorin by test); 100 gm. anhydrous sodium carbonate, and 80 gm. sodium bicarbonate. The 200 gm. chlorinated lime are placed in a 12 liter jar with 5 liters of ordinary water, shaking the whole thoroughly two or three times and setting it aside over night. In another jar the sodium carbonate and bicarbonate are dissolved cold in 5 other liters of water, and then the contents of this jar are poured at one gush into the jar containing the maceration of chlorinated lime. The whole is vigorously agitated for one minute and then set aside for the carbonate to settle. After half an hour, the clear fluid is siphoned off and filtered through two layers of paper. The limpid fluid thus obtained is then ready for use. It is kept in a cool place sheltered from the light. It should contain from 0.45 to 5 per cent. sodium hypochlorite with small amounts of neutral sodium salts. The solution is isotonic to the blood serum. The boric acid of Dakin's original solution has been dropped.

Each purchase of chlorinated lime is tested anew for the proportion of active chlorin, and if it is found below or above 25 per cent. the proportions of the three ingredients used must be altered to correspond, multiplying each of the three figures, 200, 100, 80, by the factor 25/N, N representing the active chlorin by weight in 100 gm. of the chlorinated lime. This proportion is determined by mixing 20 gm. with a liter of water and setting aside for several hours. To 10 c.c. of the limpid fluid, he adds 20 c.c. of a 10 per cent. solution of iodid, and 2 c.c. of acetic or hydrochloric acid, and then drops into the mixture, one drop at a time, a decinormal solution of sodium thiosulphate until decoloration ensues. The number of c.c. of thiosulphate used, multiplied by 1,775, gives the amount by weight, N, of the active chlorin in 100 gm. of the chlorinated lime. The chemical and biologic actions involved are described. See also Correspondence, p. 1687.

Revue de Chirurgie, Paris

May, XXXV, No. 5, pp. 637-780

53 *The Carrel-Dakin Method of Treating War Wounds and Burns. (Traitement des plaies de guerre par la méthode Carrel.) G. Hornus and P. Perrin.—p. 637.
54 Functional Reeducation of the Wounded. P. Régnier.—p. 668.
55 Extraction of Projectiles. S. Mercadé.—p. 697.
56 Extensive War Wounds. A. Chalier and R. Glénard.—p. 737. To be continued.
57 Operative Treatment of War Wounds of Nerves. A. Basset.—p. 754. Concluded.

53. **Carrel Treatment Applied to Burns.**—Hornus and Perrin reaffirm that the Carrel treatment has preeminent and multiple advantages. The results are constant when applied in the first six hours and the "mechanical cleansing" has been thorough and extensive; infection is throttled before it has a chance to develop. They say "The long periods of suppuration and serious infection of war wounds have disappeared forever. By the next day, by the sixth or eighth day at longest, the patient is in an excellent general state, in the best condition to repair his lesions. Recovery is more rapid, amputations become the exception, the wounded do not suffer, and pus is unknown." In one of three cases of extensive burns treated in this way, "the skin had completely healed over in less than a month, the new skin pink and supple, nothing at all like the hideous scars we are accustomed to see after such extensive burns."

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 14, XLVI, No. 42, pp. 1313-1440

58 *Surgical Experiences in the War. (Kriegschirurgische Erfahrungen.) F. Sauerbruch.—p. 1315.
59 *War Wounds of the Head. (Les blessures de guerre de la tête.) C. Julliard.—p. 1329.
60 *War Fractures of the Extremities. (Schussfrakturen der Extremitäten.) F. Steinmann.—p. 1359.
61 *War Wounds of the Joints. (Traitement des lésions de guerre des articulations.) Senn.—p. 1405.
62 War Wounds of Vessels and Nerves. (Kriegsverletzungen der Gefässe und Nerven.) E. Looser.—p. 1411.

October 21, No. 43, pp. 1441-1472

63 *Prevention of Contagion in Hospitals. (Die Verhütung der Uebertragung ansteckender Krankheiten in den Spitälern.) E. Feer.—p. 1441.
64 Infectious Erythema. J. Weber.—p. 1453.
65 Operative Treatment of Florid Bleeding Gastric Ulcer; Two Cases. (Zur Operationsindikation für das floride blutende Magengeschwür.) J. Kopp.—p. 1460.

58 to 61. **Surgical Experiences in the War.**—This large number of the *Correspondenz-Blatt* reproduces the addresses delivered recently at the third annual meeting of the Swiss Surgical Association. The speakers have all had a year or more of actual experience in tending the wounded. Sauerbruch emphasized the necessity for distinguishing between what is necessary and what is desirable, saying that the ability to do this is an art which has to be learned. He declared that war sugery is the same as peace surgery on a huge scale, and commented on the touching, childlike confidence of the wounded in their physicians. Julliard emphasized the advantages of covering extensive raw wounds with a layer of large-meshed silk tulle, dipped in liquid petrolatum. The gauze dressing is applied above this. This permitted free escape of secretions with no sticking to the wound. . . . Often men wounded in the head present surprisingly little disturbance. He saw one man walk into the hospital, smoking a cigarette, although he had had for two days a shrapnel ball several centimeters deep in the frontal lobe of the brain. In many cases a bullet in the upper jaw caused no disturbance for months.

Steinmann accompanies his remarks with forty-two illustrations. He has been much impressed by the frequency of severe suppuration after gunshot and shell fractures of the long bones. At times he had in his service at Bielitz a row of 130 men with suppurating fracture of the femur. He made great use of "open" treatment, exposing the wound to the sun and air, protecting the wound merely by a gauze-covered frame, like a huge muff.

Senn emphasizes the necessity for getting a wounded joint to a base hospital at the earliest possible moment, and having the same surgeon tend the lesion through all its phases. Otherwise the wound is liable to be treated in turn by different methods, as surgeons differ so widely in their views as to proper treatment of injured joints. Senn has witnessed irreparable harm result from this.

63. **Prevention of House Infection in Hospitals.**—Feer made a special study of this subject in preparation for erection of a new observation pavilion at the Zurich children's hospital. He visited the hospitals in Paris, Vienna, Berlin and Munich to learn what and what not to do, the history of many hospitals serving as intended and unintentional mass experiments in many instances. There were no hospitals especially for children until 1802 when the Hôpital des enfants malades was founded at Paris. Petrograd followed with one in 1834, Vienna and Berlin soon falling into line. In Switzerland they date only from 1862 and 1874. After thus studying on the spot the Lesage and Grancher cubicles and the other methods in vogue, in the chief medical centers, Feer had his

new observation station built with a capacity equal to one-fifth of the total capacity of the hospital. Recognized scarlet fever and diphtheria patients are taken at once to the special wards for these diseases, and grippe patients also are not taken into the observation station. The system of isolation selected is that used in the Pasteur Institute at Paris, entirely separate rooms, 2 by 4½ meters, with glass walls; each faces south, with a large window. The window of each room can be shut from without, and this is done before opening the door, to prevent any draft through in case volatile infections, such as measles and varicella, are suspected. The building has two stories with separate stairways. In the second story there is a hall for convalescents. During the three months the station has been in use, it has sheltered simultaneously measles, varicella, whooping cough, diphtheria and scarlet fever, and the rooms have been used for one after the other. No infection can occur, he is confident, if directions are followed. The new station lifts a tremendous load of responsibility from the shoulders of the hospital chief.

Deutsche medizinische Wochenschrift, Berlin

October 5, XLII, No. 40, pp. 1213-1244

66 *Indigo-Forming Substances in the Urine, Their Decomposition by Bacteria, and Indiguria. (Ueber indigobildende Substanzen in Urin—Harnindikan—ihre bakterielle Zersetzung und Indigurie.) G. Hoppe-Seyler.—p. 1213.
67 *Negative Widal and Negative Typhoid Bacilli Findings the Rule in Typhus. (Ueber die Brauchbarkeit der bakteriologischen Typhusdiagnostik zur Differentialdiagnose zwischen Fleckfieber und Typhus.) Meinicke.—p. 1214.
68 *"Five-Day Fever." (Zur Kenntnis der Febris wolhynica.) R. Korbsch.—p. 1217.
69 Benign and Malignant Sclerosis of the Kidney. (Zur Klinik der "vaskulären Schrumpfniere.") H. Machwitz and M. Rosenberg.—p. 1219. To be continued.
70 Radiotherapy in Treatment of Uterine Hemorrhage and Myoma. (Weitere Erfahrungen über die konservative Behandlung der Uterusblutungen und Myome mit Mesothorium-Radium.) A. Pinkuss.—p. 1222.
71 Localization of Foreign Bodies. (Fremdkörperlokalisation oder Tiefenbestimmung?) Eisenlohr.—p. 1226.
72 Why is Peroneal Paralysis More Common than Tibial? S. Auerbach.—p. 1228.
73 Spring Shoes for Litter Legs. (Eine neue federnde Lagerungsvorrichtung für Krankentragen auf Fahrzeugen aller Art.) Flemming.—p. 1230.
74 Free Treatment of Venereal Disease; Who Should Bear the Expense? (Die Behandlung geschlechtskranker Kriegsteilnehmer und ihre Honorierung.) H. Schönheimer.—p. 1232.

66. **Urine Indican.**—Hoppe-Seyler has succeeded in isolating potassium indoxyl-sulphate from the urine of a patient with intestinal tuberculosis. It conformed to all the tests, and it is thus fully established, he asserts, that the indican of human urine consists mainly of indoxyl-sulphate. Urine containing indoxyl is altered by bacterial action in the presence of oxygen, mostly by strains of colon bacilli. This causes a splitting of the indoxyl and the urine turns blue or brownish. Urine rich in aromatic compounds is not a good culture medium for bacilli. In quantitative tests for the ethereal sulphates and indoxyl, bacterial decomposition must be avoided.

67. **Differentiation of Typhoid and Typhus**.—Meinicke comments on the difficulty of distinguishing between these diseases, saying that many cases of typhoid were sent to the typhus ward. Without close study of the cases there would have been a blunder in the diagnosis in 25 per cent. of the 201 cases; 157 proved to be typhus and 44 typhoid. In the true typhus cases the Widal reaction was constantly negative and no typhoid bacilli were ever found in the blood. Most of the men had been vaccinated against typhoid but only once and this long before.

68. **"Five-Day Fever."**—Korbsch reports further experiences of the disease which His described last spring as a new war disease, calling it Febris wolhynica; Werner calls it "five-day fever." Korbsch emphasizes its resemblance to relapsing fever, both in its symptoms and its yielding to arsenic preparations. The onset is stormy and sudden; the pains in the bones become almost unbearable in a few hours. They grow gradually less severe, and disappear completely with the terminal sweating. The Widal reaction is 1 : 400 or 1 : 800 at first but drops until by the end of the second week it is only 1 : 100 or below. The disease occurs in attacks, each lasting one, two or three days; then follow two afebrile days, and the patient thinks he is well again, when another attack prostrates him. In 90 per cent. of the cases the spleen became enlarged by the second attack. The fever chart shows a single high peak, returning the fifth day, unless the second attack is rendered abortive by arsenic treatment. Diarrhea during the first attack was pronounced in 14 per cent. and less marked in 22 per cent. Heart complications are common; in 8 per cent. the left heart became dilated, and the heart sounds in all the patients became faint and blurred. The pulse was unstable and with low pressure, but no serious permanent damage seems to have resulted. A granulated spirochete was found in the blood of three of the patients but only in these. Body lice were on all these patients and there were no winged insects at this season. The disease affected exclusively the men of single troops; no isolated cases occurred among the other troops, and no house infection developed after thorough "unlousing" of the premises. One man developed the disease without direct contact with the sick, merely after cleaning the vehicle in which they had been transported. For these and other reasons cited, the louse is under suspicion. In a few cases the disease occurred in such a mild form and the attack was so transient that the men did not report themselves as sick. This may explain certain cases of puzzling contagion.

Münchener medizinische Wochenschrift, Munich

September 26, LXIII, No. 39, pp. 1381-1412

75 *Cultivation of the Rickettsia Prowazeki, the Alleged Typhus Germ. (Untersuchungen über Fleckfieber.) H. da Rocha-Lima.—p. 1381.
76 *Analysis of the Electrocardiogram Observed in Case of Paroxysmal Auricular Tachycardia. H. Straub.—p. 1384.
77 Powder Treatment of Vagina. (Kohlensäurewundpulver zur vaginalen Pulverbehandlung.) F. Mendel.—p. 1386.
78 Procedure for Restoring Agar So It Can Be Used More Than Once. (Erneuerungsverfahren für gebrauchte Agarnährböden.) P. Kuhn and M. Jost.—p. 1388.
79 Ultraviolet Rays plus Chemical Sensitization to Sterilize the Throat of Diphtheria Bacilli Carriers. (Bazillenträger, ihre Entstehung und Bekämpfung.) E. Friedberger.—p. 1389; (Entgegnung.) Rolly.—p. 1390.
80 Prevention of Stiff Shoulder. (Die Versteifung des Schultergelenkes durch Hängenlassen des Armes.) B. Riedel.—p. 1397.
81 Quinin in Prophylaxis and Treatment of Malaria. (Ueber Malariagefahren und ihre Verhütung durch Chininprophylaxe und Chininbehandlung.) P. Mühlens.—p. 1398.
82 Marmot Complement for Wassermann Test. (Hamsterkomplement an Stelle von Meerschweinchenkomplement bei der Wassermannschen Luesreaktion.) A. Reinhardt and H. Oeller.—p. 1399.
83 Testing for Hemeralopia. (Zur Praxis der Lichtsinnprüfung.) Braunschweig.—p. 1400.
84 Open Treatment of Wounds. (Ueber offene Wundbehandlung und eine Behandlungsschiene für die untere Extremität.) Braun.—p. 1402.
85 Restoration of Function in Ten Days after Radial Nerve was Severed by Bullet. (Durchschuss des Nervus radialis. Völlige Funktionsherstellung in 10 Tagen.) A. Löwenstein.—p. 1405.
86 Injury from Being Buried Under Debris. (Kasuistisches über Verletzungen durch Verschüttungen.) Orth.—p. 1406.
87 *Making Fingers out of the Hand after Loss of All the Fingers. (Mittelhandfinger.) O. Burkard.—p. 1409.
88 Devices to Correct Contracture and Paralysis. (Einfacher Apparat für Peroneuslähmungen.) E. Schmid.—p. 1409; (Ein neuer Finger-Beuge-, Streck- und Spreizapparat.) Kröber.—p. 1410.

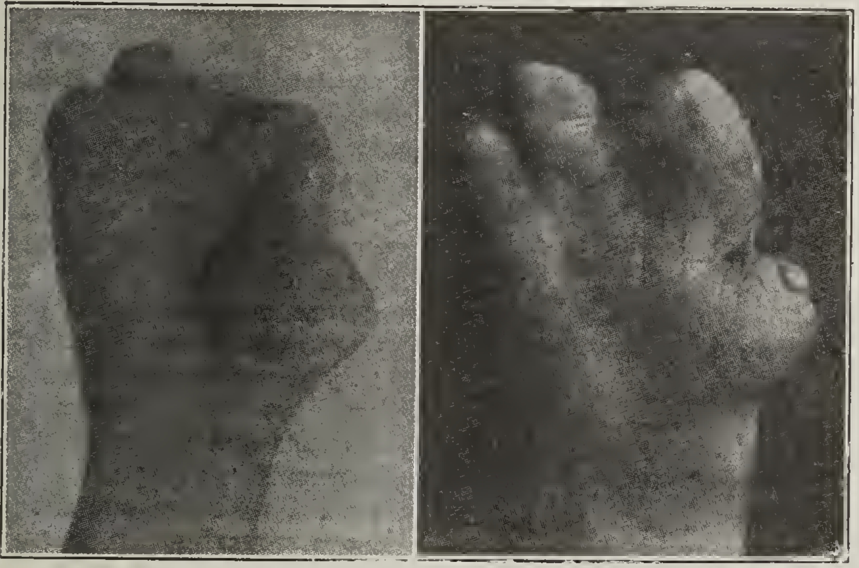
75. **Etiology of Typhus.**—Rocha-Lima of the Institut für Schiffs- und Tropenkrankheiten, regards as extremely important the discovery that the micro-organisms found in lice that have bitten typhus patients, penetrate into the epithelial cells of the digestive tract of the louse and multiply there, causing profound and characteristic changes in the cells thus affected. Nothing resembling these changes was found in 120 normal lice examined, and these changes, he reiterates, are peculiar to the Rickettsia and identify it. The micro-organism, he says, is probably identical with some of those described by Ricketts and Wilder, Prowazek, Sergent, Foley and Viallette. It is not certain that it is a bacterium and hence, to be safe, he calls it the *Rickettsia prowazeki.* He does not regard the Plotz bacillus as responsible for typhus, for reasons which he enumerates. The special features of the Rickettsia are its intracellular development; the regular experimental infection of lice with the Rickettsia when they are allowed to bite typhus patients—and exclusively under

hese conditions; and the parallelism between the Rickettsia nfection of the lice and the infectiousness of the lice for uinea-pigs—these features justify, he says, the assumption hat this is the causal agent of typhus.

He describes his extensive research in detail, and notes mong other results obtained that typhus does not develop carriers." In about 100 tests on convalescents the findings ere constantly negative. The tests were made by buckling n the arm or leg a Sikora louse cage, containing from 25 o 50 lice from a typhus-free region or raised in the labora-ory. The cage is left on permanently or applied for an hour r two daily, keeping this up for about ten days. His esearch further demonstrated that it is possible for the louse o transmit the Rickettsia to its young, but that this is of xceptional occurrence. It occurred once in thirteen tests. iting a typhus patient once is enough to infect the louse, but e virus disappears early from the patient's blood after efervescence.

76. **Nature of the Electrocardiogram.**—Straub reports a ase of paroxysmal auricular tachycardia in which during e attack the electrocardiogram was modified in a way which rongly suggests that the latter consists of two quite different eaks, those of the R group and of the T group. He explains is in detail, as he calls attention to the shortening of the entricle electrocardiogram to less than two thirds in the ourse of the attack of auricular tachycardia.

87. **Rebuilding a Hand.**—Burkard's patient had lost from eezing all the fingers and thumb of the right hand. It oked like a square mitten without a thumb. He cut down etween the fingers and suceeded in building up in this ay three finger-like stumps nd a thumb stump, all made om the bones of the meta-arpus, all covered with ound skin, and able to grasp fectually the handles of ols, etc.



Fingers Made from Metacarpus.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 15, XXXVII, No. 83, pp. 1297-1312

9 Case of Mumps Meningitis in Boy of Fourteen; Recovery. (Caso di meningite da orecchioni.) D. Vandini.—p. 1300.

ctober 19, No. 84, pp. 1313-1328

0 Herpes Zoster Consecutive to Vaccination against Typhoid. B. Nicola.—p. 1315.

Russkiy Vrach, Petrograd

XV, No. 37, pp. 865-888

1 *The Vasomotor Reflexes in the Skin. (Sosudodvigatelnie reflexi kozhi.) P. V. Nikolsky.—p. 865.

Vaccination against Typhoid and Paratyphoid. (Opit primieneniya smieshannoi typhozno-paratyphozno vaktsini.) S. N. Predtechensky.—p. 868; (Iz nabliudeni nad immunizatsiei protiv briushnogo typha.) A. F. Pieshekhonova.—p. 870; (K voprosu ob opredielenii stepeni temperaturnoi reaktsie pri privivkakh typhoznoi vaktsini.) X. D. Arkhepiants.—p. 872; Do. —— p. 874.

Case of Generalized Sporotrichosis Over Entire Body. (Sluchai videleniya sporotrichum Gougerot ot bolnoi.) V. E. and A. E. Burovi.

Closing Cavities in Bones after War Wounds. (K. voprosu o zaktritii kostnikh polostei poslie ognest. perelomov.) S. A. Novotielnoff.—p. 878. Concluded.

*Treatment of Cancer. (O liechenii raka.) A. D. Nurenberg.—p. 883.

91. **Dermographism.**—Nikolsky comments on the lack of scrimination in the textbooks between red and white dermraphism. Drawing a spatula or the fingernail along the in may cause the production of a red line along the path this mechanical irritation, or a line of whiteness may be served. The white line is particularly striking when it curs on an area of skin already reddened by inflammation sunburn. He expatiates on the antagonistic mechanism these reflexes, and the importance of heeding this mecham in treatment of skin affections. The red line indicates excessive irritability on the part of the vasodilating nerves, while the white line indicates a spasm of the vasoconstricting nerves. The reflexes may occur in different intensity on the trunk and on the extremities of the same patient, and they may differ likewise on the inflamed and sound skin of the same patient. The absence of any reaction is also instructive in certain skin diseases, and likewise the changes in the reflex under the influence of therapeutic measures. As hyperemia may occur from dilatation of the vessels under the action of unduly irritable vasodilator nerves, or it may occur from paralysis of the vasoconstricting nerves, the skin reflex will reveal which of these mechanisms is responsible. This will enable us to apply sedative or stimulating remedies as indicated, and places treatment on a scientific basis instead of on mere empiricism. If a person with white dermographism has the skin rubbed to induce hyperemia from the friction, and then the test for the skin reflex causes no white line to appear on the reddened area, we can assume a paralyzed condition of the vasocontrictor nerves. The friction upsets the unstable balance of the vasoconstrictors, and the hyperemia induced is of the paralytic type. This may occur likewise from the action of the mercury vapor lamp and of carbonated baths.

95. **Stimulating Leukocytolysis in Treatment of Cancer.**—To aid and sustain Nature in the struggle against invading infections is the aim of therapeutics, and the study of Nature's methods of defence has convinced Manukhin that the leukocytes are the main reliance. By destruction of the leukocytes their antibodies are liberated, while Nature hastens to replace those destroyed and increases the numbers of the mobilized army of leukocytes. During the last three years Manukhin has insisted that by artificially stimulating leukocytolysis we are reenforcing Nature's efforts in the most direct and effectual way. He seeks to accomplish this by applying small doses of Roentgen rays to the spleen. The exposure is equal to only 1 or 1.25 H units after filtering through 1 mm. aluminum. He obtains this dose in the course of four or five minutes with a current of 1 ma and 5 or 7 a, with the hardness of the tube equivalent to a Benoist 8 or Wehnelt 10 at a distance from the surface of about 25 cm. His detailed communication on the subject appeared in *Vrach,* 1916, Nos. 22-26, in which he reported success in whatever infectious disease the organism was contending with at the time. He remarks in conclusion that the constancy of the success (1913) in aiding monkeys to throw off infection from virulent tubercle bacilli cultures justified the application of the measure in the clinic, and he regards the results as extremely encouraging.

In this preliminary communication Nurenberg reports the application of the principle to the treatment of cancer. He reviews what Ribbert and others have published on the influencing malignant disease by modifying the lymphatic system. Ribbert found in his study of gland metastases of cancer of the lip that the invading cancer cells did not seem to be destroyed by anything in the nature of phagocytosis so much as by the toxic influence from chemical substances escaping from the disintegrating lymphocytes.

Thus his research confirmed Manukhin's views as to the importance of leukocytolysis in Nature's efforts to throw off disease. Nurenberg emphasizes further the rarity of invasion of the spleen by malignant disease, saying that Brancati found that tumors which could be successfully grafted into other organs never gave any growth when implanted in the spleen. Apolant has also reported that splenectomy reduces the defensive powers of mice against tumor grafts, and this has been confirmed by Brancati, Oser and Pribram. Biach and Weltmann implanted simultaneously tumor tissue and spleen tissue and found that the mice or rats thus grafted displayed greater resistance to the development of cancer than normal animals, confirmed further by others. Other investigators have reported even retrogression of tumor grafts. Most of these authors explain these phenomena as resulting from the stimulation of the production in the spleen of cytolytic antibodies. Nurenberg presents further evidence to show that the lymphatic glands can be ranked with the spleen as regards leukocytolytic action. It may be possible therefore to imitate and reenforce Nature's efforts at a spontaneous cure by Roentgen exposures of the spleen by Manukhin's technic or by exposures of lymphatic glands to the ultraviolet rays.

Hospitalstidende, Copenhagen

November 1, LIX, No. 44, pp. 1061-1084

96 *Mode of Invasion and of Spread of Tuberculosis in the Female Genital Organs. (Om Indgangsport og Udbredningsmaade af Tuberkulosen i det kvindelige Genitalsystem.) I. P. Hartmann. —p. 1061. Commenced in No. 42, p. 1037.

96. **Tuberculosis of Female Internal Genital Organs.**—Hartmann's long article discusses the mode of entry of the tubercle bacilli into the internal genital organs, reviewing the literature on the subject and comparing clinical findings with the results of considerable personal research on guinea-pigs. He injected tubercle bacilli into the vagina of the guinea-pigs or into the cornua of the uterus. All the data presented apparently disprove the possibility of ascent of tubercle bacilli against the course of the secretions. Even when implanted in a cornu of the uterus, the tuberculosis always spread in the distal direction.

Ugeskrift for Læger, Copenhagen

October 16, LXXVIII, No. 42, pp. 1799-1898. Bartholin Tercentennial Number

97 *The Tercentennial Address on Thomas Bartholin 1616-1916. V. Maar.—p. 1799.

98 Bartholin as Anatomist, as Peer, as Antiquarian and as Poet. (Et Blad af Domus Anatomicas Historie.) V. Maar.—p. 1812; (Bartholin og Oldforskningen i Danmark i det 17. Aarhundrede.) C. Neergaard.—p. 1836; (De adelige Bartholin'er.) A. Thiset.—p. 1878; (Bartholinerne som Adelsmænd og Jordegodsbesiddere.) C. T. Bartholin.—p.1887; (Bartholin som Digter.) O. Andrup.—p 1891.

99 Bartholin's Correspondence. (Et Hyldningsdigt til Th. Bartholin fra Vitus Bering.) C. E. van Leersum.—p. 1818; (Nogle Breve fra Thomas Bartholin til Ole Worm.) J. W. S. Johnsson. p. 1820; (Et Trøstebrev fra Thomas Bartholin.) A. Garboe. —p. 1872.

100 Portraits and Memorials of Bartholin. O. Andrup.—p. 1852; V. Maar.—p. 1867; A. Garboe.—p. 1876.

101 Bartholin's Family and Descendants. (Bartholinerslægten.) K. Carøe.—p. 1880

97. **The Bartholin Tercentennial.**—This well illustrated issue of the *Ugeskrift* is devoted to this Danish anatomist of the seventeenth century, and the tercentennial celebration, October 20. The current number of *Janus* is also devoted to commemoration of this early anatomist.

Upsala Läkareförenings Förhandlingar

XXI, No. 6-7, pp. 399-579. Last indexed April 8, p. 1174

102 *Spontaneous Pneumothorax Complicating Artificial Pneumothorax. A. Wallgren.—p. 399.

103 *Development of the Disposition of the Intestines in Human Embryos. (Om tarmlägets utveckling hos människofostret.) G. Ekehorn.—p. 433.

104 *Involvement of the Ovaries in Mumps. (Om oophorit som komplikation till den epidemiska parotiten.) C. D. Josephson.—p. 523.

105 *Postoperative Parotitis. C. D. Josephson.—p. 563.

102. **Spontaneous Pneumothorax Complicating Artificially Induced Pneumothorax.**—Wallgren has had this mishap occur in two cases and has come to regard it as liable to be a very serious complication. In one of his cases it happened twice; the first time from injury by the puncture needle. The second time it occurred three days after the repeated insufflation; evidently the lung tissue had given way to the traction from some linear adhesion. There was no serious damage from either in this case. In the second case the symptoms of the spontaneous pneumothorax did not become evident until eight hours after the insufflation. The tuberculous process in this case soon spread disastrously to the other side. In a third case cited the tuberculosis was of four years' standing. Both lungs were affected but the disease seemed to be stationary on one side. This encouraged the inducing of artificial pneumothorax, but spontaneous pneumothorax complicated the therapeutic, causing considerable disturbance, cough, etc. The patient survived this but died a month later from the progressive pulmonary processes. In connection with these cases Wallgren summarizes seven others from the literature, with over two pages of bibliography. In prevention, he says, it is wise to have the needle graduated so that we can know how deep we are pushing it in. It should be introduced very cautiously, warning the patient to breathe lightly. The tip should not be sharp and it should be inserted at a point where we believe the lung tissue to be as free from changes as possible, keeping remote from the region where a cavity is suspected. The spontaneous pneumothorax can occur from the progress of the destructive process, from trauma or from traction on a weak part of the lung, or from perforation into lung tissue of a pleural empyema complicating the artificial pneumothorax.

103. **Study of Embryonal Development of the Position of the Intestines.**—Ekehorn's long study of this subject is accompanied with four fine plates containing forty-nine illustrations.

104. **Involvement of the Ovaries in Mumps.**—Josephson reports the case of a woman of 38 previously healthy, except for sciatica two years before, who passed through an ordinary attack of mumps during an epidemic. Her four children did not contract the disease. After subsidence of the swelling of the parotid glands, the woman's temperature kept high but tests for typhoid were negative, and the temperature finally dropped to normal. The twentieth day after the first symptoms intermittent pains developed in the right and left sides of the abdomen alternately. This was assumed to be a complication of the mumps as the uterine adnexa could be palpated, much enlarged, the left as big as a lemon. Under conservative measures and bed rest, conditions returned apparently to normal by the end of two months. After two months of freedom from symptoms the pains in the right abdomen returned, with much discharge and lassitude. A laparotomy revealed the left adnexa apparently sound, but the right were suppurating, with adhesions, and cystic degeneration as he describes with illustrations. Tuberculosis, gonorrhea and appendicitis could apparently be excluded. A diplococcus was found in the pus which possibly may be identical with the one described by Laveran and Catrin in 1893. Comparing this case with a dozen similar ones which he summarizes from the literature, demonstrates, he declares, that we must regard mumps as a general infectious disease which is liable to attack almost any of the glands, and even the kidneys, pancreas, thymus, thyroid and lacrimal glands. As a rule the testicles bear the brunt of the attack, outside of the parotid glands, but the ovaries and the mammary glands come next in frequency. He knows of only one rather dubious case, beside the one here reported, in which the ovaries developed a suppurative process with rapid sclerocystic degeneration.

105. **Postoperative Parotitis.**—Josephson analyzes the literature on parotitis developing after an operation. It seems to be more common than generally recognized, and may develop after almost any kind of a major operation requiring long anesthesia. There seems to be an undoubted connection between the salivary and the genital glands, at least in the line of inhibiting secretion. This renders the inhibited gland less resistant and this seems to be the only possible explanation for the exceptional frequency of postoperative parotitis after operations on the ovaries. He says it has scarcely ever been observed after myoma operations, removal of inflamed tubes, vaginal hysterectomies or prolapse operations. Even with bilateral ovarian tumors the patient may continue to menstruate regularly, showing that some ovarian tissue is still functioning. The sudden removal of this functioning ovarian tissue may upset the balance in the internal secretions, the salivary glands suffering particularly, and parotitis follows. Among the authorities cited is von Hertzen who reported in 1912 or 1913 twelve cases of postoperative parotitis.

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SOME PHASES OF EXPERIMENTAL SYPHILIS

WITH SPECIAL REFERENCE TO THE QUESTION OF STRAINS [*]

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As a result of the rather intensive study of syphilis during the past few years, experimental methods of investigation of this disease have been evolved and our fund of information has been increased thereby.

It is believed that the results to be obtained from a study of experimental syphilis will be far greater if the human factor is brought into the equation. We cannot very well draw comparative conclusions as to the behavior of nervous syphilis in the rabbit, unless we know that the strain in question does and has produced nervous involvement in the human being. The end for which we have worked is the determination in the rabbit of the various characteristics and peculiarities of the initial lesion and subsequent course of the disease, with strains of syphilis known to have produced nervous syphilis in the human being, compared with other strains known to run a mild course and readily amenable to treatment in the human being. This paper is based on the results of six years' work, during which time twenty strains have been observed in the rabbit, of which number only a few have been carefully studied over a prolonged period of time. Two of these strains were obtained from the spinal fluid of patients having nervous syphilis.

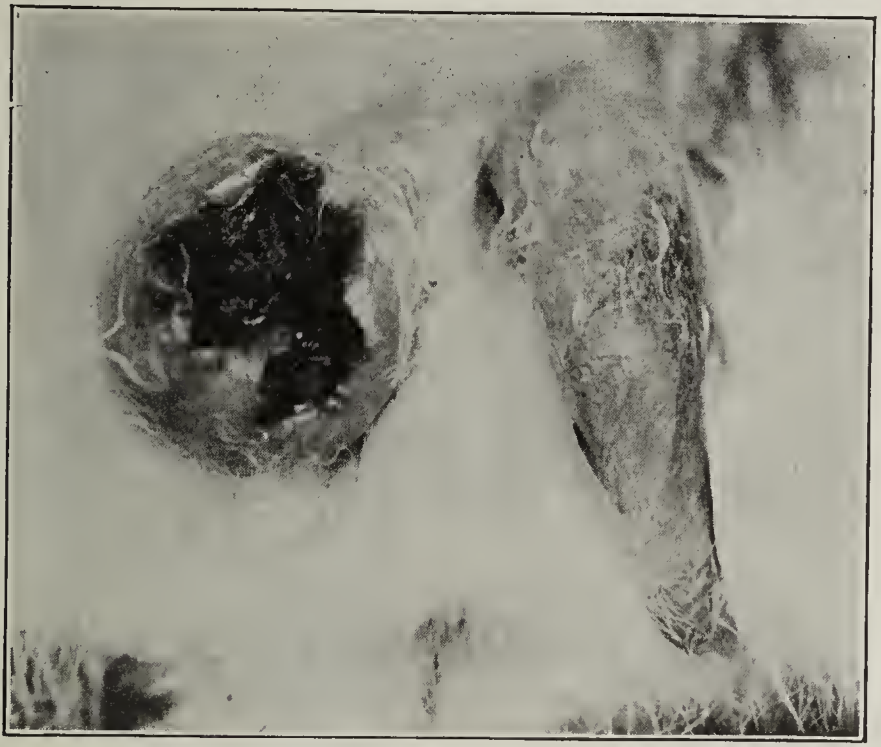

Fig. 1.—No. 5 lesion involving testicle, tunic and skin.

During the year 1910, while at the Rockefeller Institute, Nichols began the study of experimental syphilis in the rabbit. This work has been carried on continuously until the present time, four years by Nichols and the remainder of the time by me, and now serves as the basis of this paper. The first part of Nichols' work was performed with strains obtained from mucous patches and chancres. June 30, 1912, he, in company with Dr. William H. Hough[6] of this city, injected spinal fluid from a neurorecidiv into the testicles of a rabbit. A lesion appeared at the end of fifty days.

This strain during the last four years has been studied by us in seventy-three rabbits in thirty-two generations. This strain is of particular interest, as it was in the eleventh rabbit in the seventh generation that there was demonstrated and confirmed by Green and Nichols the presence of a definite fundus involvement. As will be noted in the table, this strain has characteristics not noted in any other of those studied.

Chancre Strain 10 was obtained from the serum of a rather large, only moderately indurated chancre. Both man and wife showed a tendency toward mucous lesions, and the wife, who went a few weeks longer without treatment, presented a few roseolas. Both responded readily to treatment, showing that their syphilis was not of an intractable type and they are now in a condition closely approximating that of cure. The type of manifestations produced in the rabbit will be seen in the table.

Chancre Strain 7 was obtained by Capt. Clarence L. Cole, Medical Corps, U. S. Army, at San Antonio, Texas, Oct. 21, 1913, from the initial lesion of a soldier.

Chancre Strain 11 was obtained Jan. 19, 1915, from the chancre serum of a patient having a large indurated lesion. At the end of two months there was observed in the rabbit an anterior eye chamber involvement accompanied by a marked bilateral keratitis. Evidently a cyclitis was also present, as soon after there developed a cataract in both eyes. The same condition developed later in another rabbit. So far as is known, this lesion has not been observed by others. This patient died as a result of gas asphyxiation, and it was not possible to follow him further. The manifestations produced in the rabbit are noted in the table.

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[*] Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[*] Continuing certain investigations initiated by Capt. H. J. Nichols, Medical Corps, U. S. Army, in the Department of Pathology at the Army Medical School.

[*] Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on request.

[*] This article and the one by Dr. Cole which follows are parts of a symposium on "Syphilis." The remaining papers by Drs. Sutton, Wile and Elliott, Schamberg, Kolmer and Raiziss, Trimble and Rothwell, and Irvine and the discussion will appear in The Journal for December 23 and 30.

[6] Nichols, H. J., and Hough, W. B.: Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid, The Journal A. M. A., Jan. 11, 1913, p. 108.

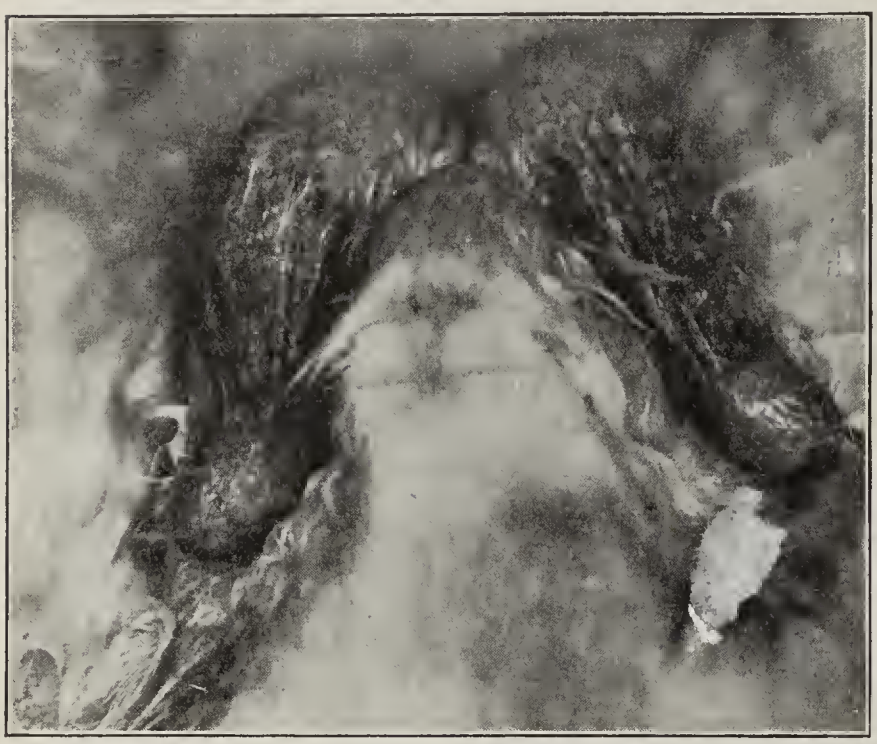

Fig. 2.—Diffuse orchitis characteristic of Strain 10.

Spinal Fluid Strain 19 has been reported.[8] This patient died at the end of ten and one-half months from cerebral syphilis in spite of what might be termed average treatment. The rabbit was inoculated from the spinal fluid. Two other cases contracted from the same source are now under observation.

In all, twenty successful inoculations have been made, ten by Nichols and ten by myself. In the ten observed by Nichols, nothing unusual was noted except in Strains 5 and 7. Excepting Strain 5, all the successful inoculations studied by Nichols were obtained from chancres or mucous lesions. Of the ten successful inoculations seen by me, all but Strain 19 were obtained from the chancres or mucous lesions, and only Strains 11 and 19 presented unusual manifestations. Strain 26, obtained from an extragenital lesion on the face, could not be differentiated in any way from Strain 10. Owing to the lack of room and the difficulty in obtaining animals, these other inoculations have not for the most part been carried through more than one or two rabbits.

TYPES OF LESIONS

It has seemed desirable to adopt a classification of types of testicular lesions observed in the rabbit, which is slightly different from that observed by Uhlenhuth and Mulzer.[5] (For want of space, this will not appear except in the reprints.)

It is believed that an accurate and standard technic for inoculations is an important part of this work. In performing testicular inoculations from chancres, clean and wash well with normal salt solution, have patient squeeze chancre, and obtain characteristic serum in capillary pipet. Mix with normal salt solution and inject not more than 0.3 c.c. into testicle of rabbit, first cleansing the skin. Successful inoculation seems rare with secondary infection. To transfer from rabbit to rabbit, dip tip of capillary pipet in 1 per cent. sodium citrate and carry into testicle with boring motion. Mix testicular fluid with normal salt solution and inject as before. In an infected testicle negative to dark field, one can remove testicle, make emulsion, strain, and inject as before. Do not inject large quantities, as this predisposes to trauma and secondary infection. It is necessary to differentiate between secondary infection and sterile central necrosis which follows the initial lesion with some strains. Adult rabbits with well formed testicles should be used. Steiner[9] prefers white rabbits for study of nervous lesions, but they are not so good for the study of eye lesions. It is best except in first inoculation from human being to determine lesion by palpation. Some types of lesions are not readily palpable. Repeated punctures for dark field examination produce trauma and hemorrhage which may cover up the lesion or interfere with development.

CHOROIDITIS AND NEURORETINITIS

The fundus of a rabbit differs considerably from that of the human eye. The blood vessels are not visible, and the construction of the disk is such that the recognition of a choked disk would be impossible. The diagnosis of these conditions in the rabbit is a difficult matter to even an expert ophthalmologist, until he has had considerable experience and is thoroughly acquainted with the normal rabbit fundus and the character of the lesions to be expected; and even then, difficulty is often experienced. Confusion may arise from unusual forms of pigmentation as well as the peculiar arrangement of the medullated nerve fibers. The choroidal manifestations appear usually in the lower quadrant as yellowish, granular spots which later may become pigmented. There may be only a few of these spots, small in size, and they may not be readily recognizable or they may be large enough to be easily seen or the condition may become fairly diffuse, as in one case which closely simulated an albuminuric retinitis. Later these spots become atrophic and assume a white, glistening appearance. In one of two attempts, a successful transfer was made with normal salt emulsion of washed choroid. In both cases Strain 5 was used. Microscopic examinations of sec-

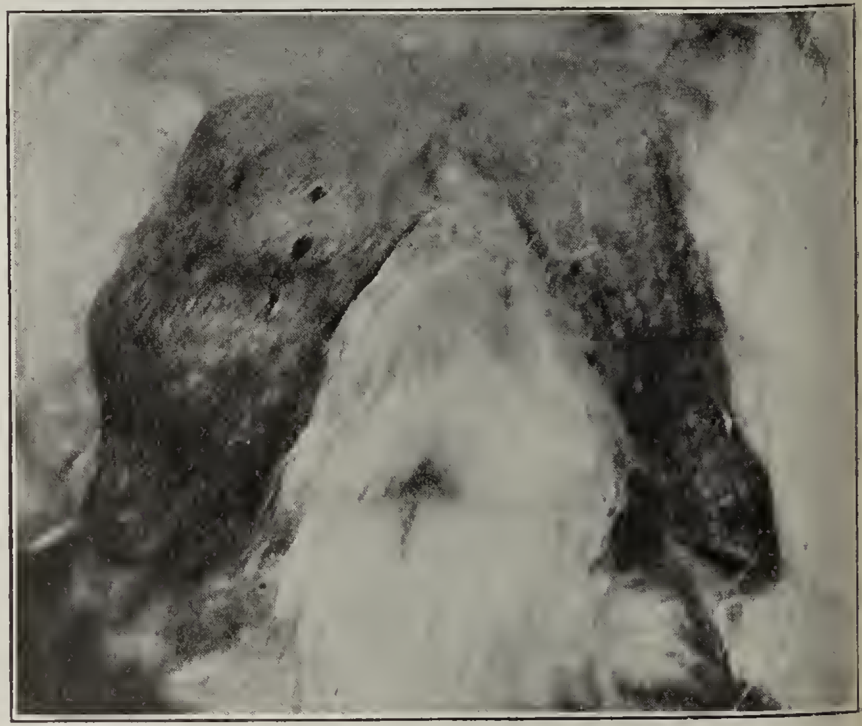

Fig. 3.—Multinodular, indurated orchitis of No. 11.

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[8] Reasoner, M. A.: Early Death from Cerebral Syphilis, with Successful Rabbit Inoculation, The Journal A. M. A., June 17, 1916, p. 1917.

[9] Steiner: Neurol. Centralbl., 1914, xxxiii, 546.

tions of fundus show the presence of syphilitic processes. At a later date we shall collaborate with Dr. Louis Green in a more detailed presentation of this phase of the subject.

Keratitis and Pericorneal Injections.—In Strains 5, 7, 11 and 19, an occasional pericorneal injection was noticed following testicular inoculation. This condition most often appeared within two months after the initial lesion, but in several cases it was noticed before the lesion was yet manifest. It starts as a rule in the superior portion of the cornea in the form of a slight haziness. The anterior ciliary vessels are somewhat enlarged and engorged, and spread out as if to encircle the cornea, and the iris is normal. In a few days, vascularization of a deep type takes place, and with the corneal microscope is seen to consist of radial vessels passing down into the cornea (Figs. 4 and 5). In four rabbits, the entire cornea became involved and the characteristic salmon patch was observed. In two rabbits a pericorneal injection was noted (one in Strain 5 and one in Strain 11) without the appearance of the initial lesion in the testicle. Repeated unsuccessful attempts to inoculate these rabbits by way of the testicle caused us to consider the possibility of an infection in these animals without the initial lesion.

With the idea of determining if it were possible to produce fundus lesions with Strain 10, repeated intravenous inoculations of Syphilitic Emulsion 10 were made at weekly intervals after the appearance of the initial lesion. In no case did fundus lesions appear, but it was found that if these inoculations were made within two months from the time of the testicular lesion, a pericorneal injection and in some cases a well-marked keratitis would be induced. In six out of seven rabbits, this was observed after the third inoculation, given at weekly intervals. In the seventh rabbit no effect was observed. If a number of months were allowed to elapse before the intravenous injections were made, no result was observed. The presence of spirochetes in scrapings from the cornea was demonstrated by means of the dark field. In the only case attempted, a successful transfer was made with emulsions of corneal scrapings. Ordinarily these manifestations cleared up within a few weeks. In two Strain 10 rabbits inoculated primarily by intravenous injection, it was not possible to produce this condition. This procedure was then applied to the other strains. The results were not so constant, but when they did appear, resolved more slowly.

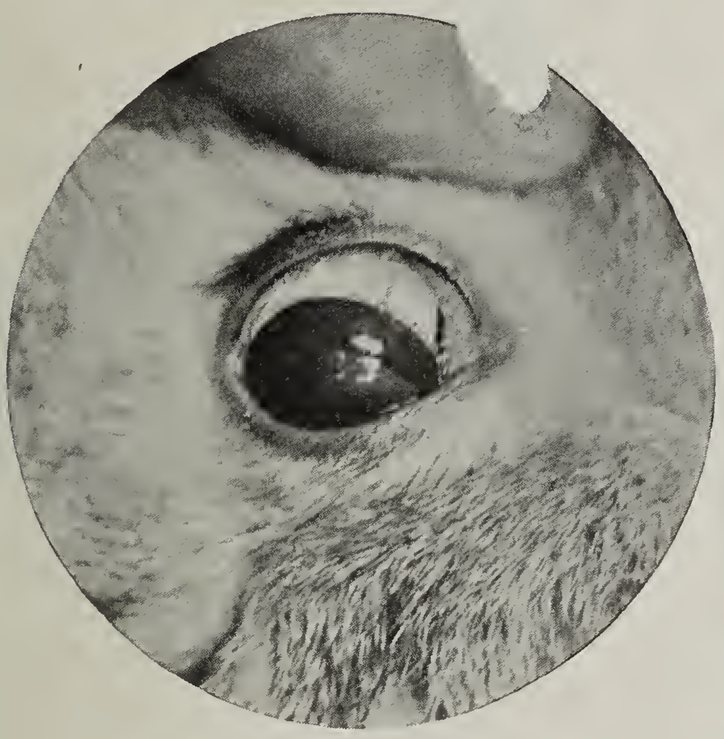
Fig. 4.—Pericorneal injection with keratitis.

Cataract.— In one Strain 11 rabbit a typical cataract was observed in both eyes. Evidently this condition had been preceded by a cyclitis. This condition was not observed in any other strain, and so far as is known has not been noted by other observers.

Gumma of the Eye.— One case of gumma of the eye was seen in strain 10. This animal was inoculated in the testicle, and seven weeks after the appearance of the lesion, three intravenous injections of emulsion of syphilitic material were given at weekly intervals. A well-marked keratitis with opacity of the cornea and salmon patches developed in both eyes. The right eye cleared up entirely in two months, but the left eye went on to a gummatous formation involving the ciliary body, iris and lens.

Eyelid Involvement.—As stated above, this condition was observed only in Strain 5. It appeared in three rabbits within from one to three months after a single testicular inoculation. It showed itself as a granulomatous condition, and by dark field, many organisms could be demonstrated. A successful transfer was made from one of these lesions.

Nasal Involvement.—This condition, as observed by Uhlenhuth and Mulzer,[5] we have seen only in Strain 5. It appears late in about 25 per cent. of the rabbits. The organisms can be demonstrated in the nasal discharge.

Paronychia.—This was observed in Strains 5, 10 and 11. The nail beds become involved throughout. Erosions and ulcerations with a whitish discharge were present. In one case the organism was demonstrated.

Lesions of the Penis and Sheath.—These were observed only in Strain 5. They resembled mucous lesions. Organisms were demonstrated.

Inoculations in Various Tissues.—Successful inoculations with resultant lesions were also obtained in the eye and eyebrow. A series of inoculations was then made in other tissues with either Strain 11 or a combination of Strains 5 and 11. In this case, the presence of a successful inoculation could be determined by the presence of fundus lesions or blood transfers and checked up by the failure of later testicular inoculations. As shown by Kolmer and Trist,[10] a certain number of rabbits will show a nonspecific complement fixation, and for that reason the Wassermann reaction is not dependable for the determination of infection. In one animal inoculated intramuscularly, the presence of infection was demonstrated by the transfer of the disease through the liver and spleen emulsion. Injections of emulsion of syphilitic material were made intramuscularly, intraperitoneally, intravenously and subcutaneously under the skin of the abdomen, with successful results so far as a general infection was concerned; but in no case was an initial lesion noted. In one rabbit Nichols obtained an initial lesion following a subcutaneous or intradermal inoculation on the inside of the hind leg.

Uhlenhuth and Mulzer, working with young animals, noted that frequently following such inoculations a testicular lesion manifested itself. In my work with adult animals I have not had such results, though Nichols has seen it on two occasions. Two intracranial and one intraspinal inoculations of Strain 5 were made but were not successful. Two animals were inoculated intracranially with Strain 19. One of these animals developed a paralysis of the hind legs at the end of thirty days and was killed. The brain showed evidences of meningitis, which, of course, need not have been specific. It also showed a focal necrotic lesion in the cortical portion of brain. Emulsion of the brain and cord was used to inoculate other rabbits, with successful results. The other animals developed a general syphilis. Noguchi carried on a series of intracranial and subdural inoculations, as did Swift and Ellis, but were unable to satisfy themselves that the rabbits or monkeys had become infected from a single inoculation. It is interesting to note that with our Strain 19, which had produced a cerebral lesion causing death in the human being, we were able to produce a possible general syphilis from a subdural inoculation.

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[10] Kolmer and Trist: Jour. Infect. Dis., 1916, xviii, 20.

These conditions might be explained on other grounds. The death of the rabbit, the presence of meningitis, and the existence of the particular lesion noted do not depend solely on the presence of a syphilitic process. The explanation of the transfer of the disease through brain emulsion is more difficult. Van Zetti[11] has shown that following subdural implantation of small sections of syphilitic material, the organisms may be recovered up to forty days. If we can imagine that these spirochetes remain in the cranial cavity during this time as in an anaerobic culture tube, without producing a syphilitic process, then the transfer of the disease from a nonsyphilitic animal may be admitted to be possible. A similar inoculation performed on another rabbit was not successful. It is not intended to draw general conclusions from this one case, as further work is needed along this line.

We made a brief study of the brains of Animals 5, 10 and 11, which had received repeated intravenous injections following the initial testicular lesion. While our findings were not constant, owing possibly to the fact that complete examinations of the brain tissues were not performed, yet we were able to demonstrate the presence of syphilitic lesions in animals of each of these strains. The following brief descriptions will serve as examples of the conditions found:

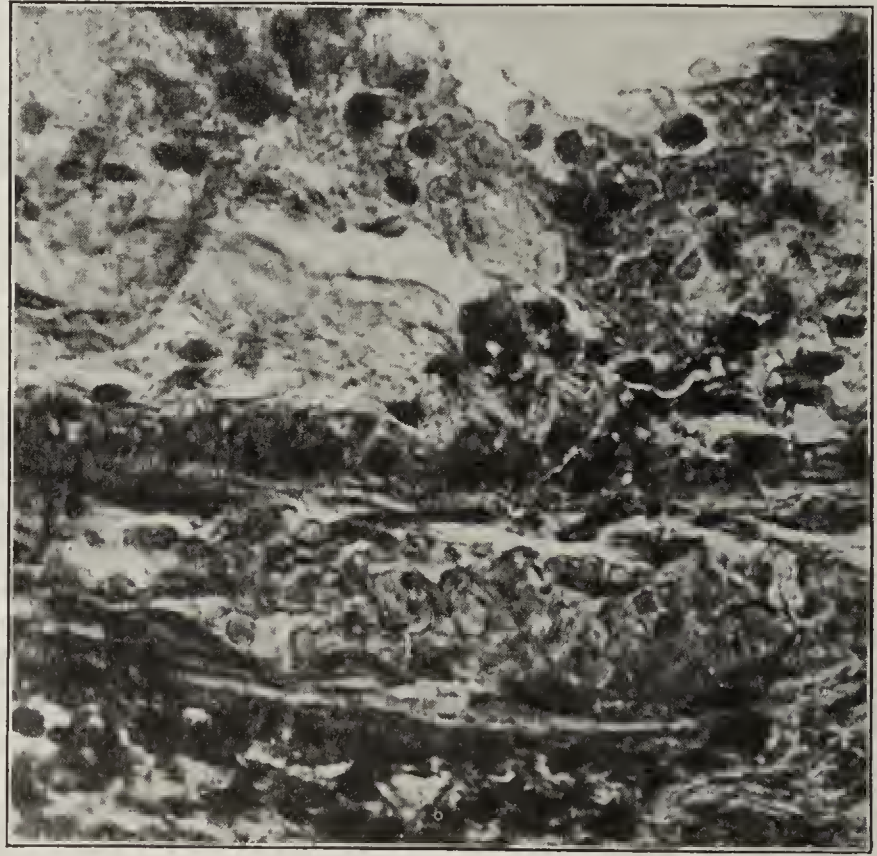

Fig. 6.—Magnification showing meningitis in No. 5/44-4.

No. 5/44-4.—Testicular inoculation successful. During one year, rabbit received eight intravenous inoculations of syphilitic emulsion. At the end of this time, it developed paralysis of hind legs and died. Brain showed marked meningeal involvement and perivascular infiltration (Fig. 6).

No. 11/7-1.—Testicular inoculation successful. During two months the animal received three intravenous inoculations of syphilitic material. At the end of four months the animal died. Brain showed focal lesions with necrotic center evidently vascular in origin, and slight meningeal and blood vessel involvement (Fig. 7).

No. 10/6-6.—In this case, rabbit had received only three intravenous injections of syphilitic emulsion lasting over a period of twenty-two days. At the end of this time the rabbit died. Brain showed marked blood vessel involvement, endarteritis and circumscribed round cell infiltration (Fig. 8). It was something of a surprise to discover such lesions with this strain, as while we do not know that it will not produce nervous lesions in the human being, yet we have seen that in two individuals it was definitely milder in its progress than other strains we have had under observation. It will be conceded, however, that the conditions under which this lesion was obtained are not parallel to those existing in human infection.

No. 11/7-3.—This is one of our most interesting cases of cranial involvement. This animal received three injections of syphilitic emulsion under the skin of the abdomen, during a period of four months. It then received a testicular inoculation and died at the end of one month. The testicles were negative to microscopic examination, as was to be expected. The brain showed several pronounced focal lesions in the cortical region with marked plasma cell and lymphocyte proliferation, also mild periarteritis and meningeal involvement.

A logical interpretation of these findings in the light of our personal belief in the strain theory must needs await a longer period of study of the infected animals and their nervous lesions as well as the human beings from whom the strains were obtained, reinforced when possible with findings from other observers.

Removal of Testicles Before the Appearance of Lesion.—In two animals, the inoculated testicles were removed at the end of seven days, and in one animal at the end of thirteen days, without a resultant generalized infection. In another animal, generalized infection followed the removal of inoculated testicle at the end of twenty days. It was found possible in one case to transmit the disease with defibrinated blood seventeen days before the lesion could be palpated.

Removal of Testicle After the Appearance of the Initial Lesion.—In working with Strain 5 which has something of a tendency toward metastatic involvement of the uninoculated testicle, Nichols was able to demonstrate that this tendency is increased by removal of the inoculated testicle as soon as the lesion appears. He has suggested this[15] as having some possible bearing in the case of neurorecidivs.

The Effect of Heat on Spirochetes.—At the suggestion of Major E. R. Whitmore, rabbits were inoculated with heated syphilitic emulsion. In the first series, three rabbits were inoculated with emulsion heated for five minutes at 55 C. In the second series, three rabbits were inoculated with syphilitic emulsion heated for five minutes at 50 C. In all six rabbits the results were negative.

Viability of Spirochetes in Tissues at Room Temperature.—A testicle richly infected with Strain 10 was removed and kept in a Petri dish at room temperature. Dark field examinations were made at several hour intervals. Motility was observed up to fifty-six hours. At this time a single organism was observed to have slight rotary motion. Others showed varying degrees of degeneration.

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[11] Van Zetti: Pathologica, 1912, No. 83; Arch. de biologia norm. e path., 1913, lxii, Fas. 4, sup.

[15] Nichols, H. J.: Observations on the Pathology of Syphilis, The Journal A. M. A., Aug. 8, 1914, p. 466.

Double Inoculations.—A rabbit was inoculated in the right testicle with Emulsion 5 and at the same time in the left testicle with Emulsion 10. A characteristic No. 5 lesion appeared in the right testicle at the end of thirty days. The lesion in the left testicle was somewhat delayed, but when it did appear at the end of seventy days, it was of the No. 10 type and remained so for a month, when it became indurated, as is characteristic of No. 5. A transfer from the left testicle, made at this time, developed characteristic No. 5 lesions. It would seem probable that in the left testicle, at least, there were eventually two strains, No. 5 overshadowing the No. 10.

In a number of trials it was found difficult, once the initial lesion had reached full development, to reinoculate the animal. A series of eight rabbits was inoculated by various methods with Emulsion 10 (which does not produce choroidal lesions), and, after varying periods, received repeated inoculations of Emulsions 5 and 11. Only one of these rabbits showed any trace of choroidal involvement.

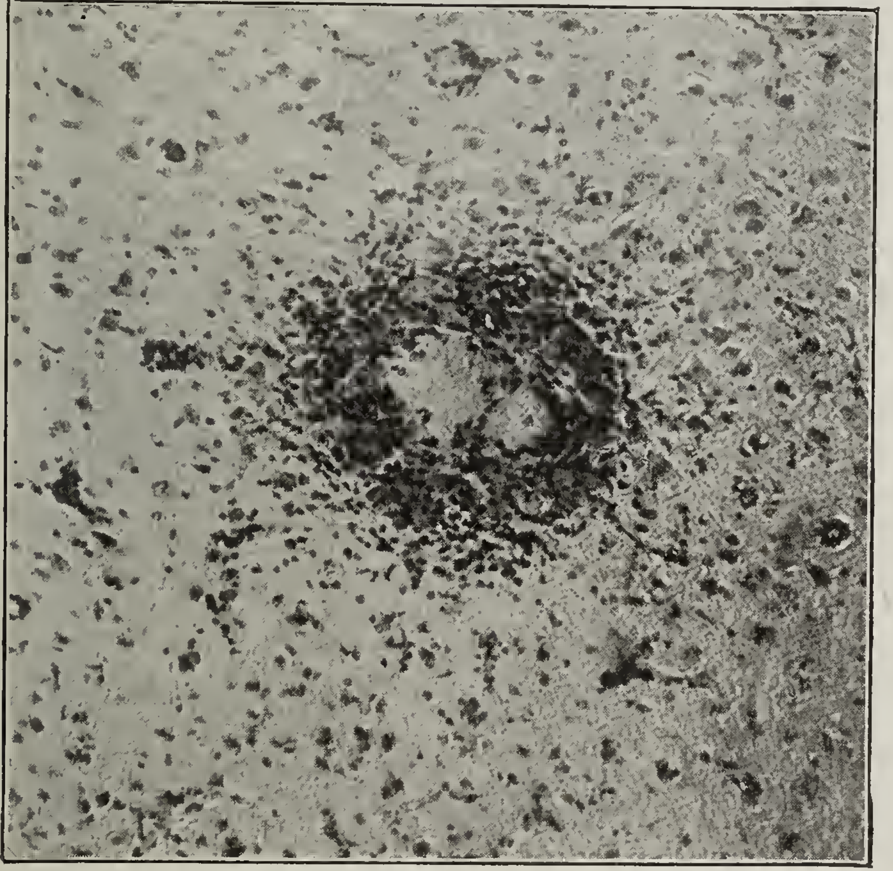
Fig. 7.—Focal lesion with necrotic center in Rabbit 11/7-1.

This series was suggested by the work of Finger and Landsteiner, who inoculated human subjects during both the secondary and tertiary stages, and with resultant secondary or tertiary lesions, respectively. Further investigations will be carried out along this line. It would seem probable that when once the disease has reached its height in the rabbit, there is a considerable amount of protozoal immunity, and this immunity lapses with the passing of the infection. The appearance or nonappearance of an initial lesion might be explained otherwise.

Levaditi is of the opinion that syphilitic immunity is a condition of a relatively refractory state of the skin and mucous membrane to external spirochetes, thus explaining the inability to produce a second initial lesion in an already infected individual. It would seem more probable that the development of an initial lesion is a power of reaction possessed by certain tissues and is an attempt at defense on the part of these tissues, and soon after the disease becomes generalized, this tissue reaction becomes lost. Certainly the chancre stage is in no way to be considered as an integral or necessary phase of the disease.

It is interesting in this connection to consider the statement made by Hazen[16] that in over 3,000 cases of syphilis seen by him in the colored race, he had seen only three extragenital lesions. So far, I do not know of his statement being controverted by the experience of others. This is not because the negro does not have the disease, nor is it because he is not brought into contact with it. Is it not possible that he may not have outside of the genitalia (as practically exists with the rabbit), the power of tissue defense or reaction to initial syphilitic infection which manifests itself as an initial lesion? Might not the same explanation be invoked in some of the many cases of syphilis we are now finding, whose history of infection is negative to the most searching inquiries?

Infection from Applications to Unbroken Skin and Mucous Membrane.—At the suggestion of Capt. E. B. Vedder, Medical Corps, a series of eight rabbits is now under observation to determine if it is possible to transmit the disease through applications to unbroken skin and mucous membrane. These will be reported later.

A Peculiar Late Testicular Manifestation.—In three rabbits, all of different strains, two inoculated intratesticularly and one intravenously, there appeared peculiar late testicular manifestations; a small hard nodule containing many very slender and long spirochetes. In one case a successful transfer was made and typical organisms reappeared.

Spinal Fluid Inoculations.—Spinal fluid was injected from eight individuals with two successful results. The successful cases are cited above. The unsuccessful cases include one early cerebral syphilis, one old syphilitic hemiplegia and four cases of paresis.

Dr. Wile's[17] *Paretic Strain.* — Through the kindness of Dr. Udo J. Wile, we were supplied with a culture of his paretic strain; but owing probably to the fact that it had been away from the rabbit too long, we were unable to obtain a successful inoculation. It is desired to take this opportunity of expressing an appreciation of the great value of Dr. Wile's work along this particular line.

Variations in Morphology.—With regard to fixed variations in morphology, such as thick and thin strains, I am not prepared to make any statements except that I have not been able to satisfy myself beyond question that such differences do exist.

Alterations of Strains in the Rabbit.— So far we have not been able to recognize any variations in the characteristics of any of the syphilitic strains as a result of prolonged growth in the rabbit.

COMMENT

The question as to whether or not there are variations in strains of syphilis it would seem must be answered in the affirmative. Such work as we have done and such conclusions as we have reached with regard to this point are based primarily on the preliminary work of Noguchi and Nichols[18] and to them is due the credit for having evolved this fact from experimental work on the rabbit. It is a much more difficult matter to state the significance in the human being of these variations as seen in the rabbit. A rabbit is not a human being, and the methods used in the inoculation and study of the rabbit are not those to which the human being is subjected. On the other hand, if we can find in the rabbit certain manifestations to correspond with types of syphilis in the human being, are we not justified in accepting the analogy, at least until it can be disproved?

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[16] Hazen, H. H.: Syphilis in the American Negro, THE JOURNAL A. M. A., Aug. 8, 1914, p. 463.

[17] Wile: Jour. Exper. Med., 1916, xxiii, 199.

[18] Nichols and Hough: Footnote 6. Nichols: Footnotes 7 and 15; South. Med. Jour., September, 1912, p. 528. Russell, Craig and Nichols: Bull. 3, Surg.-Gen.'s Office, June, 1913. Noguchi: Jour. Exper. Med., 1912, xv, No. 2.

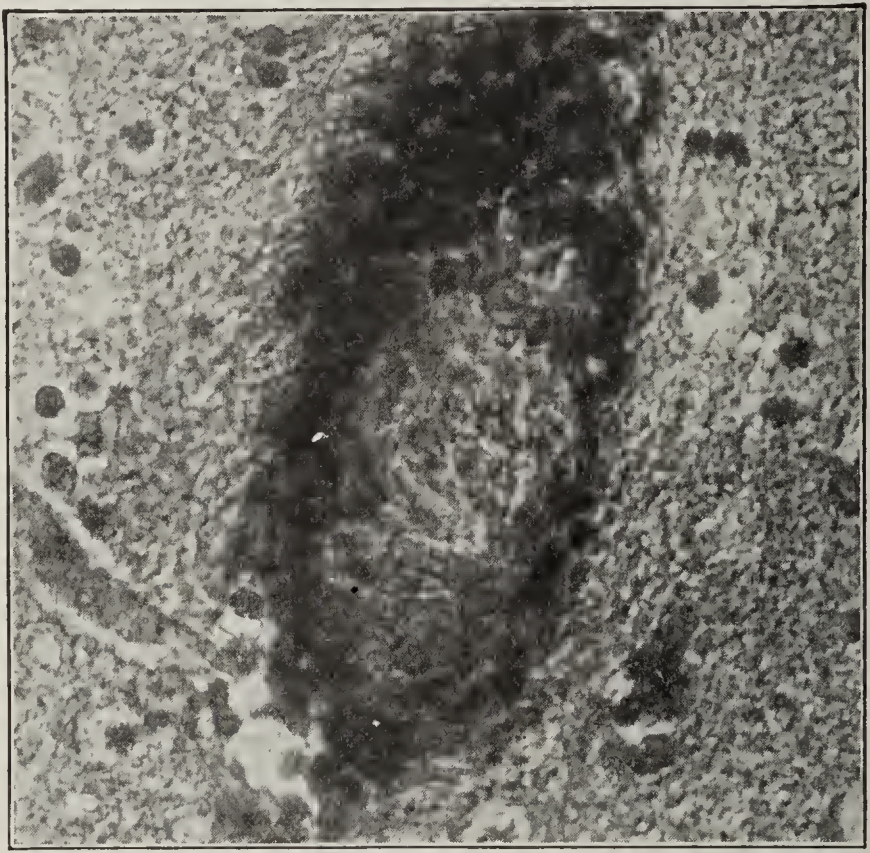

Fig. 8.—Characteristic syphilitic blood vessel involvement in Rabbit 10/6-6.

We are not yet prepared to assert that nervous involvement in the rabbit runs parallel with the same condition in the human being, as our work along that line has been too limited. It is our opinion that nervous involvement in the human being, so far as the spirochete is concerned, is rather a matter of predilection for certain tissues, or as Nichols believes in the case of nervous involvement, combined with a higher degree of invasiveness. We believe that we have been able to demonstrate these properties in the rabbit. So far as we have been able to observe in one possible and two undoubted strains of nervous syphilis, choroidal involvement in the rabbit is analogous.

Weygandt and Jakob[19] state that "we also found that the animals infected with the same strain in some cases developed nervous syphilis and in some cases did not. This militates strongly against the theory of 'virus nerveaux.' " Admitting that they are working with strains of syphilis of the nervous type and that the pathologic processes they describe in the rabbit are analogous to those seen in nervous involvement in the human being, is it not a plausible explanation that if such involvement is due to a high degree of invasiveness or a predilection for certain tissues on the part of that strain, this invasiveness or predilection may be a varying quantity, less noticeable in some strains than in others, and in the milder strains more susceptible to varying individual resistance? In fact, would not this supposition more nearly coincide with the clinical facts with which we are confronted? In potent strains the individual resistance might be of little avail, while in weaker strains it might or might not protect. In other strains, such as those producing tertiary bone involvement, might there not be little tendency toward involvement of the nervous system, such that even those having moderate individual resistance would not be in danger? The variations in the percentage of nervous involvement seen in different epidemics of diphtheria would seem to be a parallel condition.

CONCLUSIONS

1. We have been able to demonstrate, to our satisfaction, fixed differences in various strains of syphilis as studied in the rabbit. In order to demonstrate these differences, the use of adult rabbits and a standard and proper method of inoculation are necessary.

2. Choroiditis and chorioretinitis have been observed in rabbits inoculated with two different strains of nervous syphilis, and in one strain whose characteristics are not known. In a series of fourteen other strains obtained from chancres and mucous lesions and

RECAPITULATION

	No. 10	No. 7	No. 5	No. 11	No. 19	Yaws
Number of rabbits	28	8	71	40	17	162
Generations	8	6	30	9	6	50
Time observed	1½ years	1 year	4 years	1 4/12 years	7 months	6 years
Chancre incubation, average	42 days	36 days	39 days	34 days	30 days	32 days
Maximum and minimum	35—57 days	23—60 days	24—60 days	19—50 days	19—50 days	25—39 days
Type of chancre	Diffuse	Diffuse or slightly nodular	Indurated, nodular, tunic involved	Indurated, multinodular; tunic not involved	Soft diffuse	Indurated diffuse
Necrotic center	No	No	Yes	Yes	No	Yes
Duration of lesion, average	40 days	65 days	108 days	94 days	33 days	90 days
Maximum and minimum	30—65 days	40—75 days	60—150 days	60—120 days	7—50 days	70—120 days
External lesion	No	No	Yes, 50%	No	No	Yes, 100%
Extends to opposite testicle	No	No	Yes, 10%	Yes, 2.5%	No	Yes, 100%
Choroiditis	No	Doubtful	70%	95%	85%	No
Time required	—	—	43 days	34 days	32 days	—
Maximum and minimum	—	—	32—75 days	6—55 days	5—60 days	—
Anterior chamber	No	No	No	5%	No	No
Other manifestations	Alopecia; paronychia, 7%	Alopecia slight	Alopecia; eyelids; nasal mucosa; penile mucosa; nasal bones; paronychia	Alopecia; paronychia	Alopecia	No
Keratitis	No; from test injection	Yes	Yes	Yes	Yes	No
	Chancre strain	Chancre strain	Nervous strain	Chancre strain	Nervous strain	

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[19] Weygandt and Jakob: Dermat. Wchnschr., 1914, lviii, 150.

studied with this end in view, such lesions were not observed.

3. Interstitial keratitis and pericorneal injection are frequent manifestations of generalization in some of various strains observed. In some, it seems to be deeper and more permanent than in others. It is more readily induced by repeated intravenous injections following the testicular lesion, if performed within two months of the testicular lesion. The organisms may be demonstrated in the corneal scrapings. This is suggestive of a definite secondary stage.

4. Ordinarily the rabbit develops only an initial lesion, following inoculation in the genitalia, eyes and eyebrows. Generalized syphilis without an initial lesion follows intravenous injections into various tissues and subcutaneous inoculations. This is suggested as having a possible bearing in the human disease. It would seem probable that the initial lesion, both in the human being and the rabbit, is an attempt at defense on the part of the individual, and that this power of reaction is possessed only in varying degree by certain tissues.

5. We are inclined to agree with Noguchi that the nervous tissue of the rabbit is resistant to syphilitic infection.

6. We were able to show that it is possible to produce nervous involvement in the rabbit without actual intracranial inoculation. We also succeeded in confirming Noguchi's sensitization experiments.

7. It was possible to demonstrate a generalized infection in rabbits from which the inoculated testicle had been removed before the initial lesion had fully developed. In one case the disease was transmitted by means of the blood serum of a rabbit, seventeen days before the initial lesion was palpable.

8. Nichols demonstrated that, in one strain at least, the removal of the inoculated testicle, as soon as the lesion was manifest, tended to favor the development of a lesion in the uninoculated testicle.

9. In our experiments, heating for five minutes at 50 C. killed the organisms. In a richly infected testicle kept at room temperature for fifty-six hours, it was possible to demonstrate slight rotary motion of the organism.

10. Two different strains were successfully inoculated into different testicles of the same rabbit on the same date. After a certain period, superinoculations are difficult to produce.

11. The interpretation of the lesions and manifestations of strains of syphilis in the rabbit so as to increase our knowledge of human syphilis requires the coincident study of the same and similar strains in the human being.

12. We have seen in the rabbit a peculiar late testicular manifestation following repeated injections, intravenous and otherwise. It shows itself as a small nodule in the testicle, and contains many very slender and elongated organisms with normal forms. When transferred, the normal type of organism appears.

13. From eight injections of human spinal fluid, only two successful inoculations were obtained.

14. We have not been able to discover any morphologic differences in the various strains studied.

15. No permanent alteration in the characteristics of the strains has been observed following prolonged growth and repeated transfers in the rabbit.

16. Granting that there are strains or types of syphilis, differing in invasiveness or predilection for certain tissues, and having in mind more especially the nervous tissues, the individual resistance of the infected person must still be considered as a possible factor in the development of the disease.

This opportunity is taken to state that a general anesthetic was employed in all operations or procedures which might be accompanied by serious pain or discomfort to the animal, and the few animals which developed a paralysis or other untoward manifestation were promptly and painlessly killed.

DISCUSSION

Owing to the fact that a number of our deductions are based on more or less theoretical grounds, one must needs be quite sanguine to hope that the fuller experience of the years to come will confirm them all to the minutest detail. In its broader aspects, it is the purpose of this paper to suggest rather than to pronounce, and it is with the hope of stimulating interest along these lines that it is presented. A larger number of strains, especially of the nervous type, should be studied over a period of time by different observers, both in the human being and in the rabbit. This should accomplish much toward the end we have had in view, and would undoubtedly give us a better knowledge of the disease which we are coming to recognize as omnipresent, alike in the palace and in the hovel, the church and the brothel, afflicting young and old, rich and poor, the innocent and the guilty, the plague of all plagues.

Army Medical School.

REPORT OF A SERIES OF SIXTY-ONE EXTRAGENITAL CHANCRES *

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CLEVELAND

The extragenital chancre is by no means an uncommon sight — to the dermatologist, at any rate — and I feel a hesitancy in reporting to this section such a short series of cases. However, the affection is rather rarely encountered by the general practitioner and, consequently, the diagnosis is deferred, as a rule, until the appearance of the secondary symptoms, a time when much damage often has been done both to the patient and to his family.

DEFINITION

By the term "extragenital chancre" I mean the primary invasion of the *Spirochaeta pallida* on other parts of the body than the genitalia — hence the frequently used term "syphilis insontium." This type of syphilis has been known since the earliest times, and authentic epidemics of innocent syphilis have been reported as early as 1577 in Austria, 1592 in Switzerland and 1596 in Germany. Most of the earlier ones were due to cupping, bloodletting, scarifying, phlebotomy, breastdrawing and lactation.

Bulkley[1] collected 9,058 instances of authentic extragenital infection; 1,810, or 20 per cent., of these were on the lips; 1,148, or 12.5 per cent., on the breasts;

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* From the Department of Dermatology and Syphilis of the Western Reserve University, of the Cleveland City and of the Lakeside hospitals.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Bulkley, L. D.: Syphilis Insontium, New York, Barley & Fairchild, 1894.

462, or 5 per cent., were on the hands, and the remainder were distributed to almost every conceivable part of the body.

The same author, in his private practice, noted 113 cases of extragenital syphilitic infection. The largest number, fifty, were on the lips. There were fifteen each on the tonsils and fingers, seven on the breasts, six on the tongue, and the remainder were distributed to the other parts of the body. The noteworthy thing was that seventy-one of the entire list were on or in the oral and pharyngeal cavities. Most of these infections were, of course, contracted in the ordinary everyday life from dishes, towels, drinking cups, kissing, etc. However, several of them were very much out of the ordinary: for example, a young woman, after being stung by a bee, allowed her male friend to place a piece of court plaster over the sting, of course, after moistening it with his lips, and a chancre resulted.

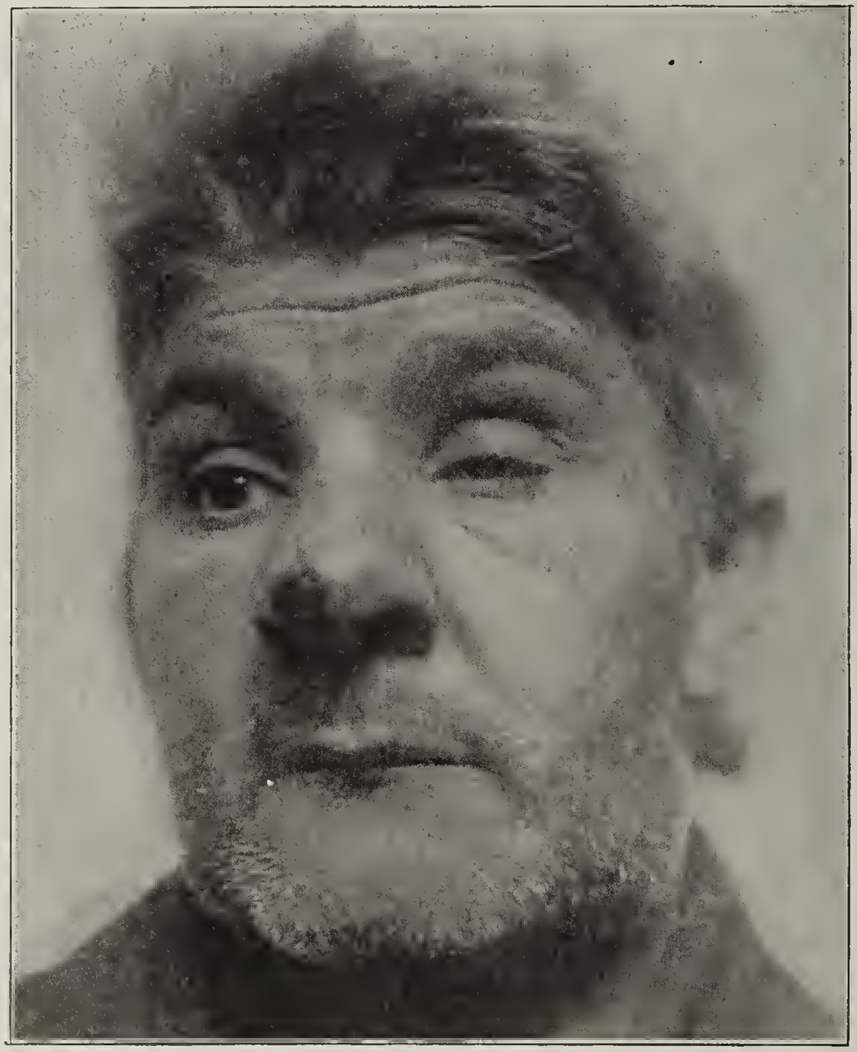

Fig. 1.—Chancre of nose. Note marked glandular reaction under left jaw, differentiating it from a gumma. Ptosis is congenital.

Ricord reports a case quite similar: A portly old gentleman acted as good Samaritan to a little boy whose head was cut while at play. Mucous patches in the old man's mouth made the boy an innocent victim of syphilis.

We are now all familiar with the champion kisser of Philadelphia, as reported by Dr. Schamberg — this young man having infected nine young women by the osculatory method.

Some peculiar occurrences also have come to my attention. I should like to report a series of sixty-one cases from my private practice and from the clinic for dermatology and syphilis at the Lakeside Hospital. It will hardly be worth while to describe each case in detail so I shall merely mention the important items in connection with the most striking ones. The ages of the patients ranged from 2 months to 65 years.

AGES OF PATIENTS ARRANGED IN FIVE-YEAR GROUPS

Age Groups	Number
Less than 5 years	4
From 5 to 10 years	0
From 10 to 15 years	3
From 15 to 20 years	7
From 20 to 25 years	13
From 25 to 30 years	16
From 30 to 35 years	5
From 35 to 40 years	6
From 40 to 45 years	1
From 45 to 50 years	2
From 50 to 55 years	3
Sixty-five years	1
Total	61

As generally noted in such cases, nearly all of the infections occurred in the active period of life, there being thirty-three married and twenty-eight single persons in the series. The result was that only too often the life partner was then affected with either a sore on the lips or on the genitalia. Thus, little Mabel S., aged 2 years, was infected in kissing, as I judged, by her uncle. The child was brought to the clinic having a generalized maculopapular syphilid. A careful examination revealed that one of her tonsils was very much swollen, indurated to external palpation and more or less ulcerated on its surface. Investigation of the family condition was made at once, and within a few weeks her father visited the clinic with a lesion in the same place, both being right tonsils, and having a generalized syphilid. He, undoubtedly, had contracted the disease from the baby, through kissing. The mother next called with a quarter-sized, typical hunterian lesion on the genitalia. At the time of her call, the mother was five or six months pregnant, and the baby, which was born later, was likewise infected. In other words, four innocent persons were forced to suffer because of one uncured, careless syphilitic.

Primary lesions occurred on the lips in forty-three of the cases in the series; thirty-two of the lesions being on the lower and seven on the upper lip. The particular lip infected was not specified in the histories, found in old hospital records, of four cases. I found three chancres of the tonsil and one of the tongue, making the grand total of forty-seven lesions around the mouth, or 77 per cent. of the total number. This percentage is a little larger than that reported in the private cases of Bulkley, 63 per cent. In my series, also, I found ten primary lesions on the hand, four of them being on the thumb, three on the index finger, one at the base of the right little finger, one at the base of the right index finger and one at an undetermined location on the right hand. There was one primary lesion on the neck behind the right ear, one on the left jaw, one on the abdomen and one which was a double infection of the nipples.

The manner of origin of a few of these cases seems to me to be deserving of mention in detail:

Infection occurred in connection with the teeth in five instances. Bites were responsible in four cases. Two men, who had lesions on their lips, said that they had been bitten by prostitutes. One woman credited a lesion on her lower lip to the bite of her male friend. Another woman (Case 47) blamed the bites of her lover for chancres on both nipples. The fifth (Case 26) occurred when the patient was in a drunken quarrel and struck his thumb on his opponent's teeth. The resulting cut refused to heal, and the man later appeared at the clinic with an indurated sore on his thumb, oblong, and the size of a pigeon's egg. A generalized papular syphilid was presented. The opponent, we later found, had mucous patches in his mouth.

Chancre of the lip by most authors is reported to be more common on the upper lip, although this was not true in our series. A cold sore was given as the cause in three cases.

A man (Case 20) was helping dig a ditch during the cold weather in January, and the company which employed him passed large pails of coffee among the men in order to keep them warm. The result is hardly to be wondered at, considering the crowd of men who drank from the same pail. The patient had a marked papular syphilid; being a married man, his wife, of course, was also infected.

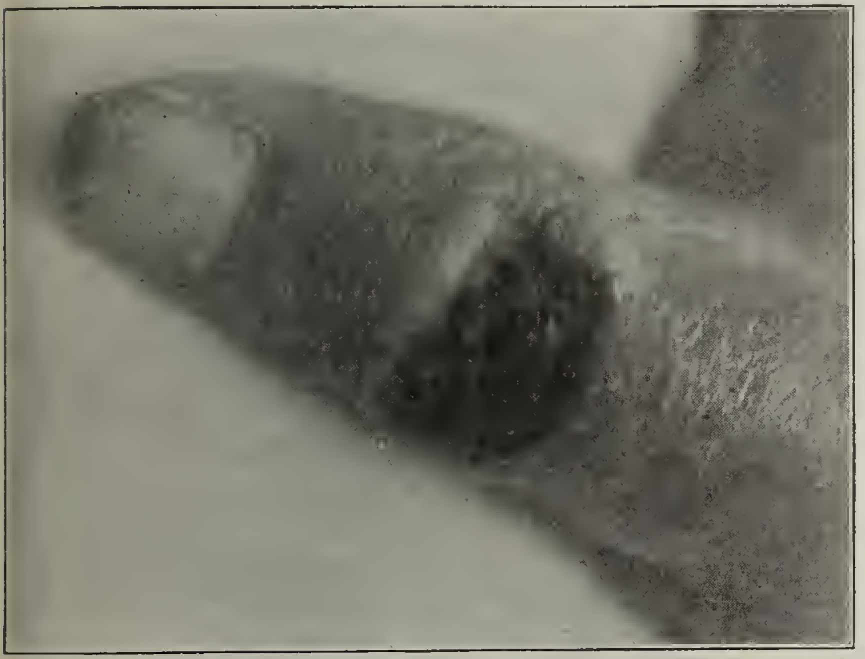

Fig. 2.—Chancre of thumb resulting from striking a man a blow on the teeth. Spirochetes present in lesion; generalized maculopapular eruption.

Case 5 is quite similar. A man drank whisky from a bottle, in common with several friends. His wife later visisted the clinic with a sore similarly placed on the lower lip.

In Case 16, Mrs. P., a woman aged about 65, had a similar unfortunate experience. A drinking cup kept in her house was used by some women who were cleaning. The lesion on her lip, which was seen by me after four weeks, recalled to her mind the fact that one of the women she had employed had some cold sores on her lips. Fortunately, neither her husband nor her grandson contracted the disease.

Kissing was mentioned as the causal factor in nine other cases of the disease.

Miss M., a woman aged 18, was perhaps infected in this manner by a friend. However, she was employed as a clerk in a telegraph office, which fact suggests the possibility of her being infected by moistening her finger in turning over from 700 to 800 telegrams every day.

Of the remaining thirty-three chancres of the lip, in Case 51 a woman contracted it from her husband immediately after marriage. In Case 45 a man felt that he had been infected by a fellow laborer on a farm. In Case 53 the patient had a crack on the lower lip. In Case 57 the patient attributed it to a scratch on the lip.

In Case 60, in which there was a chancre of the tongue, a man could give no cause for the lesion, but confessed, as had the other patients with lip primaries, that he ate nearly all of his meals in restaurants.

In two of the tonsil cases, the circumstances have already been given. In the third case, the cause was unknown.

The barber shop was the only cause ascertainable in the case of a chancre on the neck. The patient said that he had received a cut on the neck; that from this cut was formed a sore which refused to heal. Local cauterization and different treatments, before coming to the clinic, had been without avail, the correct diagnosis having evidently not been made. The patient, on entrance, presented a generalized syphilid together with a raised lesion, dollar-size, showing a diffuse, brawny induration and the floor of the ulcer covered with pus. Figure 3 shows the appearance of the man's neck clearly. Though a married man, his wife, fortunately, did not contract the disease. He afterward informed us that two other men, to his knowledge, had contracted similar sores in this barber shop. However, I never succeeded in getting track of them. The barber also removed his shop.

In Case 61, a man, aged 26, had a chancre on the lower jaw, for which he also blamed the barber shop that he patronized. He received a cut on the jaw, while being shaved. This cut, instead of healing, kept getting larger until he consulted a physician and, finally, a diagnosis of chancre of the jaw was arrived at—after the appearance of secondaries.

I have already spoken sufficiently of the chancres of the nipples. Before the days of the Wassermann test, this was very common in connection with wet-nursing, but it should now be a thing of the past in any well regulated clinic.

My one case of chancre of the abdomen is very interesting:

The babe was born in the Cleveland City Hospital about the middle of November, 1915, at which time the mother showed no evidence of syphilis and had a negative Wassermann. About Jan. 1, 1916, the mother brought the babe to our clinic because of an ulcer on the abdomen and of sores in the groins. Examination showed a large, almond-shaped, much indurated lesion in the right lower quadrant, with suppurating inguinal glands. No definite diagnosis was made at that time, but a weak mercury ointment was prescribed. The mother returned with the baby a week later, at which time she herself had generalized secondaries, and on this we diagnosed the child's condition as a primary infection of the abdomen. We made an examination for spirochetes but found none because of the mercury ointment used locally. The diagnosis was confirmed, however, by a generalized eruption which appeared several days later. The mother probably had been infected some little time before the child was born, and the babe, in passing through the vaginal tract, received an infection from the mother's primary lesion. The condition is rather unusual, as such cases generally have the seat of invasion on the cord.

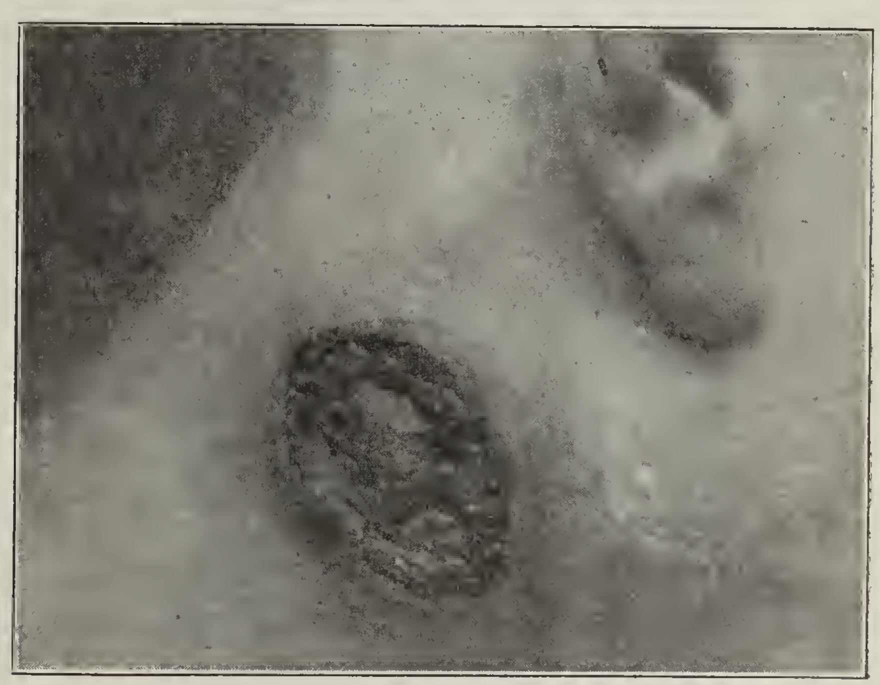

Fig. 3.—Chancre back of right ear resulting from cut by barber. Spirochetes present in lesion; generalized maculosyphilid.

Ten cases of chancre of the hand were found in this series, and I feel that several of them deserve especial mention because of their unusual symptoms and circumstances.

Case 52 was a lesion of the thumb in a little girl aged 13 years. Outside of the fact that she had once used a common, hotel towel, no reason for the lesion could be advanced.

In Case 1 a man who had a characteristic chancre of the thumb, much like the one illustrated, blamed a pin prick for his trouble. Just what significance a pin had, we could not determine, but he was a married man and no other cause could be ascertained.

In Case 27 the patient, who was a ship carpenter residing in a house of ill repute, had a chancre at the base of the dorsal side of the right little finger. A cut at this spot on his hand refused to heal. Later, secondary symptoms appeared on his body. As the cause of his trouble he blamed the towels and wash bowls in the house.

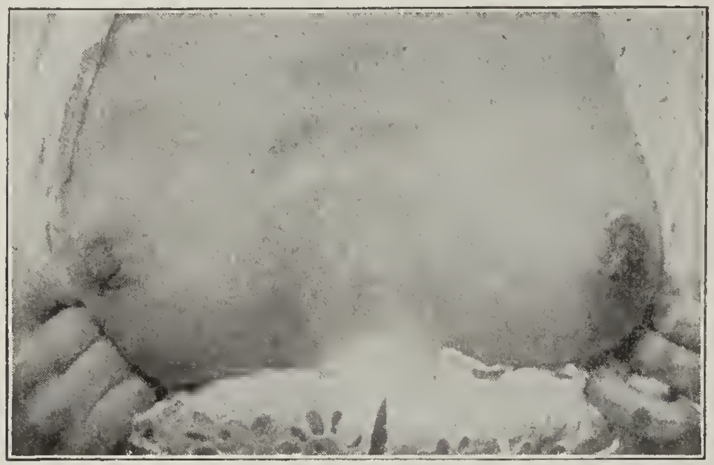

Fig. 4.—Chancre of nipples and generalized eruption, result of bites.

Case 53 was a primary lesion on the index finger of a negro porter who was accustomed to cleaning the urinals with bare hands. The result, in a public urinal where cotton, etc., is wont to accumulate, is not to be wondered at.

The remaining five of our cases of chancres on the hands were all in physicians. The first was Case 14, in which a chancre on the left thumb puzzled both Dr. John Phillips and me because no especial primary lesion could be found. The physician could only remember that he had a small crack on the thumb, at the junction of the skin with the external nail-fold. This neither increased in size nor did it pain him. It persisted, however, although he did not especially note it. About four weeks later, he began to be troubled with vague rheumatic pains, which were treated with acetylsalicylic acid (aspirin). A faint eruption began to appear after one week, but it was treated as an aspirin rash, since the doctor had no evidence of a primary lesion or of any lesions of the mouth. The eruption failed to clear, after the drug was stopped, however, and we finally made the diagnosis of secondary syphilis. The physician was married and had several children.

Case 23 was a typical, indurated, chestnut-sized lesion on the right index finger, together with an enlargement of the cubital and axillary glands. Just when the infection took place, the doctor was not sure, but he had several gynecologic cases under his care some time before and felt that he must have been infected then. The true condition, luckily, was made out before the appearance of other lesions.

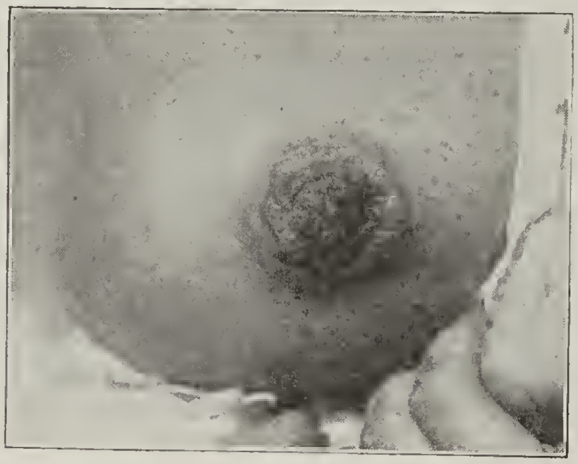

Fig. 5.—Chancre of left nipple, same patient as Figure 4.

Case 48 was an infection in an open wound at the base of the right index finger. The doctor was called to a bleeding parturient, and in the emergency was forced to remove the placenta manually, without gloves. The wound refused to heal, notwithstanding the fact that after the emergency services exceptional care was taken in washing. Treatment was not instituted until the appearance of the secondary symptoms.

Case 49 was a lesion of the right index finger in a medical missionary. The doctor had operated without gloves. Later, a lesion appeared whose character was not suspected until the appearance of a macular eruption.

Case 54 was rather an irregular one, as we could find no primary infection, but felt that the seat of invasion must have been on the right hand because of the marked enlargement of the cubital gland. About Dec. 1, 1915, the doctor had been called in consultation for the purpose of removing the tonsils from a hospital patient. He found the patient in the operating room and, under a general anesthetic, cut out the tonsils, which showed nothing save redness and enlargement. Immediately after the operation, the sheet having been thrown back by the struggling patient, the doctor noted, and recognized as syphilis, an eruption on the patient. As he had not worn gloves, he scrubbed his hands with extra care, and then dismissed the case from his mind. Later I noted a generalized eruption, and by questioning the doctor, established the diagnosis of secondary syphilis.

Such is the history that only too often one gets with the syphilis of extragenital origin. Because of the location of the sore, or because it is atypical, no diagnosis is made until the appearance of the secondary symptoms.

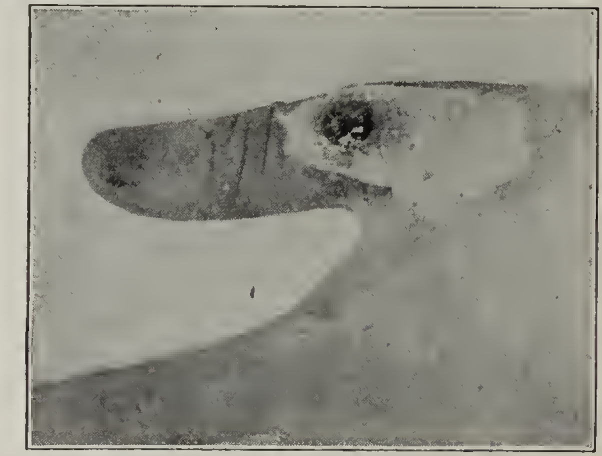

Fig. 6.—Chancre of thumb in girl aged 13; cause unknown.

Late diagnoses occurred thirty-seven times in the series of sixty-one cases. The percentage, in comparison with that of others, is low, if anything.

Bulkley found that in all of his cases of chancres of the hand the patients had secondary symptoms before they consulted him. A physician gave him a history similar to one already given in this article. The doctor had a small sore on the side of his middle finger. It healed readily, but its true nature cropped out later, when the eruption appeared.

Jullien,[2] also, mentions a case in which there was merely a puncture of the pulp of the finger. This healed by first intention. The appearance of the secondary eruption was the first intimation of further trouble.

Considering these facts, it appears that the diagnosis of extragenital chancre is not always easy; that many times the unsuspecting patient will let it run along until other symptoms make him think that he has something serious. These considerations apply to chancres of the body in general, but to extragenital lesions in particular. One must always be on guard, therefore — witness my two cases and the ones reported by Bulkley and Jullien.

Lambkin found digital chancres generally very painful. This was true in several of my cases. Given any ingle sore on the body which tends to persist, to icrease in size and induration, and to involve nearby mph glands, one should always keep the chancre in iind. The typical lesion will be hard, will increase apidly in size, and will show little or no ulceration nd suppuration, but, on the contrary, it will show a uilding up of tissue. The draining glands, especially hose about the head, will be involved very early, and vill show a peculiar boardlike hardness that is almost athognomonic.

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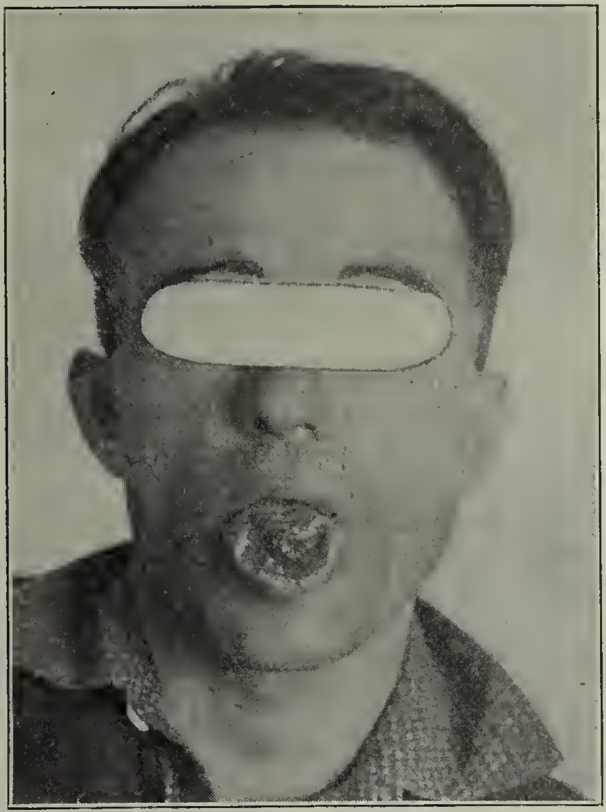
[2] Jullien: Ann. d. dermat. et de syph., 1899, x; quoted by Shillitoe: System of Syphilis, d'Arcy. Powers & Murphy, i, 258.



ig. 7.—Gumma of tongue; history of chancre on lip two years before.

Ricord called attention to this long ago. He says hat it depends on the rich lymphatic supply of the ace. However, as can be readily shown from my eries of chancres in medical men, the extragenital hancre is only too often a fleeting, atypical affair naking the diagnosis very difficult.

In a differential diagnosis, one must keep especially n mind the gumma and the carcinoma. This applies n particular to the lip. During the past several years, have treated three cases of gumma of the lips, two f them being gummas of the upper lip and one of the ower lip. The lesion in each case answered all of the hysical requirements of primary lesion, except that he duration was a little long and there was no especial landular involvement. One of them, I might add, vas referred by another physician as a case of arcinoma.

Neither the gumma nor the carcinoma, however, has he acute inflammatory character of the chancre. Yet nany a primary lesion and many a gumma, especially on he lip, have been excised as being malignant. I have een two cases of this sort in the past six months.

In any case of doubt, an examination with the dark ield illuminator, in an early sore, or together with a Vassermann reaction in an older one, will clear the liagnosis at once. A carefully taken history is also f great value.

I believe it to be the best rule that in any persistent ore, no matter how trivial and no matter what its ocation may be, the extragenital chancre should be uled out in making a diagnosis. The prognosis of xtragenital chancre, like that of all syphilis, provided roper and sufficient treatment is carried out, is good.

It has been noted by some writers that with primary lesions about the head, the infection is liable to be especially grave, often with an early involvement of the cerebrospinal system. I have not found this to be true in the patients coming regularly for treatment. The principal task has been to make them come regularly. Despite the warnings and the printed directions, four of the patients have been seen only once, three of them having had primary lesions on the lip and one a chancre on the thumb. Two patients absolutely refused to take any treatment, and I have lost sight of them. This was some time ago. If they had been lost sight of in the past two years, I should have notified the department of health and had them transferred to the detention ward at the City Hospital.

One patient came only three times; six, only two times; two, four times; one, seven times; one, nine times; two, ten times; two, eleven times; one, thirty-four times; two, thirty times; one, thirty-five times, and one, thirty-six times.

Twenty-nine of the total number are still taking treatment, very regularly, in most cases. Twelve of my private cases are helping to swell this total.

Attendance cards are now being used. We send postals and employ the social service department in visiting the patients. We note that there is considerable improvement in the matter of attendance.

About 50 per cent. of these patients are now taking regular treatment for their ailment. This is a very important matter, since too many of them are an especial menace to society.

In the series of sixty-one extragenital chancres, one babe infected her father and he, in turn, infected the mother and her unborn child. Two men, who had lesions on their lips, infected their wives. A babe aged 19 months transplanted its lip lesion to the lip of the mother, who, in turn, transmitted the disease to her husband.

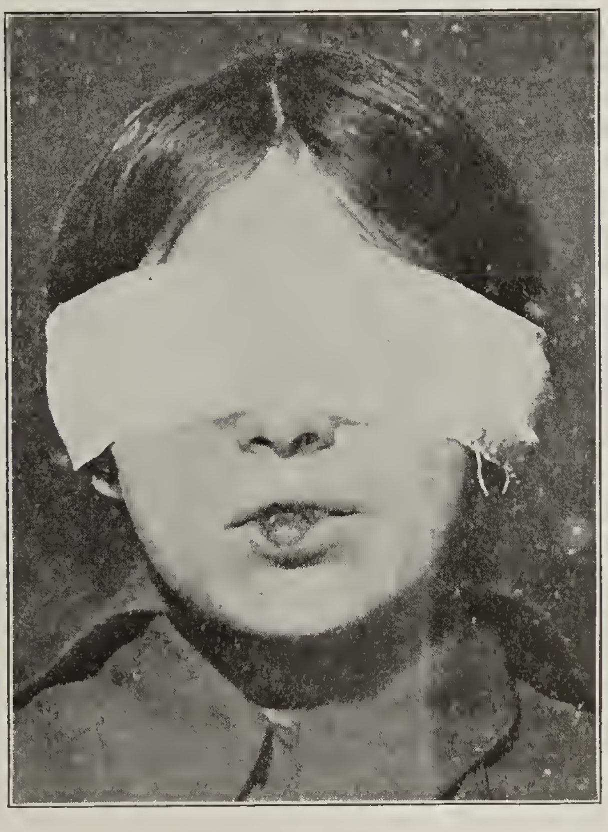


Fig. 8.—Chancre of lip, contracted from husband.

These are the only authentic secondary infections in the series, but, no doubt, many others took place.

The prophylaxis of syphilis, in other words, is one of the most important problems before the medical profession today.

Many of the cases were due to the use of the drinking cup. Yet we may still see it in many of our large stores and manufactories and even in some of our hospitals. How many of us have been served with unclean silverware and dishes in restaurants and at soda fountains?

There should be stringent laws, enforced by careful inspection, requiring the placing of all dishes, glassware and silverware in boiling water for the space of five minutes, even if the microscopic dust be not removed. This would effectually kill all organisms and fully protect us.

Two of our patients contracted syphilis in the barber shop. Too frequently we find barbers using towels over and over again. They are often used twice in some of the most pretentious shops. Would it not be well to require frequent sterilization of razors and brushes with alcohol? No barber shop thinks itself complete without the alum and silver nitrate stick, despite laws prohibiting their use.

Closer supervision of the public towels and soap also would serve to lessen the extragenital infections with syphilis. Moreover, any patients in a dangerous condition, whether they be in families or in the public service, and especially the latter, should be removed to a hospital for a sufficient length of time, in order to remove the most glaring cutaneous lesions, whether of the mouth or of the integument.

Such is the routine now being carried out by us in connection with the venereal ward at the Cleveland City Hospital. Generally, two or three weeks entirely suffice, the patient in that time receiving three injections of salvarsan and as much mercury as he will tolerate. After this course of treatment, patients return to the Lakeside Hospital clinic for follow-up treatment. In our series of ten chancres on the hands, five of them, as already noted, were in physicians. In Bulkley's series of fifteen chancres of the hand, ten were in medical men.

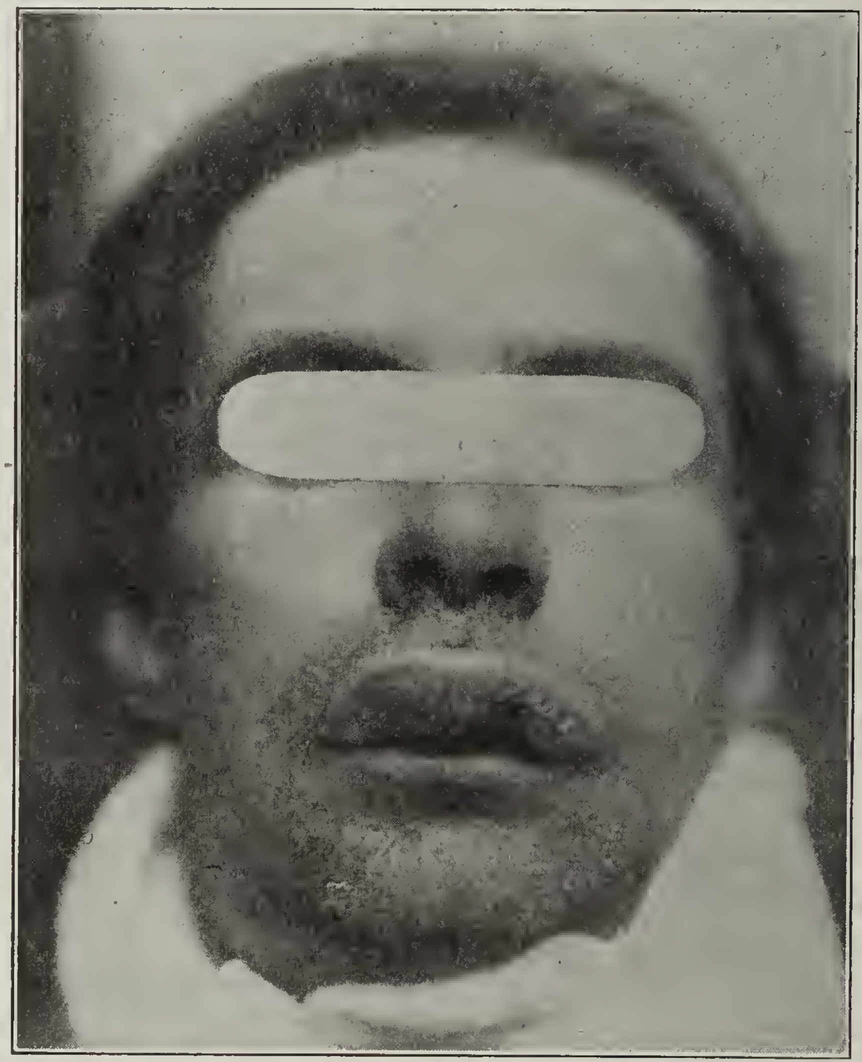


Fig. 9.—Chancre of lip, contracted from farm hand through drinking utensils. Note edema.

Montgomery[3] reported seven cases, six of them being on the hands. Nine out of twenty cases reported by Brandis[4] and Morrow,[5] each reporting ten cases, are quoted by Dr. Montgomery as having been contracted while on gynecologic or obstetric cases.

Fournier[6] reports a series of forty-nine extragenital chancres, thirty of them having been in physicians.

Often the question is raised about the acquisition of syphilis from the cadaver. Two such cases have been reported by Taylor.[7] One case was acquired from a body eight hours postmortem, the other from a body dead nine hours. Morrow, also, has published an account of one such case.

Only too often is the physician an innocent victim of the extragentital chancre, and he cannot use too much care in the examination of his patients. All patients should be suspected of syphilis. In that way, only, safety lies.

No physician should make a vaginal, an oral or a rectal examination without gloves. The doctor who operates without them places himself in the greatest danger. In my experience, nose and throat men are especially prone to take chances. Plenty of chances, too, are taken by dentists, nurses and midwives in their work.

I wish to emphasize the importance of an early diagnosis, and to recommend the use of the heaviest possible treatment for a long period of time.

The profession, as well as the public, must be educated as to the gravity of the disease, and our syphilitics should have proper instruction in regard to their daily walk of life and as to the importance of treatment. Moreover, our medical schools should give more time, in their curriculums, to the diagnosis and handling of early syphilis, since at this time the best results can be obtained.

Stringent supervision of our barber shops, of our restaurants, hotels and soda fountains, of our drinking cups, etc., I believe, would also assist in preventing so many innocent victims of syphilis.

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[3] Montgomery, D. W.: The Acquisition of Syphilis Professionally by Medical Men, Jour. Cutan. Dis., 1905, xxiii, 145.

[4] Brandis: Deutsch. med. Wchnschr., 1898, xxiv, 329.

[5] Morrow, P. A.: Jour. Cutan. Dis., 1896, xiv, 125.

[6] Fournier, A.: Les chancres extra-génitaux, pp. 447-450, reported by Montgomery (Footnote 3).

[7] Taylor, R. W.: Jour. Cutan. Dis., 1890, viii, 201.

New Physiology.—Medicine needs a new physiology which will teach what health really means, and how it is maintained under the ordinarily varying conditions of environment. We also need a pathology which will teach how health tends to reassert itself under totally abnormal conditions, and a pharmacology which will teach us, not merely the "actions" of drugs, but how drugs can be used rationally to aid the body in the maintenance and reestablishment of health. The new physiology, new pathology, and new pharmacology are growing up around us just now. I can see them more particularly in the splendid advances which the medical and other biologic sciences are making in American. You have the advantage of having less of old intellectual machinery to scrap than we have in the old countries; but perhaps we shall not be much behindhand.—J. S. Haldane: The New Physiology, *Science,* Nov. 3, 1916.

XTERNAL FRONTAL SINUS OPERATION *

JOSEPH C. BECK, M.D.
CHICAGO

The closing words by Dr. O. T. Freer[1] in his recent rticle on the intranasal operation on the frontal sinus or the cure of chronic suppuration were as follows:

> In cases where with the sinus open for drainage, marked uppuration continues after the intranasal operation, the xternal operation must be resorted to. Where great swellig of the lids, exophthalmos or cerebral symptoms indicate ie existence of caries of the sinus wall and progress of the isease beyond it, in the form of Killians' sinusitis frontalis, ie intranasal operation should not be done.

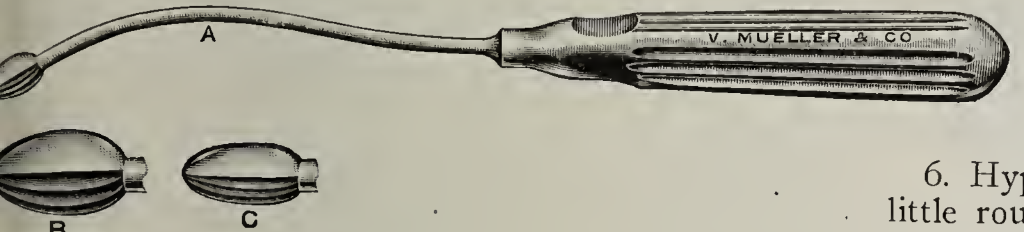

Fig. 1.—*A*, small size; *B*, large size; *C*, smooth surface.

That is my belief with the exception that I should ke to modify and amplify his remarks. When he ays the external operation must be, I say should be one, because I have a very vivid recollection where I isisted that the external operation be performed and ubsequently wished I had not been so insistent, lthough a cure was established. I am referring to ie external deformity. Aside from the conditions ientioned above that would indicate an external opertion I wish to call attention to the pathology of the rontal sinus which can be learned from good oentgen-ray plates. This I have controlled by the istologic examination as well as the postoperative eading of the roentgenogram.

If one takes a stereoscopic roentgenogram and udies it both stereoscopically and pseudoscopically ne will be able to interpret certain definite anatomicoathologic conditions of the sinuses. For examle, it is possible to differentiate an acute from a ironic inflammation; a suppurative from a nonsupurative affection; a cavity filled with polypi from one iat is not. Likewise it is possible to diagnosticate ie presence of a sequestrum or a foreign body. It is l in the judgment of shadows or degree of densities, ith particular emphasis on certain definite outlines. is impossible to cover this phase of the subject in paper such as this, but suffice it to say that the value f the roentgenogram is very much underestimated om the pathologic point of view and I would recomiend that the team work between rhinologist and entgenologist be encouraged. So far as the anatomic de of the question of the roentgenograms is conrned, I believe we are all agreed that it is indisensable in operative work.

Pathologic Changes.—Macroscopically as well as icroscopically we have the following forms of ianges in the frontal sinus.

1. Simple congestion or acute inflammation of the mucous membrane lining.
2. Simple congestion or acute inflammation of the mucous membrane lining, plus acute osteitis, even necrosis.
3. Chronic infiltration of the lining membrane with myxomatous degeneration. Epithelium very much thickened with excessive secretion.
4. Chronic infiltration of the lining membrane with myxomatous degeneration. Epithelium very much thickened with excessive secretion plus superficial osteitis.
5. Chronic infiltration of the lining membrane with myxomatous degeneration. Epithelium very much thickened with excessive secretion, superficial osteitis and necrosis even to a degree of sequestration, and we may have in some places ulceration of the epithelium and true granulation formation.
6. Hyperplasia of the lining membrane with very little round cell infiltration, but myxomatous changes to a degree of polyposis. The bone is not changed at all or at most there is a rarefying osteitis.
7. Characteristics of tuberculosis, syphilis, malignant disease and foreign bodies, in addition to the chronic infiltrative inflammation. Bone changes are very common, especially in the syphilitic form.[2]

These various pathologic changes will each require certain definite methods of treatment, either surgical or nonsurgical, to bring the case to a successful issue. *The anatomy* with particular reference to the distance between the anterior and posterior surfaces of the sinus and the extent toward the temple will influence one as to the technic to be pursued. Also the outlet of the frontal sinus as to how much room is obtainable by an intranasal method of operation is important. I wish to call attention emphatically to the epithelial lining of the outlet of the frontal sinus. It does not matter how large the outlet is made, whether by an intranasal or an external operation, if the mucous membrane is entirely destroyed and the bone in any way disturbed, particularly the internal nasal crest, there will follow constriction that is liable to defeat the best operative procedure.

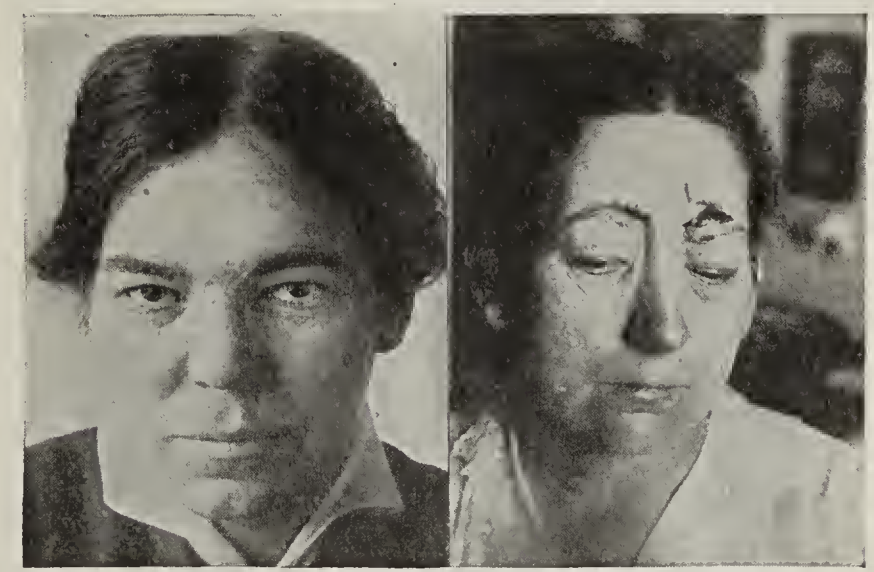

Fig. 2.—Mrs. L. and Mrs. D.

It must be remembered that the various bones in the region of the outlet of the frontal sinus respond differently when curetted or subjected to the burr. Whenever the region of the nasal bones at the junction of the internal nasal crest is attacked, there is a great deal more of reactionary osteitis than when the bone of the ethmoidal region is broken down. This is due to the lack of cancellous structures in the latter. In view of this fact it has been my practice to carefully avoid this region (internal nasal crest) of the frontal sinus, and rather enlarge toward the ethmoidal region, that is posteriorly and laterally, as suggested by Mosher.

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* Read before the Section on Laryngology, Otology and Rhinology the Sixty-Seventh Annual Session of the American Medical Associan, Detroit, June, 1916.

* Because of lack of space, this article is abbreviated in The urnal. The complete article appears in the Transactions of the ction and in the author's reprints.

* This paper and those by Drs. Hurd and Coit which follow are rts of a symposium on "Chronic Suppuration of the Nasal Accesry Sinuses." The remaining papers by Drs. Shambaugh, Sauer, Loeb, illern and Iglauer and the discussion will appear in The Journal December 23 and 30.

[1] Freer, O. T.: Laryngoscope, December, 1915.

[2] Demonstrated by lantern and more extensively described in Transactions and reprints.

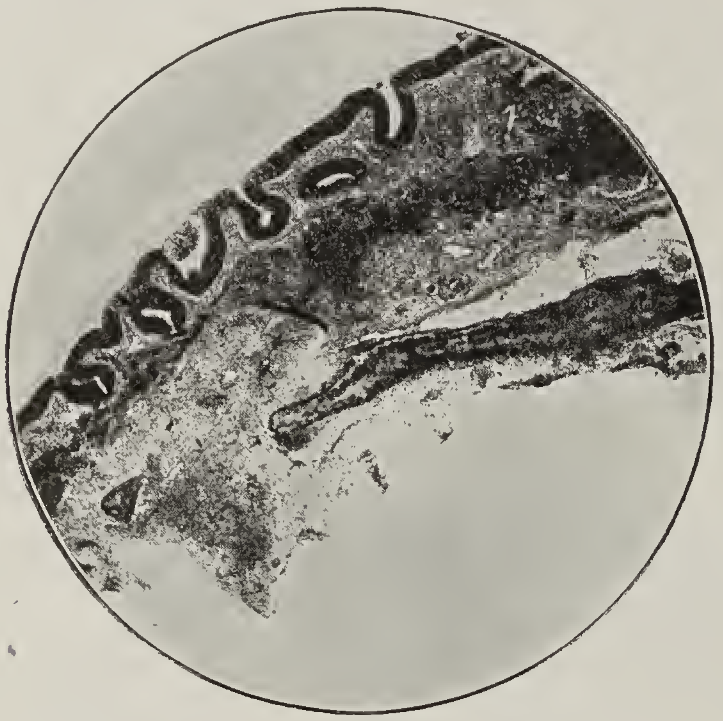

Fig. 3.—Acute inflammation with acute osteitis; marked thickening of epithelium.

In reviewing the final results from the various external operations on the frontal sinus, I would like to confine myself to my personal results or those that came under my observation rather than to repeat the opinions of others, trusting to the discussion to bring out any deficiency in my report.

1. *Kunt-Coakley Operation.*—In acute cases the simple external opening and draining for a short period of time in the frontal sinus region with subsequent middle turbinectomy and ethmoid curettage have given universally good results, and only in cases in which the acute condition was one of acute exacerbation of a chronic form was there subsequently a more formidable external operation necessary.

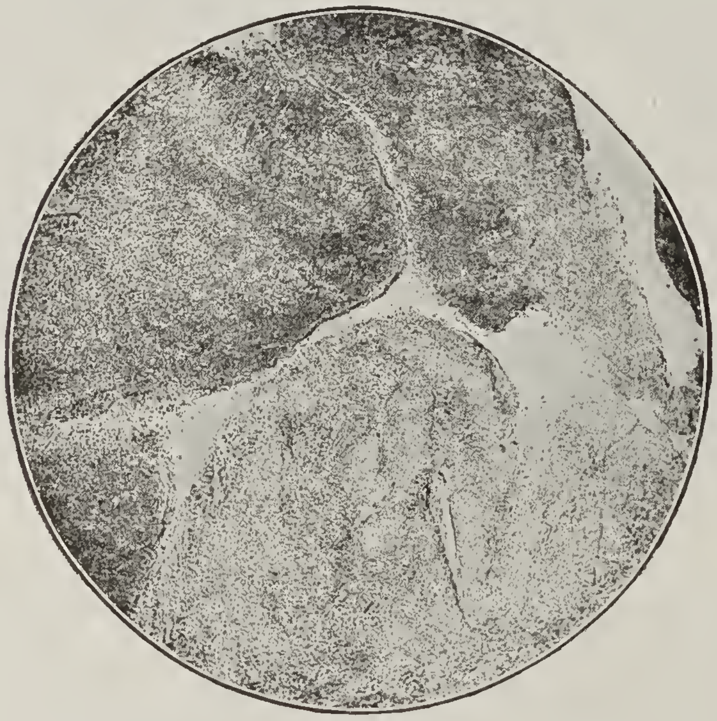

Fig. 4.—Pyogenic lining membrane with thin layer of epithelium.

2. *Killian Operation.*—Probably no surgical procedure of the nasal accessory sinuses provoked a greater attention and discussion than this radical procedure for the cure of chronic suppuration of the frontal sinus. It must be further admitted that strictly surgically speaking, the same procedure is necessary today if one desires to speak about an absolute cure. At the same time I do not believe I am very far from the truth in stating that the radical Killian operation for the cure of chronic suppuration of the sinuses (fronto-ethmo-spheno-antrum) is seldom performed at present. In fact, the reaction came as soon as the intranasal procedures were successfully practiced and when the laity revolted against the marked deformities that resulted in the cure. My own personal experience with the Killian operation dates from 1903, when I operated on a chronic suppurative pansinusitis in a man whom I presented before the Chicago Oto-Laryngological Society, as a cured case. It was one of the first cases presented in this country so far as I have been able to find from the literature. After that I performed a fairly good number with absolutely satisfactory results, except for the deformities. This latter fact led me to develop a technic which was not to take the place of a radical cure but rather a conservative measure which I presented before this section in 1909, namely, an osteoplastic flap operation on the frontal sinus. There is one particular case of Killian operation that I would like to mention because, as I said in the beginning of my paper, it is very vividly in my mind, and because the narrative of this experience may help some one else in avoiding the performance of a bilateral Killian operation in a very large and deep frontal sinus, even in a man. This patient, a mechanic, came to me with an acute fulminating frontal sinusitis on both sides. After several weeks of drainage and intranasal surgery it became necessary to do the external operation. The patient never showed any disposition to oppose the external procedure. The Roentgen-ray picture showed a markedly pathologic, large frontal sinus on both sides. At operation I found a so-called double frontal sinus in the anteroposterior direction, but am sure it was a large bulla ethmoidalis reaching high in the region of the frontal sinus as first suggested by Logan Turner. This condition was present on both sides. After healing occurred there resulted a marked depression,

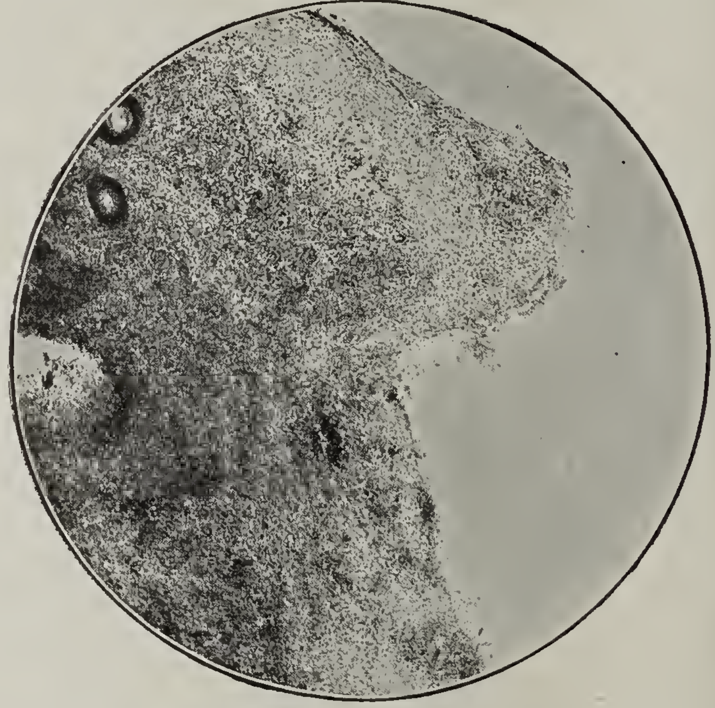

Fig. 5.—Pyogenic lining membrane without epithelium.

although I was very careful to preserve a good supraorbital ridge. One day while the patient called I demonstrated him as a fine result to Dr. B— of California, who was visiting me at the time. The patient expressed himself most disgusted, in fact, in a threatening manner, stating that he would get even because I made him conspicuous and a subject of ridicule in the shop where he worked. I was so impressed with this threat that I had the man watched for some time.

3. *Modified Killian Operation.*—Just before the intranasal operation became well developed or in cases in which it did not suffice, various procedures were advocated with variable results. One of the first modifications, owing to the marked diplopia resulting, was the leaving of the roof of the orbit intact, thus preserving the pulley of the superior oblique. In another instance, the nasal process of the superior maxilla was not attacked because it often left a deformity on the side of the nose and necessitated the prolongation of the external incision. Finally, less of the anterior wall of the sinus was being removed, and by making a large opening into the nose by taking away as much as possible of the floor of the sinus, one was satisfied even though obliteration was not obtained. The criticism of these procedures is that the lining membrane has often times been sacrificed unnecessarily because the cavity could not become obliterated and because lined by a granulation, which is not as good a nutrition to the bone as the membrane itself, even though the latter be not normal. Besides, this granulation membrane secretes a great deal more. Though less of the anterior wall is removed, depression will nevertheless result.

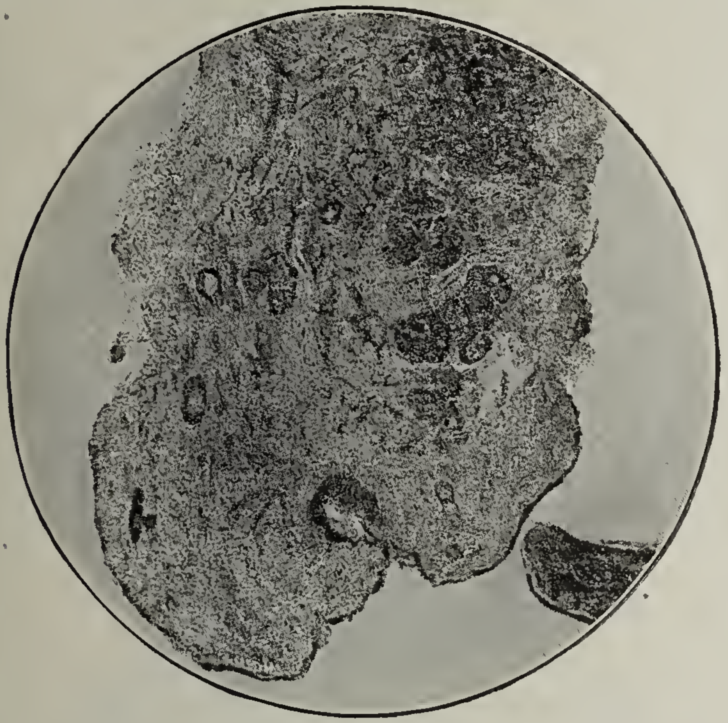

Fig. 6.—Chronic fibrous and glandular hyperplasia of lining membrane.

4. *Lothrop's Operation.*—At the meeting last year of this section Dr. Howard A. Lothrop[3] presented a procedure that, according to his report, meets all the requirements of curing a chronic suppurative sinusitis, especially if intranasal procedures failed and if there be an external fistula present. The procedure consists in making an opening about the size of a half dime above the inner canthus or below the eyebrow in what is known as Ewing's space, through which he enters the frontal sinus. By way of the nose and through this created opening in the frontal sinus, the internal nasal crest is removed, leaving sufficient bone in order not to get a collapse of the bridge of the nose. Then the floor of the frontal sinus is removed. Now comes an entirely new procedure, namely, the removal of the perpendicular plate of the ethmoid constituting the upper most anterior portion of the nasal septum. This removal is continued into the frontal sinus, where the septum of the same is also removed. Through the same original opening and the opposite nostril the floor of the other frontal sinus is taken away, as well as any projecting remains of the internal nasal crest. The external wound is then closed up. The result is that both frontal sinuses empty into one large opening, which may discharge in either nostril; in other words, one may enter either frontal sinus from either nostril, or both sides from one nostril. My criticism is, or I should say was, that as a result of drilling the internal crest as well as the posterior surface of the frontal sinus outlet, the resultant opening would narrow, although not as much as if each sinus was operated separately, and furthermore the same criticism that I have to my own procedure, which I am about to describe, that is, if only one sinus is involved one would necessarily infect the other sinus or else this

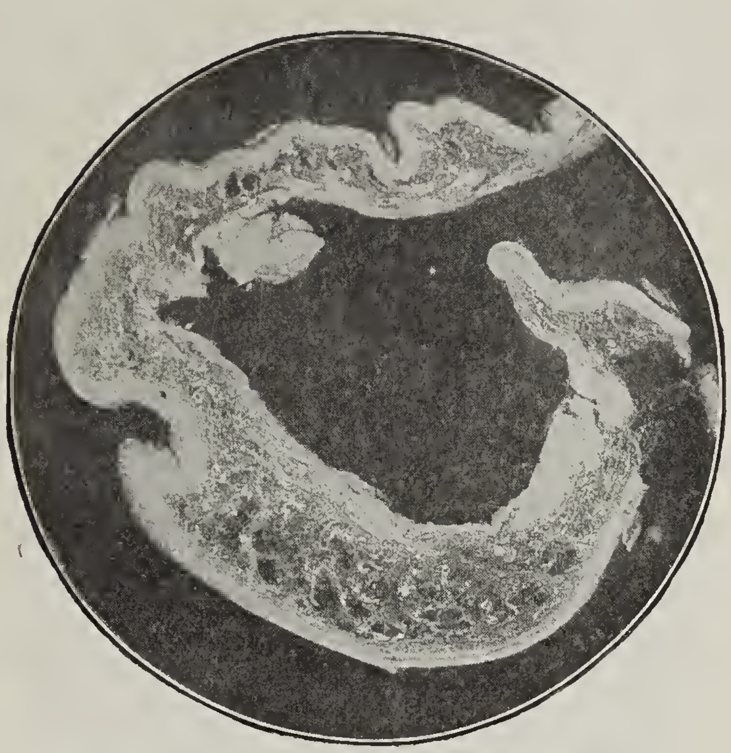

Fig. 7.—Chronic suppurative infiltration of membrane with cystic myxomatous degeneration.

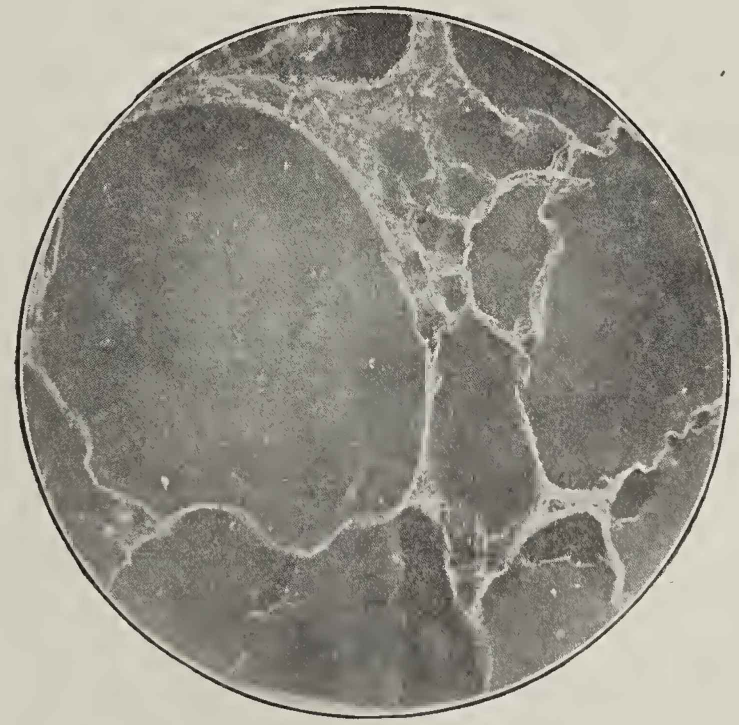

Fig. 8.—Cystic myxomatous degeneration of lining membrane.

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[3] Lothrop, H. A.: Frontal Sinus Suppuration with Results of New Operative Procedure, The Journal A. M. A., June 10, 1915, p. 153.

procedure could not be carried out. I say that it was my objection rather than is, because since the presentation of this subject by Dr. Lothrop, I have seen a modification tried by Dr. Richards of Fall River, Mass., and Dr. Lynch of New Orleans, which makes me feel that this procedure will find a place, especially for the fistula cases. With the permission and apologies to Drs. Richards and Lynch, I will state what I saw them do and then describe my suggestion of this procedure as a result of personal experience.

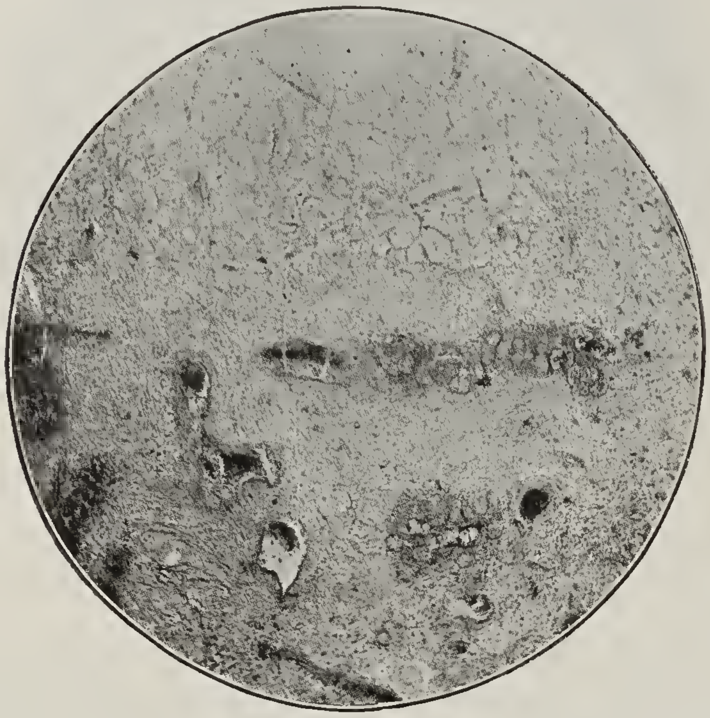
Fig. 9.—Myxomatous or polypoid degeneration of lining membrane.

Their case was one of chronic frontal sinusitis with fistula from a previous operation. Their modification was the employment of hand drills (Fig. 1) which had only cutting edges on the anterior half of the burr, the posterior being smooth, thus avoiding the destruction of the lining membrane of the outlet posteriorly, and prevented subsequent cicatrization. In a patient I recently operated on I had a fistula with depression following operation, in which I performed the Lathrop operation, but avoided the internal nasal crest by protecting it with a Halle protector and using an electric oval drill. The result is very satisfactory now, eight weeks since operation.

5. *Beck's Osteoplastic Flap Operation.*—Permit me now to briefly describe the procedure which I recommended eight years ago as an external nonobliterating operation in those cases that appear to be unsatisfactory after an intranasal procedure. I might say that I have had to change but one thing in the technic since I first presented it before this section, and that is the avoidance of the destruction of the lining membrane of the internal nasal crest.[4]

STEPS OF OPERATION

1. Roentgenogram, postero-anterior, for proper anatomic outlines.
2. Celluloid model made from tracing of frontal sinus, from roentgenogram.
3. Incision through skin and subcutaneous tissue along the upper margins of the eyebrows, and these untied across the bridge of nose.
4. Dissection of the skin and subcutaneous tissue flap upward.
5. Celluloid model placed over exposed area.
6. Incision through periosteum along the margin of the celluloid model.
7. Chisel and burr along this lateral periosteal incision from one supra-orbital margin to the other in the interior of the frontal sinus.
8. Gigli saw engaged in the upper edge of this incision and brought down to the level of the supra-orbital margin, thus cutting the septum of the frontal sinus, then saw slightly upward to weaken the pedicle.
9. Turn this osteoperiosteal flap down. Remove the pathologic tissue, but carefully avoid exposure of bone of any great extent.
10. Enlarge outlet of sinus in the nose backward and outward by means of electrically driven burr, carefully avoiding the internal nasal crest by use of Halle protector.
11. Semisolid rubber tube inserted into the outlet, one end coming at or near the nostril, the upper end at the beginning of the outlet. Through this tube a strip of prepared gauze is packed, the upper end loosely filling in the cavity of the sinus.
12. Osteoperiosteal flap brought back into position and the skin and subcutaneous tissue flaps brought down and sutured or closed by use of clips.

After-Treatment.—On the second day remove the gauze, on the fifth day the tube. No further drainage is necessary. Subsequently but not before three weeks, wash the sinus with normal salt solution, or injection of bismuth paste into the sinus may be done.

In the criticism of the procedure I would say that if only one side is affected one may take off just the one half of the anterior surface of the sinus, that is, employ the fine burr or chisel to follow a celluloid model of just the size of the sinus to be exposed. The skin and subcutaneous flap, however, should be the same as if both sinuses were to be exposed. This is an objection in that one may infect an otherwise healthy sinus. I have no doubt that I have done this very thing several times, without any untoward results, because the procedure healed the infected sinus, and thus prevented reinfecting the healthy sinus to any extent. As to exact statistics I will state that I have since 1908 performed this operation thirty-one times with an apparent cure in twenty-seven cases. In two of these four cases I operated away from home, and never heard whether they were satisfactory or not; the other two had to be reoperated, converted into the

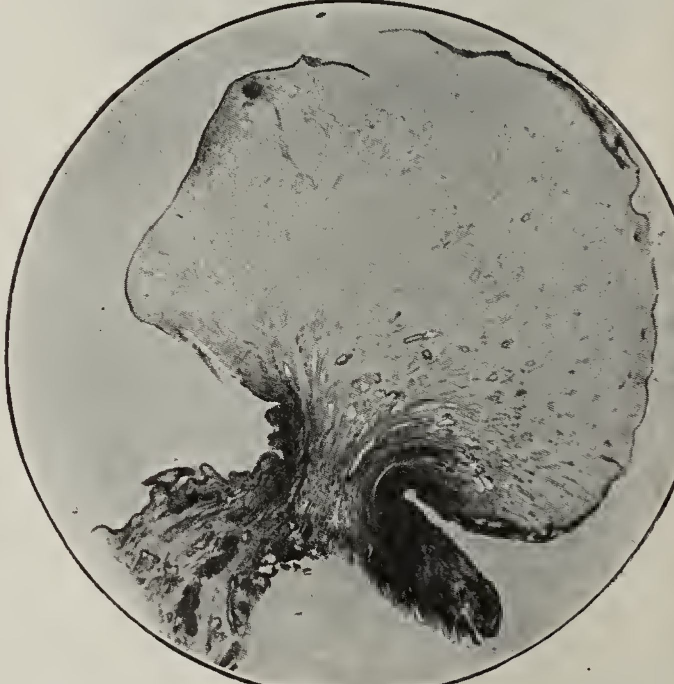
Fig. 10.—Solitary fibrous polypi in frontal sinus.

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[4] The various steps of this operation were demonstrated by lantern slides, and will be more extensively described in Transactions and reprints.

Killian. These were the early cases in which I used o make a large opening into the nose, taking away ome of the internal nasal crest and in which the nucous membrane of the entire circumference of the utlet of the frontal sinus was destroyed. These reoprations would have been good cases for the Lothrop peration.

In conclusion, I would like to present the histories f the end-results in the two patients whose photoraphs are shown in Figure 2. It must be stated that he frontal sinus in the malformed case was evidently nuch larger and extended far over the orbit.

CASE REPORTS

Case 1.—Mrs. L. started in May, 1912, with a very severe ain in the left eye which was diagnosed by two ophthalnologists as glaucoma. She then consulted a rhinologist who iagnosed, from his nasal examination, a closed off acute rontal sinus disease on the left side. He performed an nterior turbinectomy, following which there was a free scape of pus and marked relief of her symptoms. This elief lasted only about two weeks when the symptoms eturned, only much more stormy, accompanied with chills nd a cracking sensation about her eyes. There appeared o be no improvement from the pains and discharge, so she as referred to a Chicago rhinologist to determine whether xternal frontal sinus operation was necessary. The latter dvised an ethmoid exenteration and reopening of frontal nus within the nose. This the attending rhinologist perormed. This procedure was followed by comparative comort for about four months, when symptoms began to eturn, especially a feeling of a plug formation in the front art of the head. The attending rhinologist performed a ood intranasal rasp operation on the frontal sinus. For x months following this procedure the patient was fairly ee from symptoms, when they returned more severe than ver and the attending rhinologist brought the patient to ne. I found the left nasofrontal passage outlet completely locked and the roentgenogram definite of a marked diseased ondition. The headaches were so persistent and severe, nd there being some rise of temperature, we decided n an external operation and my osteoplastic procedure was erformed. We found the entire frontal sinus was filled ith a thick pyogenic membrane which proved to be so by ubsequent microscopic examination. The ethmoidal region as again recuretted, as well as the antrum and sphenoid xplored, and their natural openings enlarged. A very large pening between the frontal sinus and the nose was made y means of electric burrs. The immediate as well as the ubsequent course of this case was uneventful and the patient now perfectly well, after more than one year. I am so nformed by her attending rhinologist today. The photoraph (Fig. 2) was taken three weeks after operation, and nows the absence of any deformity.

Case 2.—*History.*—Mrs. D., aged 45, suffering with chronic uppuration of the sinuses for a number of years, consulted well known otolaryngologist of New Orleans, who had er under treatment for some time, performing the customy operations and reoperations within the nasal cavity. As ne patient was still having suppuration in the nose as well s pain and headache, the physician was compelled to resort o an external operation. A bilateral frontal sinus operation ccording to Killian was performed. The patient did not et along very well on account of retention, which made m operate a second time for the purpose of allowing the avity to remain open and granulate from the bottom. This, owever, did not take place, as whenever the external wound osed, retention would result with subsequent fistula foration.

The patient was obliged to remove to New York, and n the way consulted an otolaryngologist in Chicago who eoperated on the frontal sinus and performed a bilateral enker operation. After apparent healing had taken place, e patient went to New York, and soon after experienced etention above the left eye with considerable pain. She consulted another otolaryngologist in New York who concluded that the patient should wear a silver cannula leading from the retention pocket into the nose, similar to the stylet worn in chronic dacryocystitis.

April 7, 1914, about four years after the last attention, she consulted me. I found a discharging fistula above the inner canthus of each eye, and in the bottom of the left fistula the small silver cannula just mentioned. A complete analysis of the case was made and an operation decided on.

The patient, however, developed an acute otitis media suppurativa requiring a paracentesis. She again returned to New York, where this condition was treated.

In October, 1914, she returned to me for operative work and I learned that in the meantime the right fistula, while closed at the time she had left me, had spontaneously opened two or three times during her present stay in New York.

Before resorting to the operation, an autogenous vaccine, an anaerobic micro-organism being particularly cultivated, was made, and injected for about three weeks. The fistula was injected with bismuth paste No. 1 in order to disinfect it. Ten mg. of pure radium element was placed within the nasal cavity in the attic region, and Roentgen rays, by the deep penetration method by water cooled tubes were applied from the outside as a crossfire. This combined vaccine, radium, Roentgen-ray and bismuth paste treatment, as well as internal administration of large doses of hexamethylenamin was given preliminary to the operation because we expected to expose such important structures as the dura and orbit, and thus lessen infection of them.

Operation.—We found, following the left fistula outward and backward, a cavity of considerable size, reaching over the orbit to the region in close proximity to the optic foramen. It seemed to pass downward and backward to its outer surface. This cavity was lined with pyogenic material which, when removed and subsequently examined microscopically, was shown to be covered with a thin layer of epithelial cells. This pyogenic material was therefore scraped, and the bone over the orbit as well as the under surface of the frontal bone or roof of the frontal sinus of that diverticulum was removed by an electrically driven burr to its very limits. This procedure caused the exposure of the dura above and the periosteum of the orbit below. The previous operation allowed a considerable overhanging of the supra-orbital margin, and this too was removed to a marked extent, in order to have complete control of the newly made cavity. This cavity was packed with gauze for about one week until healthy granulations were lining it, when bismuth paste No. 2 was injected and the cavity allowed to heal.

Three weeks after the operation the patient was desirous of going home and I referred her to a well known specialist in Philadelphia, the condition then appearing as in Figure 2. He made the following statement in a letter to me: "Find that the wound is healing up nicely and suppuration has entirely ceased. It looks to me as though you were going to have an excellent result. I told her to return again if there was any further trouble, but believe from its appearance that everything will be well with her."

About two months later I received a report saying that she felt absolutely well and the sinus remained closed. It is my intention to do plastic work which will fill up the cavities which have deformed this patient, although she is cured of her suppuration.

2551 North Clark Street.

Surgical Judgment.—Surgical judgment means more than the knowledge necessary to make a rough diagnosis, or the technical skill to perform stereotyped operations. It implies a certain clinical experience, which enables one to weigh up the advantages or disadvantages of an operation to a particular patient, the knowledge of the risks and complications besetting such an operation, nay, more, the ability to foretell the benefits that may accrue, and the evils (if any) that may follow after.—John H. Watson, *Practitioner,* October, 1916.

INTRANASAL SURGERY FOR RELIEF OF CHRONIC FRONTAL SINUSITIS *

LEE M. HURD, M.D.
NEW YORK

The frontal sinus is formed from the expansion of an anterior ethmoidal cell into the frontal bone or as a direct extension of the infundibulum.

Usually there are two sinuses, but it is important to remember that one or both may be absent, and that there may be as many as four or five distinct sinuses, communicating with the nasal cavity by their own ostia.

One sinus may be underdeveloped, and the sinus of the opposite side may have expanded beyond the median line and formed part of the superior and anterior wall of the smaller one, and also an anterior ethmoidal cell may have a large orbital extension and its anterior wall bulge into the posterior part of the frontal sinus, forming the so-called bulla frontalis; and this ethmoidal cell may be the seat of disease which will simulate frontal sinus disease, while the frontal sinus is normal.

The frontal sinus may barely reach the brow, or it may extend upward fully 2 inches and externally, nearly 3 inches, and may also have a recess over the orbit, extending backward almost to its apex.

In considering intranasal treatment of the frontal sinus, the relations of the anterior ethmoidal cells and the infundibulum are as important, if not more important, than the frontal sinus itself, because inflammation of the frontal sinus rarely exists without a similar condition in the anterior ethmoidal cells; and these, together with the structure about the ostium of the frontal sinus, are the practical anatomic points in the intranasal surgery of the frontal sinus.

The infundibulum, with its superior wall, formed by the bulla ethmoidalis, and the inferior wall, the process uncinatus, should be considered the guide to the anterior ethmoidal cells and the frontal ostium.

The bulla ethmoidalis contains one or more cells which extend to the orbit, and has sometimes extensions over the orbit.

The anterior expansion of the meatus medius and the infundibulum is the recessus frontalis of Killian, or better divided, according to Davis,[1] who suggested that the anterior portion of the infundibulum lateral to the processus uncinatus be termed the recessus infundibularis, into which the infundibular cells drain; and that portion of the recessus frontalis lying medial to the processus uncinatus, which forms a concavity beneath the extreme anteriosuperior attachment of the concha media, be termed the recessus conchalis, into which the frontal cells drain.

This divides the anterior cells into three groups, namely bulla cells, infundibular cells, and frontal cells.

The concha media, which is a prolongation downward of the inner ethmoidal wall, especially in front, acts as a curtain, concealing the structures laterally.

If the anterior attachment of the concha media is high, the frontal cells are apt to be well developed, and if attached low, the infundibular cells are more apt to be well developed, while the frontal cells are deficient. This may be of value in determining the position of the frontal ostium.

The frontal sinus communicates with the nose, according to the origin of this sinus, namely, in 60.4 per cent. it communicates with the meatus medius, and in 39.6 per cent. with the infundibulum (Davis).

In the latter class the discharge from the frontal sinus may drain directly into the antrum, the infundibulum acting as a gutter between the two ostia, and this is the class in which the antrum acts as a reservoir for the frontal discharge.

Posteriorly and externally, the ostium frontalis is usually bounded by the walls of the ethmoidal cells. The anterior boundary is formed by the anterior nasal spine which may contain a cell. The posterior part of the inner wall may be in relation with the anterior portion of the olfactory fossa, from which it is separated by a thin plate of bone. This is the most dangerous locality, and no attempt should be made to enlarge the ostium in this direction. Therefore, anteriorly, the hard bone of the anterior nasal spine is encountered, while posteriorly and laterally, the friable thin bone of the ethmoidal cell wall is encountered, backed by the hard, thin bony plate of the inner table superiorly, about 1 mm. in thickness and the lacrimal bone and os planum laterally.

Here I may add that anatomically there is no such thing as a frontonasal duct.

I hope you will understand that this is only an outline of the anatomy, as there are several sources wherein this subject can be studied to better advantage.

Roentgen-ray plates are used, not only for their diagnostic value, but also to give the dimensions of the passage from the nose to the frontal sinus through the anterior ethmoidal cells.

The width of this passage varies from 7 mm. to 12 mm. (Watson Williams[2]).

An intimate knowledge of the surgical anatomy of the accessory sinuses and the nose should be gained from the cadaver before any attempt is made to open the sinus in the living.

Removal of the middle turbinate is about as far as one should go unless he is familiar with the many anatomic variations and relations in this region.

In the severer types of inflammation, the external operation by one who has mastered its technical details will give surer, quicker and safer results, especially in those cases in which the frontal sinus and the ethmoidal cells have large orbital extensions. One of the disadvantages of the present internal methods in severe cases is the uncertainty of results and constriction of the drainage passage into the nose, which occurs in nearly all cases a few weeks after the operation.

I am working on a flap procedure which I hope will overcome this tendency to constriction, which I will report on later.

In the internal methods in which burrs, chisels and rasps are used in this small and dangerous area, the procedure will lead to more accidents than when the sinuses are opened externally. Then, too, operating in an extensively diseased field differs greatly from the deadhouse work, as the disease has made it easier to enter the frontal sinus and also easier to invade the cranial cavity.

The types of inflammation may be divided, roughly into two classes, first, those of polypoid degeneration with thinning or absorption of the ethmoidal walls, and second, a thickening of the mucosa with a corresponding thickening of the ethmoidal walls.

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Davis, W. E.: Nasal Accessory Sinuses, 1914.

[2] Williams, Watson: Jour. Laryngol., Rhinol. and Otol., May, 1914, p. 225.

With both types there is more or less discharge, but he discharge is more apt to be greater with the latter ype.

Indications for intranasal operation are all cases of hronic sinusitis in which there are no complications. About 95 per cent. can be treated by the internal method. Contraindications are intracranial and orbital omplications and fistulas, all of which should be pproached by the external route.

Of the several methods used to produce drainage of he frontal sinuses, those of Ingals,[3] Freer,[4] Mosher,[5] Vacher,[6] Watson Williams,[2] Halle,[7] and Good[8] are the most used. They all aim at the same result and nearly very one has special instruments for the purpose.

There has been considerable discussion about pre- erving the middle turbinate on the ground that the olfactory filaments on its inner surface, when divided, open a direct communication with the brain. Prac- ically, this seems overcautiousness, as meningitis, when it occurs, starts from a perforation or fracture f the inner table.

Watson Williams, Halle, and Freer preserve the middle turbinate when possible. Mosher and Tilley[9] emove it. Many patients will recover with removal f the anterior portion of the middle turbinate alone, ut for the severer types of inflammation the frontal stium will need enlarging, and to accomplish this the oute must be through the anterior ethmoidal cells.

The size of the passage through the anterior ethmoidal cells having been determined by means of the Roentgen-ray plates, supplemented by the estimated width between the turbinal plate, medically, and the nternal canthus, laterally, the middle turbinate is emoved to give freer access to the infundibulum and ulla. A probe can now usually be passed into the rontal sinus, which will determine whether its ostium pens into the recessus conchalis or into the recessus nfundibularis.

The bulla ethmoidalis is entered with a straight uret, breaking down its cells and then coming forward, obliterating the frontal and infundibular ethmoidal cells as far as the frontal process of the uperior maxilla will allow. No attempt is made to ntirely clean off the orbital wall with the curet, as uncture of this wall may lead to hemorrhage or infec- ion of the orbit, with the resulting danger to the eye. At this point a larger opening will be found into the rontal sinus, because some of the ethmoidal cell walls ad formed part of the funnel-like floor of the frontal inus about the ostium. Now changing from the traight curet to the angular curet and forceps of rumwald, we clean the passage out and remove the emaining ethmoidal cells, and with the angular curet we enter the frontal sinus and work forward and ownward in a safe direction.

This is as large as the opening into the frontal sinus an be made, unless the anterior nasal spine is taken way. The spine varies considerably in thickness. If t happens to be thin, it can easily be broken away with Myles' draw chisel, and if thick, it may be burred out, ut I find that the resulting constriction from loss of he mucosa ultimately overcomes the advantage gained t the time.

For after-treatment I apply bismuth paste, douche with aqueous solution, and apply solutions of silver nitrate and sodium chlorid.

With an appropriate syringe I force cold bismuth paste into the sinus daily or as often as the condition warrants, replacing the secretion and some of the old paste with new paste at each treatment. I have found this the most satisfactory means of reducing the discharge and the swelling of the mucosa. There is no pain in the procedure, only a slight fulness for a few minutes from the pressure of the paste. As the discharge ceases, I change from the paste to white petrolatum, which melts at 90 F., and dilutes the paste remaining, and finally douche the sinus with normal saline solution, 115 F., which removes the remaining paste and petrolatum, if there is any. In a few instances in which patients have disappeared before the paste was removed I have found it in a well sinus at the end of a year, evidently producing no irritation. In some cases in which the sinus was subsequently opened externally the paste was found in one mass, helping what little drainage was present.

Douches of antiseptic solutions have been entirely abandoned. Normal saline solution is sometimes used, but the bismuth paste seems to give quicker results.

In very obstinate cases solutions of silver nitrate can be used, increasing the strength from 1 to 5 per cent., first anesthetizing the sinus, then passing a cannula into the sinus for the silver solution and at the same time another larger cannula into the nose for the solution of sodium chlorid and simultaneously filling the nasal cavity with salt solution and the sinus with silver solution, so that as the silver solution returns into the nose it is converted into silver chlorid and has no further action on the mucosa.

Failure of internal measures to give relief are sufficient indications to advise obliterating the sinuses by the external route.

15 East Forty-Eighth Street.

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3. Ingals: Tr. Am. Laryngol. Assn., 1905.
4. Freer: Laryngoscope, December, 1915.
5. Mosher: Laryngoscope, September, 1911.
6. Vacher: Bull. Otol.-Rhinol.-Laryngol., 1911, xxiv.
7. Halle: Arch. Laryngol. and Rhinol., 1914, p. 73.
8. Good, R. H.: A Simple and Safe Operation on the Frontal Sinus y the Intra-Nasal Route, The Journal A. M. A., Aug. 31, 1907, p. 753.
9. Tilley: Jour. Laryngol., Rhinol. and Otol., May, 1914, p. 242.

EMPYEMA OF THE ETHMOID CELLS *

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Empyema of the ethmoid cells may be divided into acute and chronic, and the latter usually is followed by the latent.

The mucous membrane of the ethmoid is far more sensitive than that of the nose and consequently more readily succumbs to infection or to any kind of irritant; for that reason we find it so often affected when the nose is supposed to be the actual or natural habitat. Thus the ethmoid is always affected in hay-fever or any infectious disease involving the nose.

It is difficult to speak of ethmoid empyema per se, as such a condition probably never exists, at least it has never been demonstrated, the other sinuses being more or less involved; but it does not follow that treatment directed to the ethmoid will not relieve other contiguous cells as well. Empyema in early childhood is more amenable to treatment than that of the adult because of the small area involved, as well as the ready response of the tissues of the actively growing child. In fact, recovery is so common in childhood that empyema as an entity is commonly overlooked.

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The causes of suppuration of the ethmoid cells are various. They may be infected through the frontal sinus, antrum, sphenoid, orbital cellulitis, syphilis, foreign bodies or nasal mucous membrane, while the intensity of the infection varies with the virulence of the bacteria. The symptoms of a typical acute case are clogging of the nasal passages, pain which becomes intense on the slightest jar, often felt above the eyes more than elsewhere or on top of the head, dizziness and vomiting, prostration and delirium. The pain requires large doses of morphin and occasionally chloral added to induce sleep. It lasts until the discharge begins, when it is markedly lessened and only recurs at times by jerks. In four or five days the symptoms improve, except the discharge, which continues a week or two longer, when recovery seems complete. The recovery, however, is apparent only; in a large number of cases the sinus remains hypersensitive for years after. With drainage in acute empyema the nasal mucous membrane often becomes soggy with consequent obstruction to the free passage of air; if the pus is confined, pain may be very severe. These symptoms vary somewhat, depending on the severity of the infection.

In chronic empyema the mucous membrane becomes thickened by marked formation of fibrous tissue. There is a tendency to occlusion of the ostia through swelling of the membrane due to especial tenderness and looseness of the lining membrane, round cell infiltration, gradual proliferation of the epithelium, which in some cases is absent in spots, being replaced by granulation tissue (Skillern). In chronic empyema the most troublesome symptom is usually discharge with hawking and spitting, dry secretion in pharynx and sometimes crust formation in the nose. This discharge may be thick and pasty, clinging to the postpharyngeal wall or be blown out of the nose in large quantities. The most troublesome condition, however, is not during the most active suppurative stage but after the secretion has changed to mucopurulent or ceased entirely. A very large number of patients never recover completely. After suppuration has ceased, sometimes years afterward, the most troublesome symptoms occur. Now we find the mucous membrane in the cells so thin that it can only be detected microscopically and very often in my experience is absent altogether, in fact the cell wall has the appearance of "milk white." Polypi occasionally are found within the cells.

The after-symptoms induce the patient to seek the advice of the rhinologist. The most prominent symptoms we now encounter are the following: Headache over the bridge of the nose, or either side, or over the eyes and forehead, on top of the head, or base of brain, scotoma, inability to read but a few minutes, complaint of having hay-fever all the time, hawking and spitting during cold, damp weather, want of concentration, finally ending in neurasthenia. The pain descends toward the shoulder, or follows the course of some nerve branch remote from the seat of the disease. If pus is still discharging intermittently, pus cells only are found, or in some instances isolated cocci. General malaise, anemia, diarrhea, at times loss of appetite and even indican in the urine and deficiency in phosphates may be present. A most harassing symptom occasionally is cough without raising anything, which lasts four, six or even eight weeks; recurring once or twice each year. And in this condition, which I now designate latent ethmoiditis, is the time when the sensitive nerves manifest their irritability. But in a goodly number of patients we find vitality low, blood pressure below normal, heart sounds weak, especially the second. Some patients say they frequently catch cold which lasts several weeks; some sneeze periodically, others have watery discharge for days. Some complain of but one symptom, while others exhibit a number of them. They vary in intensity and degree. Comparatively few patients refer them to the nose. The symptoms vary from pain and semiannual discharge of pus, mucopus or watery substance, to cough, tracheitis, bronchitis, pain in the region of the stomach and abdominal distention with gas. The bacteriologic findings likewise vary. Commonly pus cells only are found, occasionally staphylococci, rarely pneumococci and seldom isolated groups of streptococci. In one case of succeeding attacks of subacute ethmoiditis, the influenza bacillus is always found. Some have dry throat and in one case accompanying pain with sleepiness.[1] Most of these patients are relieved by opening the cells and removing at the same time the middle turbinate bone. Occasionally puncturing the anterior cells will give instant relief of pain. Palliative treatment with cocain, epinephrin and antiseptic sprays or washes seldom relieves the symptoms. Although these cases seldom terminate fatally, suffering is often unbearable.

One patient with a history of thick discharge from the nose some years before had now this irritating result, coughing day and night for six weeks. Examination showed a latent sinusitis; but as there was also some burning sensation during micturition, I advised an examination of the urine, in which were found albumin, casts and blood cells. Treatment directed to this relieved all symptoms without operation.

A second case of chronic suppuration involved the antrum also, as well as frontal sinuses, with severe frontal headache. Here the urine was loaded with albumin; although the patient was suffering severely, I sent her home to have her physician treat her first.

A girl, aged 12 years, with orbital abscess, became totally blind in one eye before I saw her. The pus was evacuated, the involved antrum drained and she recovered without operation on the cells. Sight, however, was lost.

In another case, in which the disease involved the frontal sinuses and antrums, the bone was so softened that a sharp spoon easily penetrated to the brain. The brain was bathed in pus to the extent of half its surface. This was of course syphilitic. I have also seen epilepsy of recent origin and asthma both relieved by draining the cells.

In my cases I found chronic empyema more often bilateral than unilateral.

In consultation I have seen but four cases which terminated fatally, besides two private patients, both physicians. One of these, aged 27, with a previous history of suppuration, had an attack of scarlet fever; on the eighth day, while sitting up, he was suddenly attacked with pain. He made his own diagnosis, remembering his previous attack. He died the third day of meningitis.

The second patient was a physician, aged 35, run down from hard work. The cells had been drained a year previous to the attack. Pain was mostly in the forehead. The discharge was intermittent up to this time. He was seen by several physicians and surgeons. A diagnosis of meningitis was made. Decompression was done while the patient was unconscious but he died at the end of two weeks. All the fatal cases were meningitis, and the ages ranged from 12 to 35 years.

I have never seen caries in empyema except in syphilis. Twice I have seen epilepsy, and in two cases asthma of recent origin, all relieved by the ethmoid operation, one epileptic permanently. In all my cases I have had only two unilateral cases, and one of them was due to a foreign body which was in the nose for seven or eight years.

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[1] A chiropractic cured his sleepiness by hitting him on the back of the head (!) (neurasthenic).

COUNTY HEALTH ADMINISTRATION *

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Importance.—In the whole range of conservatism, iere is probably no subject of greater importance at iis time than that of county health administration. ounty health administration is important, first, on ccount of the size of the field, and second, on account f the stage of the development of the problem.

In size the field embraces approximately three thou- ınd counties or rural governments in the United tates. For 53 per cent. of the population of this ountry the county government is the nearest, the most irect, and the most responsive government; for this iajority of our people the county or rural government ; the nearest approach to the ultimate object of all overnment, to wit, intelligent self-control.

The present state of development of the county ealth government is embryonic, plastic, susceptible to irection. If organized influences, like that of this ssociation, if centralized agencies, like that of the ederal government, the international health commis- on, and the state governments are to play a part in ie development of an efficient county health govern- ient, now of all time is the time for action. Today ounty health administration is a twig; tomorrow it ill be a well-formed or ill-formed limb.

Two Points of View and Two Methods.—One point f view of county health work is that of business effi- ency; another is that of democratic administration. usiness efficiency and democratic administration are ot synonymous terms. Most of those who would stablish county health work on a basis of business ficiency advocate a centralized form of health gov- nment; they advocate the direct or indirect appoint- ient of the county official by the state officials, and iey further advocate a large degree of control over ie county official by the state officials. The majority f this group advocate, as a method for securing ounty health work, the enactment of state laws quiring all counties, or counties of certain wealth id population, to employ whole-time county health ficers. Their method is that of conscription. On the her hand, those who would establish county health ork on a basis of democratic administration believe giving larger powers to the county authorities in th the selection and direction of their county health ficer. This group, instead of appealing to state legis- tures to enact bills requiring counties to do certain ealth work, advocates the direct appeal, through ounty campaigns, to the people of the county, with ie hope of persuading the people to voluntarily ssume their responsibility in the conservation of iman life. Their method is that of the volunteer stem. This group concedes that county health work ill develop probably more slowly by this second ethod, but they maintain that when developed, it will ive less of the weakness of the mushroom and more the strength of the oak.

Two Kinds of County Health Work.—At present ere are two kinds of county health work in process development: first, the whole-time county health ficer, and second, the unit system of county health ork.

The whole-time county health officer scheme has as its principal advantage its relative stability as a means for accomplishing county health work. It has as its principal disadvantage the absence of a definite plan of work. This fundamental defect in the whole-time county health officer scheme is too much overlooked by the advocates of the whole-time health officer. In recent years we have heard much and read much about the whole-time county health officer, but, so far as I know, no one has as yet defined, written out in workable details, a plan of work for the whole-time county health officer. We have put the cart before the horse. We have advocated and obtained a structure before defining the function of the structure. Under natural law function precedes structure. Someone has said that the first article in the conqueror's creed is "Have a plan." The whole-time county health officer advocates have no plan of county health work.

The unit system of county health work lacks the continuity and the stability of the whole-time county health officer proposal. On the other hand, the unit system offers, primarily, an absolutely definite, clear-cut plan of work, and offers, secondarily, a means for executing the plan; moreover, the unit system is extremely flexible in its financial demands on counties, and is applicable to ten counties where the whole time health officer proposal is applicable to one.

The fundamental principles of the unit system are: (1) a division of the total county health problem into a number of smaller, independent health problems or units of health work, (2) the state's entering into a contract with the county to handle through its own agents one, two, three or more of the separate problems, according to a detailed plan for a specified county appropriation.

As an illustration, the typhoid problem of a county is independent of its tuberculosis problem, its contagious disease problem, its medical inspection of schools problem, its periodic medical examination problem, its malaria problem, and many other of the local health problems. One of the most effective and economical ways of attacking the typhoid problems of a county is to vaccinate a large number of the county people against typhoid fever. The vaccination protects those who have been vaccinated, and it educates others to resort to vaccination later when typhoid fever occurs in their neighborhood; moreover, in the county campaign for typhoid vaccination, a great deal of educational work against typhoid fever is carried on. Without entering into a description of the details of the plan, I may say that in twelve counties of one state in which this plan was carried out 52,000 people were given complete vaccinations. The average population of these twelve counties was about 25,000. An average of 4,300 people per county were vaccinated at a cost to the county of somewhere between $500 and $600. This year the same vaccination campaign is being carried on at a cost of $400 per county. This county appropriation pays about 80 per cent. of the actual cost of the work to the state board of health. I shall not here describe the details of the plan of campaign for typhoid vaccination; those who wish these details, forms, placards, newspaper articles, budget, etc., can get them for the asking.

Another unit of county health work that has been successfully carried out is a unit that provides a complete medical inspection of the schoolchildren of the county plus an extensive educational sanitary campaign through the schoolchildren and the grown people of a school community. The state board of health can carry into effect this unit of county health work at an expense of about $10 for each school in the county, that is, in the average county, for an appropriation of from $400 to $600. Those who wish the details of this plan of work can get them by communicating with me.

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* Read before the Section on Preventive Medicine and Public alth at the Sixty-Seventh Annual Session of the American Medical sociation, Detroit, June, 1916.

There are other units of county health work in process of development. The federal children's bureau is undertaking to work out a county unit of infant hygiene work. Still another unit that will shortly be attempted is directed to finding the common diseases incident to the age period of from 30 to 60 in their incipiency and of educating the people as to the means for postponing the inception and progress of this important group of diseases.

The Relation of the Unit System to the Whole-Time County Health Officer.—First, the unit system provides those counties that cannot employ a whole-time health officer with an economic and effective means of dealing with their more important health problems until such a time when these counties can establish a more expensive and more comprehensive form of health government. Second, the unit system, by taking definite county health problems and finding effective ways in which to solve them, is going to have a most important influence in the development of a plan of county health work. I should not be surprised, in fact I expect to see the plan of the whole-time county health officer, when it is fully developed, consist largely of dealing with one or two of his health problems at different seasons instead of attempting to deal with all or most of his problems at the same time. The principal reason for believing that the unit system will devise the plan for the whole-time health officer is that the unit system begins with a plan and is carried out by specialists. For example, those who carry out the medical inspection unit do not carry on the infant hygiene unit, and vice versa. These men dealing with the several independent parts of the county health problem are in a much better position to devise and develop effective plans for dealing with different phases of county health work than the whole-time county health officer, who, in the nature of the case, has to be a general man.

ABSTRACT OF DISCUSSION

Dr. James A. Hayne, Columbia, S. C.: The plan of allowing a county to decide whether it will have a county health officer or not necessarily carries with it the right to decide what kind of health officers they are going to have in that county, and what kind of laws they are going to have. As we know the individual, we know that he requires a good deal of prodding and a good deal of encouragement to do the right thing. And, if he is allowed to select his own driver, he is going to select a driver who is going to make him go very slow and do very little work. Whereas, if he has a driver picked out for him, a man who intends to get all he can out of the community and make it work, even for its own good, as hard as possible, we had better let the selection of that driver come from an intelligent central body rather than from an unintelligent proletariat.

Dr. H. M. Bracken, St. Paul: Until recently I could not understand why Dr. Rankin was succeeding so well with county health organization in North Carolina. The county is the health unit in North Carolina. This makes it possible to approach the county officials with a business proposition to the effect that if they will spend a certain amount of money they can get a certain amount from the state. This is most helpful in securing county health organizatio If I understand rightly, Dr. Rankin appears to be somewha fearful now that health organization along certain lines i not entirely free from danger. This rather bears out th argument in favor of districting a state and gradually sub dividing the districts until we reach the county as the fina district. The district plan has a further advantage, for th number of trained health officers is at present too small t supply the demand if whole time county health officers wer called for.

Dr. J. N. Hurty, Indianapolis: I believe in the count unit. In Indiana we have been carrying on an intensifie public health compaign for several years. In each count we have a county health commissioner. But he is a prac titioner of medicine, and you know what that means. Th time which he shall give to public health work is not pre scribed. He gives just as much as he pleases, and most o them please to give very little, in spite of all the prodding tha we can give them. In spite of the fact that they have take a responsibility that they should fulfil still they raise th cry, "We are not paid enough." They will never be pai enough unless they are all-time health men. The count is the unit of state government in all the states, I believ They levy their own taxes; they build their own bridges build their own roads, and they conduct their own schools and all of their departments report directly to a centra state department. Why should we vary when we come t the health work. I will acknowledge that it would be good thing to have district health officers, but it is bette to have county health officers. In Indiana the preser county health officers under the law are eligible for reap pointment, but they must give up the practice of medicin and accept the situation and the pay, whatever that ma be, that would be provided. There is also another provisio that the officers who come hereafter shall be men who hav passed a civil service examination, also a physical examina tion; they must be physically as well as mentally fit. The must not be addicted to drugs or to alcohol, and may b discharged if they ever become addicts. The appointin powers will be vested in a special board consisting of th county superintendent of schools, the auditor and the count treasurer. That board must appoint from the eligible lis We do not anticipate any trouble about securing officer. but the first set of officers will not be as good as we wan and they will not be all trained, but they will become traine in time.

Dr. O. B. Nesbitt, Gary, Ind.: At one time I was on of Dr. Hurty's county health officers, and I was also presi dent of the local county medical society. That societ appointed a committee on public health which got after th candidates for county commissioner and the candidate fo mayor and brought about the union of the city and count health departments. That city had about 10,000 pop ulation, and the health officer's salary was about $300 year; the county health commissioner was drawing abou the same salary, and we were trying to maintain two depart ments. This committee decided that what we would ge them to do would be to consolidate their departments, an then we would get an appropriation for a deputy that migh be adequate to employ somebody who could carry on a littl greater health work, and the salary for the combined com missioner might be sufficient for mere overseeing purpose We did get an appropriation; we did bring about the unio A surgeon was appointed at the head of the department, an he was a very good man. We got a deputy health commis sioner, and an appropriation from the county and city coun cils that enabled us to carry on what Dr. Hurty has said i his bulletin was quite a progressive little public healt department. But, what happened? We had to change th deputy about three times the first year, because we did no have an experienced overseer, and the result was tha the county council would not make any further appropria tions.

Another example of small community work not well over seen is in the Lake County District in which I am now work ing. I am now devoting my time to the Gary public school that community we have several small cities and within e last three years we have had three public health labo- tories develop in these small cities. Gary has had four boratory men since the change of two years ago and not one them has ever come out of a public health laboratory. hey have come out of commercial laboratories, water boratories, but not one of these men have had any gen- al public health training unless it be a week or so in the ate laboratory, or in a Chicago laboratory or something ce that after they had been selected.

As I view it we stand in need of experienced district directors ho in this instance would have charge of the health partment development of the district. When the unit is too nall it cannot be well supervised. We need people with iblic health vision and experience to take charge of dis- icts who can develop a constructive work that will not ejudice the public, the business men and the people who ve to do with the public funds.

Dr. Watson S. Rankin, Raleigh, N. C.: The fundamental fference of opinion, I think, is whether in building up unty health work we shall work from the state capital it or from the county in. In Illinois, with the district alth officer plan, they are now spending $20,000 a year. hen Illinois secures the forty-five district health offi- rs which they estimate as the ultimate development of is scheme of local health work, the state will be spend- g something like $180,000 a year. The districts and coun- s in which they spend this money will be spending noth- g. These counties will be doing nothing for themselves, it will be having their local work taken care of by state encies. This is not the principle of local self-govern- ent, the foundation of a democracy. Now let us reverse is picture. Suppose that instead of appealing to the state, e general assembly, to provide for the local health work the counties and districts we go to these districts and unties and, by educating them to the needs and value of alth work, persuade them to appropriate their own money d to do their own work—in short, to take care of them- lves instead of being taken care of by somebody else. is is democracy. This is what we all profess to believe. . Hayne says that a division of governmental responsi- lities and duties, working from the state government down- rd through counties, townships, and ultimately to the indi- dual, is democracy reduced to an absurdity. So it is. But we improve the situation by accepting the principle of ntralization carried to its ultimate end? The individual elds to the township, the township to the county, the county the state, the state to the nation, the nation to an interna- nal governmental agency, and we see that an absolute ntralized government is as absurd as an absolutely decen- lized government. We must strike the happy medium, e medium of practicability and common sense, the medium rough which the individual and the local community are ught and encouraged to take care of themselves as much possible and to be as little dependent on the state as ssible. Dr. Hayne speaks of driving the people, or the gislature making them do. You cannot drive people. The eatest leader the human race ever knew and ever will ow was significantly called a shepherd. You can educate d lead but you cannot drive. And it is more sensible to peal direct to them and to persuade them to act and take re of themselves than by appealing to a legislature to empt to force the people to act.

Prevalence of Syphilis.—Since February last the Wasser- nn test has been made on the serum of every patient mitted to the Boston Marine Hospital. Up to October cases were thus tested, and seventy-seven, or 24.7 per it., were positive. Readmissions and faulty specimens ve been excluded from this series, and doubtful reactions ve been considered negative. Of these seventy-seven, only neteen were obviously syphilitic. Eleven cases obviously philitic gave a negative reaction because of recent treat- nt. Including these, the total incidence would be raised 28.2 per cent.—*Public Health Reports*, No. 27, Nov. 24, 1916.

THE SCOPE OF INDUSTRIAL HYGIENE *

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Your committee was appointed at the last annual meeting to outline the immediate problems of industrial hygiene, and the relations of the medical profession to their solution. The importance of these problems is being increasingly recognized, not only because the lives and health of approximately thirty million workers are affected, but because the industrial development of the country is involved.

With the great development of modern industrialism, in which the mutual relations between master and man were replaced by the conflict between capital and labor, many senseless abuses, economic and social, arose. Among them may be mentioned insanitary environment in tenement and workshop, low wages and unreasonable hours, speeding up, seasonal occupation, unemployment, and the existence of a large labor reserve.

In addition to these abuses mention must be made of the stream of newer and unskilled labor, for which no proper and definite channels of distribution were provided.

Equally objectionable abuses by labor, on the other hand, such as strikes, accompanied by violence and intimidation, have also encouraged misunderstandings, with the result that a wasteful warfare has been permitted to continue more or less constantly, thus threatening our economic and social success, as well as the public health.

This unsatisfactory state of affairs, and especially the increasing economic pressure, has compelled the more thoughtful elements of both groups, stimulated by a growing public sentiment, to search for a remedy.

In studying the situation one fact stands out prominently, and that is that the great mass of the workmen has been denied the opportunity of enjoying, even in reasonable degree, healthful living and working conditions.

This situation has furnished a common ground on which all parties interested could meet and agree. As a result, the past decade has witnessed the development of industrial hygiene to a considerable degree, thus paving the way for further mutual adjustments and compromises.

It is obvious that no narrow conception of the field of industrial hygiene can be regarded as common ground on which capital and labor may meet or be expected to establish the modern counterpart of the former relation of master and man. It is the broader conception of the importance of the health of the worker which has introduced the physician into industrial management.

As Dean Marquis says, it is the duty of the factory doctor to promote understanding between employer and employee, to take drudgery out of labor, and to maintain interest in the individual, in other words, to put a soul into his corporation. The right man in this capacity will stamp out much bitterness and readjust human relations.

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

There is also an economic reason for the existence of an employees' service department, which will not only look after the physical needs, but also consider them in respect to mental and moral needs.

From the foregoing it is evident that a large field of opportunity is open to the physician in industry, but his professional and social value will depend entirely on his personality. If he would succeed, he must be able to deal with social as well as medical problems, in other words, deal with individuals rather than cases.

The scope of activities and opportunities of those engaged in industrial hygiene had perhaps best be outlined in the order in which it has been undertaken in industry, as follows:

1. First aid to the injured, followed later by complete surgical attention with maintenance of surgical hospitals.
2. The safety first movement, with consequent studies of the causes of injuries and the measures necessary for their prevention.
3. Inquiries into the physical status of workers in relation to accidents, and physical examination of workers. It was this latter activity by itself that aroused the opposition of organized labor, because physical examination per se merely eliminated the physically unfit without concern for their future health or welfare.
4. Medical supervision and care of employees, which marked the real step in the humanization of industry, because it gave the workman knowledge of his own physical defects, fitted him to jobs for which he was physically suited, and prevented overfatigue of body and mind.
5. Sanitation of places of employment, including water supply, sewage disposal, light, heat, ventilation, and personal comforts such as rest rooms, recreation, and luncheon service.
6. Sanitation of environment outside the workshop, including prevention of overcrowding and giving encouragement to the accumulation of property.
7. Consideration of the health and habits of the individual which makes for efficiency. In the event of a close enough personal relation having been established between the worker and the personnel of the employees' service department, advice in respect to personal habits and worries, domestic and financial difficulties will undoubtedly at times be sought with resulting benefit to all.

Helpful interest, looking to a prevention of alcoholism in the worker is another case in point. In fact, it is to intelligent industry, which refuses employment to the alcoholic and thereby places this problem on an economic basis, that we must look for a final solution of drunkenness.

8. Stimulation of interest in the formation of sickness and insurance societies, that is, mutual aids, and the establishment of old age pensions and death funds.

In addition to the above, those engaged in industrial hygiene within a circumscribed area have duties to perform outside that area. Coöperation with others in like fields is necessary and research must be undertaken in order to provide solutions of problems of national interest. Two of these are the prevention of alcoholism and the development of a system of mutual helpfulness by means of insurance.

Fortunately opportunity is presented for such coöperation through agencies, such as this section of the American Medical Association, and through the Association of Industrial Physicians recently formed. In addition the house of delegates of the American Medical Association is actively interested in a broad study of health insurance, in order that the whole medical profession may be prepared in due time to take its part in this matter.

At present for the most part the expenses of industrial hygiene are borne by the management. The workers who have a large degree of responsibility for health conditions are the recipients of the benefits, but do not share proportionately in the expenses. The public, too, benefits without sharing in the expense. It is therefore but just that these three groups which are responsible should meet their responsibilities by collective action under a well-thought-out plan of health insurance. An adequate health insurance system, national and state, when put in operation, will not only increase efficiency and enlarge the opportunities of the medical profession for good, but will also be a powerful means of reducing sickness and promoting health.

THE ABILITY OF BRAIN TISSUE TO TAKE UP WATER IN DELIRIUM TREMENS AND OTHER CONDITIONS

A STUDY OF CEREBRAL EDEMA *

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The presence of an edema of the brain in many instances of delirium tremens and its absence in many brains of patients dead of the same condition is well known. As yet, however, a satisfactory explanation of the presence or absence of this edema has not been found.

Following the enforcement of the Harrison Narcotic Law, many drug users turned to alcohol as a substitute. A notable increase in the number of patients suffering with delirium tremens has been the result, and the availability of a number of bodies for postmortem examination has prompted this study.

In considering this question it has seemed that two hypotheses are especially worthy of investigation: First, is the presence or absence of brain edema entirely dependent on conditions within the brain cells themselves? Or, second, is the presence of an edema dependent on the availability of fluid? That is, may the brains of delirium tremens patients be nonedematous in many instances because sufficient free fluid is not available to permit an edema? Determinations of hydration capacity of brain tissue offer a means of attacking this problem, and we have therefore investigated water absorption by brain tissues from people dead of delirium tremens and from other diseases. We have used normal brains as controls, these being from the bodies of persons dying suddenly from gunshot wounds, etc.

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* From the Pathological Laboratory of Rush Medical College.

* Read before the American Association of Pathologists and Bacteriologists, Washington, D. C., May, 1916.

The histologic changes occurring in the brains of chronic alcoholics are well known. They include[1] vacuolization and high grade degeneration of the nerve cells with atrophy and shriveling, fatty infiltration of the medullary substance, dissolution of the chromatin structure, inflammatory infiltration of the pia and internal hydrocephalus. In delirium tremens, in addition to these changes, an edema of the leptomeninges is frequently present and most marked when coma or semicoma has preceded death for some time. Such patients are sometimes referred to as having a "wet brain." This edema is characterized by a distention of the meshes of the pia-arachnoid, whereas the brain substance itself may not contain a relatively marked amount of fluid.[2] It is this edema with which we are concerned.

TABLE 1.—DELIRIUM TREMENS

Case	Hours Dead Before Examination	Gain in Weight, per Cent.
1	12	92
2	10	82
3	12	52
4	20	75
5	32	64
6	21	62
7	15	86
8	48	72
9	19	52
10	23	74
11	31	63
12	19	73
13	25	85
14	24	65
15	2	52
16	26	61
17	22	65
18	2	56
19	24	86
20	12	90
Averages	21.1	70

Fresh human and rabbit brains were used in this work, the brain tissue examined always being taken from the temporal lobes. The causes of the death include a long list of diseases such as tuberculosis, pneumonia, meningitis (tuberculous and syphilitic), nephritis, acute surgical conditions, senility, heart disease, drug poisonings, cerebral hemorrhage and embolism, uremia, delirium tremens and sudden deaths from various causes. The rabbit brains were obtained from animals fed alcohol daily for several months, in doses sufficient to intoxicate them.

METHOD

In order to determine the power of the brain to imbibe water the following method was devised: One gm. of brain tissue, weighed accurately on a delicate balance, was placed in a test tube which contained 5 c.c. of methylene blue solution. The tube was then corked and placed in an ice box. At the end of twenty-four hours the tube was shaken and again replaced in the ice box. The methylene blue solution contained 10 grains of Grübler's methylene blue, dry powder, to each 200 c.c. of distilled water, making a 0.03 per cent. solution. At the end of forty-eight hours, the brain tissue was removed, as much fluid as possible being allowed to drain back into the test tube, and dried for five minutes on linen cloth. Then it was carefully weighed. The amount of water taken up by 1 gm. of brain tissue is expressed as a percentage. Thus, 1 gm. or 1,000 mg. of brain, after immersion in fluid forty-eight hours, weighed 1,623 mg. Six hundred and twenty-three mg. of water were taken up by the tissue, a gain of 62.3 per cent.

The methylene blue solution in which the tissue had been immersed was then placed in a colorimeter chamber and compared with a 0.03 per cent. solution of methylene blue. The degrees of decolorization of the methylene blue solution by different brains as read on the scale of the colorimeter, that is, the weight of the dye absorbed from a unit volume of solution by a gram of brain tissue, was found to vary in direct proportion to the weight of water taken up by the gram of brain tissue. But the whole range of intensity was between 25 and 30 on the scale, so that slight changes could not be determined with this method. For this reason more dependence was placed on the amount of water taken up by the brain tissue at the end of forty-eight hours, since this was accurately determined by weighing. The tissues were allowed to remain in fluid forty-eight hours because it was learned that no more water was absorbed after that time.

RESULTS

Brain tissue from approximately 150 bodies was studied in this manner. Tables have been made by placing the results obtained with brains from people dying of pneumonia in one group, of delirium tremens in a second group, etc. Finally one large group of forty concerns patients dead of various diseases, such as heart trouble, senility, tuberculosis, etc. The number of hours that elapsed between death and the time the tissue was placed in fluid is recorded for each.

In determining how much water a normal brain will absorb when immersed in fluid forty-eight hours, we have used as controls the six instances of sudden death in Table 3. From the circumstances under which death resulted and from the postmortem examinations, one may justly assume that they were normal brains.

TABLE 2.—GENERAL DISEASES

Case	Hours Dead	Gain in Weight, %	Causes of Deaths
1	22	58	Generalized miliary tuberculosis
2	72	67	Secondary anemia
3	25	63	Gunshot wound of the trunk
4	7	36	Senility
5	7	65	Fracture of femur unhealed with gangrene
6	24	60	Suppurative peritonitis
7	24	70	Heart disease
8	6	63	Postoperative peritonitis
9	29	36	Gangrene of lung
10	48	66	Suppurative otitis media
Average (40 cases)	21.3	64.5	

The average amount of water taken up by 1 gm. of each of these brains in forty-eight hours was 645 mg., or 64.5 per cent. of the original weight. Thus 64.5 per cent. increase in weight is the increase which we may expect in a normal brain under the given conditions. The average increase in weight of the brains from general diseases, Table 2, was almost identical, 64.6 per cent. From this one may infer that the general diseases included in Table 2 have practically no influence on the factors which determine how much water the brain tissue will absorb. Brain tissue from persons dead of delirium tremens (Table 1) took up

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[1] Alzheimer, quoted by Bumke: Handbuch der Neurologie von Lewandowsky, 1912, iii, 1027. Braun: Ueber die Experimentelle durch chronische alkoholintoxikation hervor gerufenen Versanderungen in central and peripheren Nervensystem, Tübingen, 1899.

[2] Le Count, E. R., quoted by Sceleth and Beifeld: Cerebral Edema in Chronic Alcoholism, Am. Jour. Med. Sc., 1915, cxlix, 881.

6 per cent. more water than either of these groups. Brain tissue from persons dead of cerebral embolism. cerebral hemorrhage and uremia gained 73.5, 74.3 and 71 per cent. in weight, respectively. The initial percentage of water in these brains at the time of study was not determined, so what percentage of water was imbibed per gram of dry substance cannot be stated; but in 45 per cent. of the higher coefficients of water absorption the tissues were already edematous, which would suggest that the increase of weight reckoned on the basis of dry substance would have been similar.

TABLE 3.—SUDDEN DEATH

Case	Hours Dead	Gain in Weight, %	Causes of Deaths
1	34	70	Stab wound of heart
2	34	79	Asphyxia; stenosis of larynx
3	11	80	Gunshot of the trunk
4	26	55	Rupture of heart aneurysm
5	12	55	Gunshot of brain
6	27	48	Thrombosis of coronary artery
Average	24	64.5	

The possibility of colloids playing a rôle in the absorption of water by plants was first suggested by W. Pfeffer,[3] Hofmeister,[4] and Durig;[5] and Paule[6] expressed similar views with reference to the swelling of animal tissues. Since that time much evidence has accumulated to show that the colloidal condition of the substance in a cell is chiefly responsible for the amount of water held by that cell.[7] Fischer[8] has demonstrated that the absorption of water by nervous tissues (brain and spinal cord) is analogous to the absorption of water by protein colloids. He has also emphasized that increase in acid content of protein gels such as gelatin and fibrin results in a swelling of the colloid if water is available. The higher the concentration of the acid, up to a certain point, the greater will be the swelling, other factors, such as salt concentration, etc., remaining the same. Thus it has been shown that the acid content of a protein jelly is one of the chief factors in determining the degree of imbibition of water by that colloid.

If we accept Fischer's conception that an increased acid content in a tissue is the common determining factor in increased hydration capacity, the results obtained in this work are very tangible. It has been fairly established that any interference with the respiration of a cell, that is, any condition tending toward an asphyxia of that cell, results in an increase in the acid content, the increase depending on the degree of asphyxia. Therefore, we should expect brain tissue to take up the largest amounts of water in those conditions in which the highest degrees of cell asphyxia occur. Morphin, in sufficient doses, produces cell asphyxia with acidosis. In this connection it is interesting that brain tissue from one case of morphin poisoning examined by us took up 84 per cent. of water.

Cerebral hemorrhage and cerebral embolism gave the next highest results in our tables, an increase in the water content of 74.3 and 73.5 per cent., respectively. In these conditions an extreme interference with the cerebral circulation was present, and this must have resulted in a severe cell asphyxia.

In uremia the brain tissue increased 71 per cent. in weight. This high percentage of water absorbed is also capable of interpretation as due to acidosis known to occur in this condition. In one of these instances death was due to an occluding thrombus in each renal artery.

Brain substance from seven cases of pneumonia gave an average increase in weight of 66.3 per cent., sixteen cases of skull fracture 68.7 per cent., two cases of tuberculous meningitis 66.5 per cent., and for three cases we can offer no explanation of the slight avidity for water shown by pieces from the brains, all possessing evidence of a syphilitic infection; their average was 51.7 per cent. The following are brief accounts of these cases:

Case 1.—*History.*—H. W., man, aged 35, became unconscious suddenly in bathroom, and when seen by Dr. C. W. Courtright, to whom we are indebted for this information, the patient was paralyzed, speechless, the left arm and right leg motionless, eyes staring, "right arm across the chest and spastic, left thigh raised with leg flexed and at times slightly extended and then again flexed, feet extended on the ankles and spastic with toes drawn up." Apparently he could not hear and gave no evidence of consciousness.

Three days later he was admitted to the Cook County Hospital to the service of Dr. Vaughan, and a diagnosis of meningitis was made; but the cerebrospinal fluid was found clear and with positive Nonne and Noguchi reactions for syphilis. Death occurred at the end of twenty-four hours of unconsciousness in the hospital.

Anatomic Diagnosis.—Syphilitic leptomeningitis; marked edema of the brain; general anemia; lumbar needle puncture wounds; slight sclerosis of the basilar arteries and aorta; hyperplasia of Peyer's patches in the bowel; multiple minute gummatous scars in the periphery of the liver; nearly empty bowel; slight hyperplasia of the thyroid gland; slight sordes of the tongue; slight atrophy of the spleen; hypostatic hyperemia and edema of the lungs; moderate atrophic emphysema of both lungs; hypostatic hyperemia of the mucous membrane of the pharynx, stomach, esophagus and rectum; slight fibrous thickening of the pleura at the apex of the right lung; adventitious fibrous adhesions between (1) the under surface of the liver and the tissues in front of the right kidney, and (2) the mesosigmoid and the left wall of the abdomen; coal-dust pigmentation of the lungs; carious and dirty teeth with absence of some; retrocecal appendix vermiformis; postmortem bruises on the right thigh; postmortem autolytic softening of the myocardium; postmortem digestion of the lining of the esophagus.

TABLE 4.—SPECIAL DISEASES

Disease	Number of Cases	Average Hours Dead	Gain in Weight, per Cent.
Uremia	3	40	71
Pneumonia	7	19	66.3
Skull fracture	16	21	68.7
Tuberculous meningitis	2	19	66.5
Syphilitic meningitis	3	27.7	51.7
Cerebral embolism	6	35.5	73.5
Cerebral hemorrhage	9	15.8	74.3
Morphin poisoning	1	13	84

Description of the Brain.—The leptomeninges are thickened and opaque with milky white fibrous thickenings dipping into the sulci and along the vessels, and raised by fluid under them. The thickenings are especially marked in both the right and left frontal lobes, in the sylvian fissure and in the postcentral and precentral gyri.

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[3] Pfeffer, W.: Pflanzen Physiologie, 1897, i, 116.

[4] Hofmeister: Arch. f. exper. Path. u. Pharmakol., 1891, xxviii, 210.

[5] Durig: Arch. f. d. ges. Physiol. (Pfluger's), 1901, lxxxv, 401.

[6] Paule: Ergebn. d. Physiol., 1907, vi, 126.

[7] Pribram, E.: Kolloidchem. Beihefte, 1910, ii, i. Bechold, H.: Kolloide in Biologie and Medizin, Dresden, 1912. Arnold, R.: Kolloidchem. Beihefte, 1914, v, 411. Traube: Arch. f. d. ges. Physiol. (Pfluger's), 1911, cxi, 109. Klose, H.: Arch. f. Kinderh., 1910, iv, 43. Potzl, O., and Schuller, A.: Ztschr. f. d. ges. Neurol., 1910, iii, 321.

[8] Fischer: Kolloid-Ztschr., 1912, x, 292. Oedema and Nephritis, New York, J. Wiley and Sons, 1915.

The left occipital lobe is pigmented a dark reddish brown, especially on the mesial portion.

The arteries of the base of the brain are white, glistening, thickened and gaping.

The lateral ventricles are slightly distended, and measure 8 mm. transversely from the anterior commissure.

The surfaces made by sectioning are pale.

Case 2.—*History.*—H. M., aged 35, became ill soon after sentence to the house of correction for larceny, with a delirium thought to be delirium tremens which developed into unconsciousness and death at the end of three weeks. There was no history of alcoholism.

Anatomic Diagnosis.—Acute emaciation; slight diminution in the yellow material of the suprarenal glands; edema of the brain; focal atrophy of the cerebral cortex; healing abrasion of the right leg; superficial decubital ulcer of the sacrum; mucopurulent left otitis media; moderate hyperplasia of the solitary lymph nodes of the bowel; hypostatic hyperemia of the mucosa of the small bowel; miliary gummatous scar of the liver capsule; syphilitic scars of the leptomeninges and legs; syphilitic (?) scars of the spleen; syphilitic (?) atrophy of the right testicle; slight diffuse syphilitic (?) sclerosis of the liver; slight syphilitic sclerosis of the aorta; healed thrombo-ulcerative aortic endocarditis; bile-stained mucous lining of the small bowel; carious "fanglike" teeth; absence of many teeth; fibrous pleuritis; fibrous adhesions between the cecum and the front wall of the abdomen; stellate scar on the left side of the mesosigmoid; marked coal dust pigmentation of the tracheobronchial lymph glands; exposure pigmentation of the skin; scar of the left forearm; supra-arterial subepicardial fibroid nodules; pedunculated, partially necrotic, appendix epiploica; persistent, membranous eustachian valve; bile staining of the esophageal lining.

Description of the Brain.—There is a pit in the right postcentral sulcus 2.2 cm. long by 1.2 cm. wide by 0.6 cm. deep. The gyri around this pit are narrower and more rounded than normal. There are similar pits in the right and left fissures of Rolando. The sulci of the superior surfaces of both frontal and parietal lobes are wider, and gyri are narrower and more rounded than normal.

There is an irregular whitish thickening 2 mm. in diameter in the leptomeninges over the ascending limb of the right sylvian fissure. There are similar whitish thickenings in the left superior, middle and inferior frontal sulci and in the right fissure of Rolando.

On the surfaces made by sectioning the brain in the usual way the cortex is bluish gray, and the cavities of the lateral ventricles are slightly compressed.

Case 3.—*History.*—F. F., man, aged 36, entered the Cook County Hospital to the service of Dr. Loeb. He was a painter and had always been healthy until during the past year, when he became forgetful and nervous, and this was attributed to an injury of the head received by a fall from a street car. He was found unconscious on the street and brought to the hospital in coma. The spinal fluid was clear, under increased pressure, with positive Nonne and Noguchi tests for syphilis and a high cell content. From certain physical signs a diagnosis of mitral and aortic stenosis was made as well as "meningitis probably of syphilitic origin."

Anatomic Diagnosis.—Nodular (hyperplastic) syphilitic leptomeningitis; marked syphilis of the aorta; gummas of the liver; scar of the penis; scars of the right leg, left knee, and sacrum; lumbar needle puncture wound; goiter; bruise of the lumbar region; work-worn hands; vaccination scar of the left arm.

Description of the Brain.—Over the frontal and parietal lobes the thickening of the arachnoid and pia hide the contour of the convolutions. It is more spread out and thicker than the discrete gummatous scars which more commonly remain in the leptomeninges as evidence of a syphilitic infection.

The increased water absorption in the skull fracture group was undoubtedly due to circulatory interference from the torn vessels, blood clots, compression and laceration of brain tissue, frequently present. In pneumonia and in tuberculous meningitis it is possible that an increase in the absorption of water does not occur because antemortem factors tending to produce cell asphyxia are not present.

In delirium tremens there are probably at least three factors concerned in the absorption of water by the brain colloids. First, alcoholism has a detrimental influence on the brain, as evidenced by the atrophy[9] which occurs in the cortex of chronic alcoholics.[10] This may lead to impairment of circulation, asphyxia, etc. Secondly, cardiac weakness plays a rôle in chronic alcoholism. When of sufficient degree, cardiac weakness results in a deficient blood supply to the brain, and thus cerebral respiration is still further interfered with. Finally, alcohol is a narcotic. Like other narcotics it may produce a cell asphyxia directly. Alcohol or its derivatives have been demonstrated in the spinal fluid of alcoholics,[11] and twenty-four hours are required for their elimination from the spinal fluid following a debauch, according to Demole.[12] Grehant[13] gave a dog 58 c.c. of absolute alcohol and bled it to death at the end of four hours. By quantitative methods he recovered a larger quantity of the alcohol from the brain than from the muscles, liver, kidneys, or any other tissue of the body. This intimate contact of alcohol with the nervous tissue permits a maximum local effect.

TABLE 5.—RABBIT BRAINS

Case	Time Intoxicated Daily, Months	Hours Dead	Gain in Weight, per Cent.
1	4	1	101
2	4	2	81
3	1½	12	62
4	2	12	76
5	3	12	74
Average	....	8	78.9

Will chronic alcoholism in laboratory animals effect a similar behavior of the brain colloids? One of us (F. N.) fed many rabbits with alcohol through a stomach tube in gradually increasing doses in an endeavor to produce delirium tremens. This has been attempted by many investigators but has been uniformly unsuccessful, excepting perhaps in the single instance of Braun.[14] He believes he produced the condition in a dog. But Friedenwald[15] kept rabbits alive for long periods, the animals receiving sufficient alcohol each day to produce intoxication, with nothing, however, resembling delirium tremens.

Five of our animals ceased feeding, underwent marked emaciation, became extremely weak, and finally died, after having been intoxicated daily from one and one half to four months. These symptoms have been referred to by Friedenwald as characteristic of chronic alcoholism in rabbits. Intercurrent infections killed many of our animals, but these have been omitted from the series for obvious reasons. A gross edema of the brain was never observed in these animals. But the brain substance, when treated by the same method as the human tissue, gave an average increase in weight of 78.9 per cent. as compared with 70 per cent. increase in control rabbit brains when alcohol was not given. This increase, which is even greater than that of human brains is, we feel, very significant, and strongly suggests that similar factors may have caused the increased postmortem hydrations of both rabbit brains and brains of human alcoholics.

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[9] Atrophy of the cerebral cortex, aside from being frequently found at postmortem examinations on chronic alcoholics, has also been observed in the cortex of rabbits fed alcohol over considerable periods of time (Lissauer, M.: Experimentelle Leptomeningitis bei chronischer Alkohol vergiftung, Centralbl. f. allg. Path. u. path. Anat., 1913, xxiv, 337).

[10] Wassermeyer: Arch. f. Psychiat., 1908, xiiv, 861.

[11] Schottmüller and Schumm: Nachweis von Alkohol in der Spinalflüssigkeit von Saufern, Neurol. Centralbl., 1912, xxxi, 1020.

[12] Demole: Alcool et delirium tremens, L'encephale, 1914, ix, 7.

[13] Grehant: Recherches sur l'alcoolisme aigue; dosage de l'alcool dans le sang et dans le tissue, Compt. rend. Acad. d. sc., cxxix, 746.

[14] Braun, cited by Bumke: Die exogenen Vergigungen des Nervensystem, Handbuch der Neurologie von Lewandowsky, 1912, iii, 821.

[15] Friedenwald, Julius: The Pathologic Effects of Alcohol on Rabbits, The Journal A. M. A., Sept. 9, 1905, p. 780.

Assuming that the increase in the water content of the brain colloids during their immersion in fluid is dependent on the presence of acid in the cells, it is difficult to determine what proportion of this acid was present before death and how much was formed postmortem. Lactic acid can be detected in tissues from one to two hours after death, and gradually increases in amount for many hours. Other organic acids are also present. It would seem, however, that provided the time elapsing between death and the examination of the tissues was equal in several instances and the conditions under which these tissues were examined were uniformly the same, the formation of lactic and other postmortem acids would also be about equal. In that event the preformed acid and the antemortem conditions in the tissues would be responsible for the differences in the amount of water imbibed by the tissues we have studied, and it is with the antemortem conditions that we are especially concerned.

It was, of course, impossible to obtain our material at a given time after death. Therefore, the average number of hours elapsing between death and the time of examination has been recorded for each group in the series. The average elapsed time for delirium tremens was 21.1 hours, general diseases 21.3 hours, sudden death 24 hours, skull fracture 21 hours, cerebral hemorrhage 15.8 hours, etc. Thus for many of the groups which have been compared, the number of hours the tissues have been dead is almost identical.

The results indicate that in the brains taken from persons dead of delirium tremens there is morphologic evidence of an increased amount of fluid which may in one case be locked up in the brain tissue, and in another, free within the meshes of the pia-arachnoid. This is suggestive possibly of different phases of the same fundamental process. This accords, to some degree at least, with work recently done by Steinbach.[16] In delirium tremens he found an increase in the pressure and the amount of the spinal fluid. In some instances he withdrew as much as 100 c.c. of fluid with no ill effects. He thinks this increased pressure is responsible for the onset of delirium, and his arguments are based on the beneficial effects of early lumbar puncture on the delirium.

Caution must be exercised in the explanation and application of these results, since many factors are involved and about some of them little is known. We believe, however, that the following statements may be fairly made:

SUMMARY

1. A gross edema of the leptomeninges, "wet brain," was present in 45 per cent. of the brains used in this study.
2. The brains of twenty persons dead from delirium tremens, removed from the body on an average twenty hours afterward and immersed in distilled water for forty-eight hours, show hydration capacities exceeding those observed in any other condition encountered among 130 miscellaneous necropsies, with the exception of three instances of uremia, one of morphin poisoning, and those of cerebral embolism and hemorrhage.
3. The brains of rabbits dead of experimentally produced chronic alcoholism (daily intoxicating doses of alcohol by stomach for from two to four months) were not grossly edematous but possessed a postmortem hydration capacity even greater than that of human brains, and 8 per cent. in excess of normal rabbit brains.
4. These indications of an alteration of the hydration capacity of the brain colloids may be assumed to be the result of tissue asphyxia and the resultant accumulation of acids secondary to the action of the narcotic alcohol.
5. Such an interpretation is in some measure supported by the very high hydration capacity observed with uremia in which clinically an acidosis is known to exist.

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TREATMENT OF ACUTE ALCOHOLIC DELIRIUM *

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Through the kindness of Dr. Alanson Weeks, Chief Surgeon of the Emergency Hospital Service in San Francisco, all the patients with delirium tremens in that institution during the greater part of last year were turned over to me for observation and treatment.

After a few months' observation I found that practically all those with the severer types were suffering from an acid intoxication and the conclusion was forced on me that any line of treatment, to be efficient, must dilute and neutralize the effects of this intoxication and favor its rapid elimination.

Alcohol belongs to the group of the hydrocarbon narcotics, and while it affects all types of tissues it has a selective action for the fats of the nervous system and liver.

The severe types of delirium that have come under observation have all given evidence of a severe acid intoxication, and the method that I am about to suggest for the handling of this class of cases is based on the study of sixty-four personally treated patients. The patients treated represent the most severe types that came under observation, the simple drunks and the mild delirium cases not being included.

Whether it be alcohol or the altered metabolism produced by alcohol in the human body, the symptoms present represent the effect of this toxic material in the nervous system and liver, and the pathologic changes present may be anything, from simple edema to severe degenerative changes of the fatty type. It must be evident that any treatment, to be of service, must be used in the stages of edema. After experimental work with various salts that have the power of dehydrating edematous tissues, I devised a mixture of sodium bromid, sodium chlorid and sodium bicarbonate that could be used in large quantities intravenously without producing the toxic effect of bromid as ordinarily given in large doses. As the severe types also suffer from a starvation acidosis, glucose in high concentration was also used intravenously; this not only furnished an available carbohydrate that was readily utilized by the body, but in 30 per cent. concentration produced marked dehydrating effects on the central nervous system.

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[16] Steinbach: Ueber die Zerebrospinal Flussigkeit und über die Wirkung der Lumbalpunktion beim Delirium Potatorum, Deutsch. med. Wchnschr., 1915, p. 369.

* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Time will not permit me to give the histories of all the cases, but I will detail two in which recovery took place as illustrative of the general methods followed. A table shows the results in all the sixty-four cases.

CASE 22.—J. O. L. was brought to the Central Emergency Hospital Jan. 2, 1916, at 4:10 p. m., with a diagnosis of alcoholism with epileptiform convulsions. His brother stated that he had been drinking heavily for years. He went from one convulsion into another after entrance. I first saw him on Jan. 3, 1916, at 9 p. m. He was still having convulsions and could not be roused. It was necessary to keep him in restraint. Blood pressure at this time was 118. I gave him 1,000 c.c. of the following mixture intravenously: sodium bromid, 10.2 gm., sodium chlorid 5.8 gm., sodium bicarbonate 8.4 gm., and sterile tap water 1,000 c.c. He was so delirious that it was necessary to keep him in restraint during the administration of the solution.

The urinary examination made before treatment showed a high degree of an acid intoxication, with specific gravity 1.030; reaction acid 10^{-5}, albumin a trace, sugar none, indican marked increase, urobilin increased, urea 20 gm. per 1,000 c.c., ammonia 2.59 gm. per 1,000 c.c., ratio 1 to 7, acetone triple plus, diacetic acid triple plus, hyaline and granular casts present.

On the following day the delirium was less, but it was still necessary to keep the patient in restraint. Urinary examination showed a drop in ammonia from 2.59 gm. to 0.84 gm., but it was still heavily charged with acetone and diacetic acid. Every two hours 1,250 c.c. of a 2 per cent. sodium bicarbonate and 6.4 per cent. glucose solution were given. By 2 a. m. the patient was sleeping soundly. Urine examined after the last intravenous injection, and on Jan. 7 (the day of discharge) showed absence of albumin and indican, ammonia down to 0.64 gm. per liter, no acetone and no diacetic acid. The patient was eating and sleeping well and the tremor was gone. He was discharged on the morning of January 7.

CASE 1.—E. C. A. was brought to the Central Emergency Hospital Jan. 13, 1916, at 5:35 a. m., having been removed from a private hospital where he was receiving treatment for the liquor habit, they being unable to handle him. He was screaming, bit and scratched the attendants, and had to be placed in restraint.

His blood pressure before treatment was 138 and afterward 140. Examination of the urine showed a specific gravity of 1.032, reaction acid 10^{-5}, albumin large amount, sugar none, indican and urobilin increased, urea 10 gm. per 1,000 c.c., ammonia 1.4 gm. per 1,000 c.c., acetone triple plus, diacetic acid triple plus, hyaline and granular casts present.

At 10 a. m. he was given, intravenously, 1,000 c.c. of the following mixture: sodium chlorid 5.8 gm., sodium bicarbonate, 8.4 gm., sodium bromid 10.2 gm., and sterile tap water 1,000 c.c. This was followed by glucose, 80 gm. in 250 c.c. of tap water. The two injections were made slowly, taking thirty-five minutes. There was no chill. He felt better and was out of restraint in one hour. Shortly afterward he asked for food and consumed two quarts of milk before 5 in the same afternoon. He slept all night, had no return of delirium, and returned to his home within twenty-four hours of the time we first saw him. The urine examination after injection was as follows: specific gravity 1.024, reaction alkaline to rosalic acid, albumin none, indican a trace, urea 15 gm. per 1,000 c.c., ammonia 0.77 gm. per 1,000 c.c., acetone a trace, diacetic acid a trace. After discharge I saw him daily for three days. There was no return of the delirium or the tremor.

These two cases are representative of the most violently delirious types that came under my care. Both patients had been drinking heavily for a long period and were ingesting little or no food.

I have followed this method of treatment in sixty-four cases, treating and observing them all personally. The results obtained are shown in the table.

It will be noted in the table that blood pressure readings have been obtained in fifty-three out of the sixty-four cases. You may note that in the cases showing an abnormally high pressure this was reduced despite the fact that the volume of the circulating blood had been increased. It has been maintained that intravenous injections of alkali and salt are dangerous because they raise the blood pressure, but here the opposite effect is shown. In a previous communication[1] I have shown that despite the fact that the volume of the circulating blood is increased in these conditions of high blood pressure, if a proper solution be used it is possible to dehydrate the blood and other tissues of the body. If the amount of salt in combination with the water injected is in excess of the normal concentration, it will diffuse into the tissues of the body and liberate water from them. If the salts in solution be sufficiently concentrated, more water may be given off than was injected. The effects of such a procedure are obvious. Not only are all the tissues of the body dehydrated, but the circulating blood as well. If an edema has been existent anywhere in the body it will therefore tend to be reduced, or, to apply it to this work, if there has been an edema of the brain, this edema tends to become reduced. At the same time, that portion of the high blood pressure which has rested on such an edema of the brain will also be reduced. The blood also shrinks under the influence of the salt, as do the more solid colloids of the body. This shrinking of the blood colloids means a decrease in the volume of the circulating blood, and this is again followed by a fall in blood pressure. As you will note, the perfusion mixture used contains over 24 gm. of sodium bases to the liter and is markedly hypertonic. The same holds true with reference to the use of glucose. With every increase in the concentration of glucose in the perfusion mixture there is an increase in its power of dehydrating the body colloids. Both these solutions are so prepared that they do not produce hemolysis, and the association of the chlorin with the bromin ions prevents the toxic effect of the latter.

A brief outline of the histories of the fatal cases may prove of interest.

CASE 58.—Mrs. C. was brought to Central Emergency Hospital at 7:25 a. m., March 10, 1915, with diagnosis of abrasions on head, elbow and back, and acute alcoholism. She was picked up on the street and evidently had been run down by an automobile. She had a severe tremor, with low muttering delirium, and could not be roused to give an account of herself.

Treatment: She was given 2,000 c.c. of the bromid mixture, intravenously. This was followed by a severe chill and cyanosis. She died in four hours.

Postmortem revealed subdural hemorrhage, minute hemorrhages in meninges, a large fatty heart and fatty liver.

CASE 59.—C. A. was brought to Central Emergency Hospital at 9:30 a. m., April 16, 1916, with diagnosis of alcoholism with epileptiform convulsions. I saw him at 1:55, he having been in a stupor all morning. The temperature was subnormal with râles over both bases. He was stimulated with digitalis, strychnin and caffein without result. At this time the patient was comatose. The blood pressure was 200 systolic, 120 diastolic. The urine was solid on boiling.

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[1] Hogan, James J.: On the Alleged Dangers of Intravenous Injections in High Blood Pressure, Lancet-Clinic, Jan. 2, 1915.

He was given 1,800 c.c. bromid mixture, following which the blood pressure was 180. The patient did not regain consciousness and died the following morning at 6:10. The coroner's physician reported the death due to pulmonary tuberculosis.

Case 60.—L. J. was brought to the Central Emergency Hospital at 7:25 p. m., March 14, 1915, with diagnosis of acute alcoholism with septicemia and diffuse cellulitis of both legs.

I saw him for the first time the following morning at 10:35. He was then so delirious that he had been placed in restraint. He was perspiring profusely and talking in an incoherent manner. He did not answer questions. The blood pressure was 106 and he was in profound shock.

He was given intravenously 1,000 c.c. bromid mixture. As soon as this was finished, restraint was removed and he sat up and drank a cup of milk, which he held in his hands. At 11:20 he was able to tell his name and tell us that his feet were still tied down. Within an hour he became delirious again. His temperature was 102.6, his blood pressure fell to 90, so we gave him 1,000 c.c. of 2.5 per cent. gelatin mixture, intravenously. The delirium subsided gradually, but he slowly sank and died March 22 at 1 p. m. The coroner's physician reported death due to bronchopneumonia.

Case 61.—A. P. was brought to the Central Emergency Hospital at 2:30 p. m., March 29, 1915, with a diagnosis of acute alcoholism.

I saw the patient first at 5:50 p. m. He was in a wild delirium, seeing things about the room, and imagined that someone had cut off his moustache and removed all his bar fixtures. He had a temperature of 100 and was suffering with an infection of the foot.

Treatment: He was given 2,000 c.c. of the bromid mixture, intravenously. Before giving it the blood pressure was 138 and directly after it was 140. This relieved his wild delirium but his temperature kept up and he was removed to the San Francisco Hospital, where he died.

Postmortem: The coroner's physician reported death due to chronic endocarditis and bronchopneumonia.

Case 63.—F. W. W. was brought to the Central Emergency Hospital Jan. 14, 1916, at 10:35 a. m., with a diagnosis of chronic alcoholism.

I saw him Jan. 16, 1916, at 9:25 p. m. He was talking incoherently, with a low, muttering delirium. The blood pressure was 150.

Treatment: He was given intravenously 1,000 c.c. of the bromid mixture. There was no improvement in his condition,

CONDENSED REPORT OF SIXTY-FIVE CASES

Number	Name	Pulse	Respiration	Temperature	Delirium	Tremor	Physical Condition	Blood Pressure		Condition on Discharge	Time Detained, Days	Sodium Bromid Solution, C.c.	Glucose
								Before	After				
1	E. C. A.	88	24	98	+++	+++	Restrained	138	140	Good	1	1,000	250 c.c.
2	A. R.	88	20	98.6	++	+++	Not restrained	104	124	Good	1½	1,000	250 c.c.
3	J. R.	100	22	98.8	......	+++	Not restrained	142	110	Good	2½	1,000	
4	J. S.	90	20	98.6	++	++	Not restrained	118	118	Good	1½	1,000	
5	E. E. R.	88	24	98.4	......	++	Not restrained	136	135	Good	1	1,000	
6	C. R.	90	20	98.6	++	++	Not restrained	136	125	Good	3½	2,000	
7	W. D. S.	100	20	98.4	++	++	Not restrained	150	150	Good	1	1,000	
8	J. W.	88	22	99	+++	+++	Restrained	...	...	Good	6	1,500	
9	J. C. C.	80	20	98	++	++	Not restrained	122	138	Good	1	1,000	
10	G. C. S.	84	20	98.6	+	+	Not restrained	104	118	Good	1	1,000	
11	J. G.	115	22	98.8	+++	+++	Restrained	160	120	Good	1	2,000	
12	W. L. J.	90	22	98.8	......	+++	Not restrained	192	165	Good	2	1,000	+
13	E. O.	118	24	99	++	+++	Not restrained	170	160	Good	2	1,000	
14	C. M.	116	20	98.2	+	+++	Not restrained	140	130	Good	3	1,000	
15	M. S.	90	20	98.8	+++	+++	Not restrained	115	120	Good	1½	900	
16	G. J.	90	20	98.8	+++	+++	Restrained	178	138	Good	2½	1,000	
17	D. McP.	90	22	101	+++	+++	Restrained	125	130	Poor	7	1,000	+
18	H. C.	94	20	98.8	++	+++	Not restrained	210	200	Good	1½	1,000	
19	J. O. C.	100	22	98.6	+++	+++	Not restrained	170	145	Good	6½	2,000	
20	F. W.	94	20	98.6	+++	+++	Not restrained	158	150	Good	2	1,000	
21	D. B.	82	22	98	+++	+++	Not restrained	122	104	Good	2	1,000	
22	J. O. L.	88	22	100.6	+++	+++	Restrained	118	146	Good	4½	1,000	
23	L. C.	88	18	98.8	++	+++	Not restrained	126	120	Good	2	1,000	+
24	H. P.	72	20	98.8	++	++	Not restrained	100	132	Good	1½	1,000	
25	E. A.	90	22	100	+++	+++	Restrained	95	122	Good	4	1,000	
26	J. C.	96	20	98.8	+	+++	Not restrained	104	122	Good	2½	1,000	
27	J. A.	82	20	98.6	+++	+++	Restrained	142	120	Good	5	1,000	
28	T. G.	90	18	101	+++	+++	Restrained	142	130	Good	2	1,000	
29	J. A.	82	20	98	......	+++	Not restrained	98	132	Good	3	1,000	
30	T. H.	84	28	98.8	++	+++	Not restrained	148	150	Good	1	2,000	
31	M. J. H.	90	20	98.6	++	+++	Not restrained	146	145	Good	3	2,000	
32	H. B.	126	24	101.4	+++	+++	Restrained	140	138	Poor	6	1,000	+
33	J. J. C.	108	22	98.4	++	++	Not restrained	120	100	Good	1	1,000	+
34	H. D.	80	18	98	+++	+++	Restrained	120	125	Fair	2	1,000	+
35	C. D.	100	24	98.4	+++	+++	Restrained	142	124	Good	4	1,000	+
36	J. D.	92	20	98.6	+++	+++	Restrained	132	118	Fair	4½	1,000	+
37	J. F.	84	22	99.6	+++	+++	Restrained	146	100	Good	6½	1,000	+
38	J. K.	80	24	99	+++	+++	Restrained	148	120	Good	4½	1,000	+
39	J. M.	80	20	98.4	+++	+++	Restrained	198	175	Good	4½	1,000	+
40	W. J. M.	86	18	98.8	++	+++	Not restrained	118	102	Good	2½	1,000	+
41	H. B.	90	18	98.8	+++	+++	Restrained	130	130	Good	3	1,000	+
42	H. F.	90	20	98.8	......	++	Not restrained	148	135	Good	1½	900	
43	R. D.	100	22	98.6	......	++	Not restrained	...	...	Good	½	1,000	
44	W. H. C.	90	20	98	......	+	Not restrained	...	...	Good	1	1,000	
45	J. W.	78	22	101.2	++	++	Not restrained	...	...	Good	2	1,000	
46	A. C. J.	106	20	100	+	++	Not restrained	...	...	Good	2	1,000	
47	N. D.	100	20	100	+++	+++	Restrained	...	...	Good	2	2,000	
48	B. F. W.	96	20	98.6	+	+++	Not restrained	...	...	Good	2	1,000	
49	E. W.	90	20	98.4	+++	+++	Not restrained	...	...	Good	3	1,000	
50	E. A. W.	84	20	98.4	+++	+++	Not restrained	...	...	Good	3	1,000	
51	G. P.	84	22	98.6	+	+++	Not restrained	...	...	Good	2	1,000	
52	E. H.	90	20	99	+++	+++	Restrained	160	148	Fair	3	1,000	+
53	H. C.	88	20	99	+++	+++	Not restrained	220	180	Good	3	1,000	+
54	E. O.	90	21	98.6	......	++	Not restrained	150	140	Good	1	1,000	
55	B. H.	80	20	98	......	++	Not restrained	140	130	Good	1	1,000	
56	B. A. H.	82	22	99	......	++	Not restrained	150	128	Good	1	1,000	
57	E. Y.	80	20	98.6	......	++	Not restrained	140	130	Good	1	1,000	
58	J. C.	82	20	98.6	++	++	Not restrained	150	130	Fair	3	1,000	
59	M. C.	90	22	100	+++	+++	Restrained	...	...	Died	4 hr.	2,000	
60	C. A.	90	22	101	+++	+++	Restrained	200	180	Died	20 hr.	1,000	
61	J. J.	120	28	99.8	+++	+++	Restrained	106	106	Died	8	1,000	
62	A. P.	100	22	100	+++	+++	Restrained	138	140	Died*	.....	1,000	
63	F. H.	82	24	98.6	+++	+++	Restrained	104	122	Poor	8	1,000	+
64	J. N.	84	22	99.2	+++	+++	Restrained	130	140	Poor	1	1,000	
65	F. M.	120	36	104.4	+++	+++	Restrained	150	118	Poor	10	1,000	

* Septic infection.

Mortality, 9.3 per cent. Average time of detention, 2.63 days. Average blood pressure, 140.

and he was removed to the San Francisco Hospital Jan. 24, 1916, where he died.

Postmortem: The coroner's physician reported death due to lobar pneumonia.

CASE 64.—J. N. was brought to the Central Emergency Hospital Dec. 28, 1915, at 8:20 a. m., with a diagnosis of acute alcoholism.

He was wildly delirious, talking incoherently, and seeing objects about the room. The blood pressure was 130.

Treatment: At 5:25 p. m. he was given intravenously 1,000 c.c. of the bromid mixture. This was followed by a severe chill. He became quiet, but was very weak. He died at 7:50 p. m., was taken to a private undertaker, and we were unable to get a postmortem.

Up to this time our solutions were prepared with distilled water that was bought by the hospital in five-gallon jugs. We changed and made them up with tap water, filtered through a Berkefeld filter, and sterilized under pressure. Since adopting the latter method the chills have not occurred. It is better to use freshly distilled water if it can be obtained, but distilled water that is not fresh should not be used; it is better to use tap water.

In the preparation of the solutions 5.8 gm. of chemically pure sodium chlorid and 8.4 gm. of chemically pure sodium bicarbonate are boiled in 120 c.c. of distilled water and filtered through paper, then placed in a flask and reboiled. In addition 10.2 gm. of chemically pure sodium bromid is boiled in 30 c.c. distilled water, filtered and reboiled. These may be kept ready for use, and when needed are added to 850 c.c. of either freshly distilled water or tap water that has been filtered and boiled. Under no circumstances should old distilled water be used, as I have found that it produces severe chills. This mixture is heated to about 110 F. and is ready for use.

The glucose used in the early cases was the anhydrous variety, but on account of the price and our inability to procure it in sufficient quantity, I found that I could prepare the glucose crystals found in the market and that the results were satisfactory. In a flask with 250 c.c. distilled water 80 gm. are placed and boiled. To this is added 0.25 gm. of blood charcoal. This is allowed to stand for twenty-four hours, is then filtered into a clean flask, reboiled, and is ready for use. This solution may be made up and kept ready for use.

Both of these solutions must be given very slowly, from twenty to thirty minutes being taken for the 1,250 c.c.

A small percolator, such as is used in giving salvarsan, with rubber tubing and needle attached, is all the apparatus that is needed.

The after-treatment followed in these cases consisted of active elimination, produced by 0.3 gm. calomel followed by 30 gm. magnesium sulphate. The diet had to conform to the general hospital routine and consisted of milk, soup and bread. In private practice I feed my patients sugar in large quantities and furnish alkali to keep down acid intoxication.

I had had no previous experience in handling these acute deliriums, and my conclusions are based on the testimony of the attendants at the Emergency Hospital. They are agreed that the mortality is lower, the time of detention less, the period of delirium much shortened. The patients eat better, they can be trusted to take care of their excretions on account of a much clearer mental condition, and the desire for alcohol is abolished, at least for the time being.

The mortality in this series of sixty-four cases was .3 per cent., the average time of detention 2.63 days. I am unable to compare these results with the previous work at the Emergency Hospital. In my series I treated only the very acute cases, and the previous histories do not differentiate this type of patient from the type that simply drinks too heavily.

I am presenting this paper in a preliminary way in the hope that it may stimulate someone engaged in this line of work to compare its results with those obtained by the present methods of treating these cases.

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ABSTRACT OF DISCUSSION

DR. MARTIN H. FISCHER, Cincinnati: Dr. Hogan has invited me to see some of his patients, and I confess that I have been tremendously impressed by the ease with which he controls them. I had opportunity to see something of the difficulties ordinarily attendant on such cases when I was in charge of an institution to which a good many delirium cases were brought. It seems most logical and effective to regard them as brain edemas and then to try to reduce these edemas with an alkaline, hypertonic salt solution carrying the bromid, while at the same time the attempt is made to overcome the starvation acidosis, which is so often heaped on the acidosis incident to the alcoholic poisoning itself. I feel confident that Dr. Hogan has made a distinct advance in our methods of handling this very unfortunate group of patients.

DR. S. A. MATTHEWS, Lawrence, Kan.: The essayist spoke of the hypertonicity of the salt solution used. He could increase the hypertonicity a good deal and still be within safe limits. I have perfused patients with solutions containing 5 gm. of sodium chlorid, 80 gm. of sodium sulphate, 15 gm. of sodium citrate, and half a gram of calcium chlorid to the liter, perfusing as much as 2 liters in five hours (about 5 c.c. per minute) with perfect safety. At least the patients are still living after fifteen years and enjoying good health. The sugar is not necessary to produce the required dehydration. I suppose the object of the sugar is to supply a source of energy to the body. Of course, the contained salts in the solution should tend toward the maintenance of an alkaline reaction, which may be accomplished either by carbohydrates or citrates.

DR. JAMES J. HOGAN, Vallejo, Calif.: I agree that you can use hypertonic solutions in great quantity in these cases, but that depends entirely on the salt which is used. Speaking about the urinary secretion following the different molecular concentrations of the different salts, we found that the dehydrating effect of the salt was dependent on its component ions. In this work the solution used had no effect outside of a slight crenating effect on the red blood corpuscles. It is impossible in a short paper to bring out all the data in relation to this work, but we used a solution that produced no ill effects on the blood as far as we could see. If you put any hypertonic solution into the blood, you always produce a shrinkage of the red cells, as well as a shrinking of the other solid colloids of the body.

DR. J. P. MUNROE, Charlotte, N. C.: How much sugar is used in these cases?

DR. HOGAN: Eighty gm. of dextrose were used in 250 c.c. of sterile tap water. Although my paper simply covered the treatment with the combination of salts which I have described, I previously had worked with most of the protein dehydrators, as sodium sulphate, magnesium sulphate and calcium chlorid, and with calcium chlorid itself, with sodium chlorid, and sodium carbonate mixtures and with dextrose in varying concentrations. In furnishing the dextrose to an individual of this type you not only furnish an available carbohydrate, but with every increase in concentration of the dextrose in the perfusion mixtures, you get a corresponding dehydrating effect on the protein colloids of the body. This is especially so in relation to the swellings of the central nervous system. In reference to the determination of the acid intoxication in these cases, the work so far has only covered a complete urinary examination. Further work is being done in relation to CO_2 tension of the alveolar air, and the hydrogen ion concentration of the blood serum.

AN EXPERIMENTAL RESEARCH INTO THE NATURE OF NITROUS OXID AND OF ETHER ANESTHESIA

WITH SPECIAL REFERENCE TO CERTAIN EFFECTS ON THE ORGANS OF THE BODY, AND CERTAIN RELATIONS TO NORMAL SLEEP, HYDROGEN-ION CONCENTRATION AND INFECTIONS *

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If we view man and the lower animals as adaptive mechanisms, governed by the universal laws of physics and chemistry, then we must believe that every phase of human or animal behavior is occasioned by and in turn occasions physical and chemical changes in the body. Therefore an understanding of the vast alterations in the behavior of the anesthetized organism—changes which may range from the slightest depression of mental power through progressively deeper stages of unconsciousness to death, necessitates a search for the physical and chemical changes caused by the anesthetic. Accordingly, in this study we shall consider (*a*) the gross behavior of the anesthetized individual in a consideration of the relation of anesthesia to normal sleep; (*b*) the influence of ether and of nitrous oxid on the histologic structure of certain organs; (*c*) the relation of ether and of nitrous oxid to the hydrogen-ion concentration of the blood and to reserve alkalinity; (*d*) the relation of ether and of nitrous oxid to the infections, and finally, (*e*) the clinical bearing of these studies.

(*a*) *The Relation of Inhalation Anesthesia to Normal Sleep.*—The outward similarity in the appearance of sleep and of anesthesia needs no comment. The manner in which a child becomes unconscious under a sufficiently concentrated flow of nitrous oxid over its face closely resembles the manner in which the healthy normal child falls asleep. That sleep is merely the depression of consciousness and that sleep only partially suspends the function of the brain is indicated by slight responses to stimuli, such as the shifting of posture; the moving when called or when bright light strikes the eye; the response to tickling, etc. In other words, the receptors are still active during sleep. The activity of the receptors in anesthesia is evidenced as clearly by the increased pulse and respiration in response to trauma; and, if the anesthesia be light, by increased muscular tone, even by muscular movements. Another similarity is found in the resemblance between dreams during nitrous oxid anesthesia and the dreams of normal sleep.

(*b*) *The Influence of Ether and of Nitrous Oxid on the Histologic Structure of Various Organs.*—As far as nitrous oxid is concerned, here also is found another resemblance to normal sleep. During normal sleep the histologic changes in the brain, the suprarenals and the liver caused by exertion, emotion, infection, acid injection, etc., are repaired; during nitrous oxid anesthesia also, the lesions in the brain cells due to these causes are repaired, and, as will be seen later, nitrous oxid exerts a measurably protective action on the suprarenals and liver as well. This protective action of nitrous oxid was strikingly demonstrated in a series of experiments on insomnia. A group of rabbits were kept awake continuously for approximately 100 hours. At the end of this period, their brain cells showed the typical physical changes of exhaustion. In another group these changes were partially restored after a single séance of sleep; while in still another group, in which the rabbits were allowed no normal sleep, but were placed under nitrous oxid anesthesia for one hour out of every six during a period of approximately 100 hours, the brain cells, as in the rabbits allowed to sleep, showed marked restoration, some cells, indeed, being in a *plus normal state.*

A comparative study of the effects of ether and of nitrous oxid was made by keeping dogs under continuous anesthesia for four hours. After four hours' continuous ether anesthesia, striking histologic changes were found in the brain, the suprarenals and the liver; while after four hours' continuous nitrous oxid anesthesia, there were practically no changes in the brain, and but slight changes in the liver and suprarenals.

(*c*) *The Relation of Ether and of Nitrous Oxid to the Hydrogen-ion Concentration of the Blood and to Reserve Alkalinity.*—In a series of H-ion concentration tests made for me by Dr. M. L. Menten, it was found that the H-ion concentration of the blood was increased by ether and by nitrous oxid, and that the acidity increased more rapidly under nitrous oxid than under ether; but that the total acidity in either case was proportional to the depth of anesthesia.

In measurements of the reserve alkalinity of the blood made for me by Dr. W. B. Rogers, he found that during anesthesia the reserve alkalinity gradually decreased, the total decrease being greater under ether than under nitrous oxid. He found also that the alkalinity of the spinal fluid and of the bile was altered during anesthesia.

It is significant to note here the fact that the histologic lesions in the brain, the suprarenals and the liver, caused by ether and by nitrous oxid, though varying in degree, are identical in kind with those caused by the intravenous injection of acids, as with those resulting from insomnia, exertion, emotion, infection or physical injury.

We must conclude, therefore, that the histologic lesions of inhalation anesthesia are acid lesions; and since acid lesions are restored only during sleep, that the same must be true of the lesions of anesthesia.

As long as fifteen years ago, it was believed that all anesthetics interfered with the use of oxygen, this being the method by which anesthesia was produced. It is true that deep asphyxia may cause anesthesia, but in such asphyxia as is due to obstruction of the larynx, the patient remains conscious and feels pain, though he is markedly cyanotic, while under good inhalation anesthesia, the patient is pink and unconscious. It would seem, therefore, that interference with oxidation alone is an insufficient explanation of anesthesia. On the other hand, the postulate that anesthesia is an induced acidity is not only supported by the laboratory studies we have mentioned, but by the clinical phenomena of anesthesia as well.

It may be in place to refer here to Lillie's notable studies of the mechanism of ether anesthesia. He has demonstrated that the addition of ether to the seawater in which arenicola are living causes changes in the semipermeable membranes, as a result of which these membranes become less permeable to the passage of ions. As life itself is dependent on the permeability of the cells of the organism to the passage of ions, this action of ether suggests a further explanation of anesthesia, though its application has not been worked out in detail.

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* Read before the American Association of Anesthetists, Detroit, June 12, 1916.

(*d*) *The Relation of Ether and of Nitrous Oxid to the Infections.*—We have already referred to the protective action of nitrous oxid in the presence of the stimuli of continued consciousness as in prolonged insomnia; and other histologic studies have shown that morphin also protects the brain, suprarenals and liver from the destructive action of prolonged or intense stimuli. It follows, then, that since the effects of an infection on the brain, suprarenals and liver are identical with the effects of insomnia, emotion, etc., then the administration of nitrous oxid and morphin will in part protect the organism against the damaging effect of infection.

Summary of Experimental Findings: Nitrous oxid and ether anesthesia alike cause an increase in the H-ion concentration of the blood, the spinal fluid and the bile; and progressively decrease the reserve alkalinity of the blood. Ether causes marked histologic changes in the brain, suprarenals and liver, these changes being identical in kind with the histologic lesions caused by acid injection, or activation of any kind. Nitrous oxid and morphin each measurably protect the brain against histologic changes due to infection, while ether increases the damaging effects of infection.

(*e*) *The Clinical Bearing of These Studies.*—The identity of the phenomena of anesthesia with the succession of clinical symptoms which accompanies an increasing acidosis, combined with the fact that the histologic changes produced by nitrous oxid and by ether are identical with those caused by acidosis, supports the postulate that anesthesia is an induced acidity. If the acidity is slight, anesthesia is light and the patient responds to even slight stimulation. As the acidity increases, the anesthesia deepens—first, associative memory is lost, but the cutting of the skin still causes involuntary movements; then muscular tone is lost, and even the strong contact stimuli of a surgical operation cannot drive their impulses through the brain to the muscles; and finally, the decreasing alkalinity may so nearly approach the neutral point that even the circulatory and respiratory centers, which are especially adapted to respond to the stimulus of increased H-ion concentration, fail to respond; respiration and circulation are suspended and acid death—anesthetic death—follows.

These studies explain why a patient, whose reserve alkalinity has been seriously reduced by exertion, emotion, physical injury or infection, or, by reason of starvation, interference with respiration or impairment of the liver or kidneys, is approaching acidosis, does not take an inhalation anesthetic well; why there is much nausea and slow recovery from anesthesia in some cases and death in others, and why, in particular, children who are near acidosis always pass into that state and die unexpectedly.

These facts show how necessary it is for the surgeon and the anesthetist alike to realize that during the operation each is draining the store of reserve alkalinity. If the surgeon employs a local anesthetic, uses gentle manipulation and produces the least possible trauma, he conserves his patient and demands from the anesthetist less of the damaging inhalation anesthetic. The anesthetist in turn conserves the patient by using the lightest possible even anesthesia administered with the least psychic trauma.

These studies show that for the bad risk patient, nitrous oxid anesthesia is to be preferred to ether, and that analgesia with local anesthesia should be employed, with general anesthesia only when it is demanded by certain phases of the operation.

These researches suggest the value of a mechanistic view of the phenomena of anesthesia and attach a high importance to the work of the anesthetist.

In my own clinic we have now administered nitrous oxid anesthesia in over 15,000 cases without a death; and moreover, as our knowledge and experience accumulate, we are able with increasing accuracy to adapt the anesthetic to the individual.

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CONSTITUTIONAL INFERIORITY *

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In presenting the conception of constitutional inferiority it is necessary to emphasize the fact that the human mind is complex and intricate in structure, as well as from the point of view of organic and social heredity and its adaptation to the environment. It is important to bear in mind that in early life mental adjustment is purely instinctive and emotional. Furthermore, the volitional and intellectual faculties with the moral sense make their appearance rather late in mental development. While it is true that the whole mental organism is of a sensitive nature, nevertheless it evinces considerable plasticity necessary for adaptation. It is also to be remembered that because of these sensitive and plastic qualities, this organism is capable of receiving environmental impressions of favorable or pernicious character.

Of great significance is the fact that there is an underlying organic basis for the harmonious union of psychic forces necessary for the execution of a coordinate mental act, that is a healthy equilibrium of emotion, volition and intellection, which are controlled by organic heredity, and only in part modified by social evolution. It is not difficult to conceive how a congenital defect[1] in the affective, or volitional, or intellectual sphere or in all spheres may produce psychic instability, and indeed to such an extent as to cause a maladjustment of varying degree and intensity. The fact that an isolated enfeeblement of the intellectual faculty only is not at all requisite to characterize constitutional inferiority per se is quite apparent. It is interesting to note that a lesion of one faculty may indirectly disturb the function of the entire mental organism.

In classifying constitutional inferiority, it is advisable to be guided by the individual fundamental disorder involved in each of the three faculties. Upon this basis we may divide mental inferiority into three large groups, intellectual, emotional, and volitional.

The intellectual type embraces a wide range of inferiority, which may differ in character and quality. Idiocy, imbecility, and moronism are examples of one extreme. Again, there are forms of relative intellectual deficiency which in a large number of instances are not of social evil, because volitional and emotional faculties are not so impaired as to bring about antisocial upsets.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Karpas: Psychic Inferiority, New York Med. Jour., 1913, xcvii, 594.

The emotional form of mental inferiority presents well-defined characteristics. In some instances there is a deficiency or excess of emotional activity of such a nature as to produce distinct types of personalities. The *mental clams* are a well-known class. They are seclusive and secretive, rather timid and self-absorbed, indulge in dreams and the real world is of very little source of interest to them. Some of them are oversensitive, suspicious, and chronic masturbators. Such a type of personality was termed by Hoch as "shut-in" and is found in a large number of cases of dementia praecox. However, some of them never develop a psychosis or a neurosis, but they exhibit some difficulty to adjust themselves to their environment.

On the other hand, there is another type of personality which is of a highly vivacious nature, and of vacillating mood. Such persons are loquacious, rather keen, and manifest lack of capability to suppress or repress their feelings. This form of mental make-up is met in manic-depressive insanity, which was also described by Hoch.

In addition to these two striking types there is another one in which emotional instability is the fundamental disorder. To this class belong the nervous and hysterical temperament and a hypochondriacal and neurasthenoid disposition. To be sure, such individuals evince considerable instability and some of them develop definite neuroses or psychoses. Particularly it is true of the nervous temperament, which in addition to syphilis or alcohol develops psychoses peculiar to these etiologic factors.

Another important type of an abnormal personality which is determined by perverted feeling is known as the psychopath, or, in popular language, the crank. I prefer to call it a congenital psychoneurosis, because it has so many earmarks of an actual neurosis, though it is not amenable to radical treatment. Such persons present definite psychopathic characteristics which express themselves in oddity of conduct, vagaries in dress, asocial tendencies and fantastic ideas. As a class they are unstable and are not wage earners. They appear intellectual, but their education is only smattering and superficial. They are failures in life; the Utopian fancies in which they indulge never or rarely take a constructive or practical course. As a rule they do not commit gross crimes, except some sexual offenses, which they justify on the ground of the moral code peculiar to their kind. They make themselves conspicuous, but they are tolerated in society to some extent because they seldom come in collision with the law except in extreme instances in which their sociologic beliefs are at variance with the existing statutes.

Of all the other forms of constitutional inferiority none is as significant as the volitional type, because of its great social import. The underlying disorder is lack of development of will-power, feeling and moral sense. And to quote Maudsley.[2]

> He has no capacity of true moral feeling; all his impulses and desires, to which he yields without check, are egoistic; his conduct appears to be governed by immoral motives, which are cherished and obeyed without any evident desire to resist. There is an amazing moral insensibility.

There are no apparent intellectual disturbances according to the usual gross tests. However, on more searching analysis, one finds considerable superficiality, apperceptive faculty is weak, the enfeebled judgment is quite manifest when confronted with difficult situations or tasks and the stock of knowledge takes an egoistic trend. In the words of Maudsley.[2]

> The intelligence is often acute enough, being not affected otherwise than in being tainted by the morbid feelings under the influence of which the persons think and act; indeed they often display an extraordinary ingenuity in explaining, excusing, or justifying their behavior, exaggerating this, ignoring that, and so coloring the whole as to make themselves appear the victims of misrepresentation and persecution. Their mental resources seem to be greater sometimes than when they were well, and they reason most acutely, apparently because all their intellectual faculties are applied to justification and gratification of their selfish desires. One cannot truly say, however, that the intellect is quite clear and sound in any of these cases, while in some it is manifestly weak.

In formation of habit and character, volition, emotion and the moral sense play a very important part, and this explains why in these individuals the habits are faulty and the character is altered. They are deceitful, given to lying, contrive numerous schemes to cheat and have no control of their primary impulses, such as the sexual and nutritional instinct. A marked autoerotic feeling is in the foreground, which may assume different phases and forms. The altruistic tendency is very superficial, or not developed at all. In the attempt to adjust themselves they follow the path of least resistance, and because devoid of moral sense and deficient in will-power and feeling, they commit all kinds of antisocial deeds, which are frequently determined by temptation, suggestion and environment. However, the last invariably shows a certain degree of inconsistency between the act and the actual stimulus.

Were we in possession of concrete tests to gage such an abnormal mental state, we should have little difficulty in demonstrating that the emotions and volition are of a distinctively primitive type; in other words, we are dealing with a psychic malformation in which only one part of the mental organism reached a degree of maturity.

The clinical varieties of the volitional form of constitutional inferiority are many and indeed in some instances they remain undetected till they come in conflict with the law. It is significant to note that the more atrocious the crime, the more difficult to convince the layman or even the physician that such a crime resulted from an abnormal mind.

It cannot be too strongly emphasized that antisocial tendencies which are recurrent in nature and which are not adequately modified by environmental influences are invariably determined by a psychopathic condition. In this connection the question of mental responsibility may be introduced. Do such persons have a full knowledge of the nature and quality of the crime they have committed? If an intact mentality is determined by one faculty only, intelligence, and the other two, emotion and will-power, are to be disregarded, then such a sophistic conception of mental responsibility may appear plausible. However, according to modern psychology an intact mentality must depend on the harmonious balance of the three faculties, emotion, volition and intelligence; then how can a moral defective be truly responsible for a crime, when in reality he is constitutionally incapable of differentiating between right and wrong? The sooner we get away from the old conception of mental responsibility, the sooner we will come to a better understanding of the underlying factors controlling such abnormal mental state. The persistent inability on the part of the individual to conform with the moral law is sufficient proof that the inherent defect lies not in the environment but in the mental constitution.

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[2] Maudsley: Responsibility in Mental Diseases, p. 184.

In a broad sense, the volitional form of constitutional inferiority should be regarded as a psychosis, because there is a marked element of maladjustment present. It is a malignant form of mental aberration and does not yield readily to rectification.

This is not a new disease, but it was recognized by the English physician Prichard[3] as early as 1835, when psychiatric progress was at the low ebb, anatomic knowledge of the nervous system was deficient, and psychologic investigations were permeated by the atmosphere of crude philosophic dogmatism. Prichard termed this peculiar mental affection moral insanity. Later investigators, while differing in the nosologic conception, yet admit the occurrence of such an abnormal mental state. Some preferred to term it moral imbecility, moral idiocy, and constitutional inferiority. It is of little practical interest what such a pathologic mental condition may be designated, the fact remains that this malignant form of mental aberration is of relatively frequent occurrence and is a great social evil. A large majority of the criminal class, tramps, vagrants, prostitutes, chronic alcoholics and other degenerates, belong to this group.

The following case is of interest:

A. is 12 years of age, born in England, and comes apparently from a healthy family. He was brought to the mental hygiene clinic because for the past eighteen months he has been continually stealing.

There are no neuroses, psychoses or mental degeneracy in the family or its collateral branches.

The patient is the second of five children. Labor was instrumental because of the child's large head, which was relatively out of proportion to the rest of his body. There is no history of convulsions or fainting attacks, but he suffered from enuresis for many years. He sustained several injuries to the head in early childhood. At the age of 7 he had membranous croup and at 7½ years of age suffered with chorea. He had measles, but no meningitis.

He entered kindergarten at 3 and later attended school; he failed only once in promotion, but this was ascribed to poor deportment.

The mother thinks that following the attack of croup he began to show changes in his mental condition, when he became restless, fidgety and stubborn. However, he is said to be good natured, but at times appears revengeful. Otherwise he is bright intellectually. He plays with boys and has many friends. He reads books and spends his evenings at home.

For the past eighteen months he has been given to stealing from his family and strangers. He takes everything he can turn into money. He gets up at night and steals money from his parents or from a stranger who happens to stay in the house. In addition, he lies a great deal and has absolutely no control over himself, although he realizes that it is wrong to take things which do not belong to him. Once he was arrested, but because he showed good intellectual endowment the mother was advised not to commit him to a reformatory.

Mentally the patient makes a fairly good impression. He appears bright and according to the intellectual tests is not feebleminded in the true sense of the word. When questioned about his acts he shows very little embarrassment. He admits that it is wrong to steal, but he could not help it, in his words: "I cannot resist the temptation, I want to get things." He knows that for stealing he will get a prison sentence. Despite the fact that he was reading very diligently of the recent trial and that he was told by his mother that he is just like the accused, nevertheless he makes no attempt to control himself. He states that with the money he steals he buys candy and spends it in other frivolous manner.

From the physical point of view, except for a large head he shows no other abnormalities and there are no neurologic signs.

With this brief outline of the fundamental conceptions of constitutional inferiority, we may now briefly consider the question of the care and treatment of such patients. It is needless to state that the most important thing is to detect those forms of mental abnormalities in the early development stages, when simple adjustment may be undertaken. The normal mind is elastic and finds little difficulty to adapt itself to certain surroundings, whereas the abnormal requires an artificial environment in the process of adaptation. It is interesting to recall Huxley's[4] conception of education. In his own words: "What is meant by education is learning the rules of this mighty game. In other words, education is the instruction of the mind (intellect[5]) in the laws of nature, under which name I include not merely things and their forces, but men and their ways." He compares the world to a chessboard, the pieces to the phenomena of the universe, and the rules of the game he calls the laws of nature. The successful player is the one who knows the chessboard well, and has a good knowledge of the laws of nature. It may not be far fetched to say that the integrity of mental health depends on the knowledge of the laws of nature and ability to utilize them correctly in the adjustment of one's environment, the chessboard. If the chessboard is too complicated for one to play his game, why encourage him to make these mistakes repeatedly to his own detriment and to the detriment of society? In such cases give him a simple chessboard to play an uncomplicated game which does not overtax his mentality.

Briefly stated, prophylaxis in the plastic stage is the important measure, and special pedagogic methods, religious and moral influence, environmental reconstruction and physical and manual training are necessary in the process of readjustment and reeducation in such cases.

For the fully developed cases of the first and second group the actual care and treatment present less of a problem than the last class, inasmuch as many of them can be cared for in institutions for the insane or the feebleminded.

The volitional form of mental inferiority exerts directly and indirectly a pernicious influence on society. The fully developed cases with definite antisocial tendencies are incarcerated in protectories, prisons, reformatories, etc., but this in itself does not solve the problem in so far as such treatment is only symptomatic and not radical. Persistent and recurrent attacks of antisocial upsets should not be ascribed to sociologic conditions, but deeper strata for such abnormal reaction should be sought in one's mentality. It is manifestly important to analyze crime from three angles: First, we should obtain a complete knowledge of the psychologic background from which such a crime emanated, and ascertain the individual from the point of view of heredity and constitutional make-up. Second, we should determine the character and nature of the committed act and the frequency of its recurrence. Third, we should ascertain whether such a crime was determined by environmental motives. In many instances the antisocial deed gives the first clue of the person's defective mentality and indeed this is very important to establish in order to save society from such detrimental influences. Just the same as the homicidal paranoiac is a dangerous member of the community, so is the moral defective, and should be treated in a similar manner. They are both malevolent, and society should be protected against them. A deeper appreciation of this abnormal type of mentality will necessarily create ways and means of establishing institutions for such individuals and at the same time change our old conceptions of mental responsibility, and control further progress of vice, crime, and other forms of degeneracy.

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[3] Prichard: Treatise on Insanity, London, 1835, p. 12.

[4] Huxley: Liberal Education, p. 83.

[5] Intellect is used by Huxley; mind is substituted by the writer because it expresses the entire structure and function of the mental organism. In education the emotional and volitional spheres are just as important as the intellect.

ABSTRACT OF DISCUSSION

Dr. F. P. Norbury, Springfield, Ill.: I would like to add a few remarks from the medicolegal point of view, when we are confronted with this type of constitutional inferiors in the so-called malingerers. As Dr. Karpas has said, these are the individuals who, when confronted with a difficult situation, seek the easiest way out and that within their own limitation. Malingering simply is a way out oftentimes. This not only occurs in civil cases, but I have been concerned with three cases of murder wherein malingering was attempted to be carried out as a possible defense for connection with the crime, the insanity, however, being assumed after commission of the crime. We proved the understanding of responsibility on the part of the defendant as outlined by criminal law. When that legal test was applied these individuals were convicted as murderers and a life sentence was imposed in two cases. The third case is still pending, and the fourth case is one that reached our supreme court on some technical errors in the trial. The man was sentenced for life but on account of the errors the case came to the Supreme Court of Illinois for review and retrial based on a technicality involving this very point of malingering. However, I do not know whether the case will ever come to trial, because when brought back the defendant made his escape and so far has not been apprehended. But he is constitutionally inferior in the emotional, the volitional, and the intellectual aspects of life. In one case that I had under observation, a man being tried for forgery in the United States Court assumed insanity as his defense. He truly was a malingerer. We all know that the malingerer as we see him, no matter whether involved in a criminal procedure or some milder offense, or even when attempting to deceive in some other way, is of an inferior type. This to him is the way out of a difficult situation and offers also an opportunity for him to make his impress on others to help him out of some situation, as for instance, begging alms or through interest in others affairs.

Dr. M. J. Karpas, New York: Most cases of constitutional inferiority of the volitional type do not malinger, as a rule. When they are under restraint they are perfectly willing to tell their whole life history and, indeed, this is rather characteristic in this group of cases. I must confess that I have not yet encountered a malingerer in this class of cases in the true sense of the word.

Salt in the Diet.—Mungo Park, the traveler, describes his own feelings on long-continued salt want as follows: "I found the scarcity of salt actually painful. The continued subsistence on nothing but vegetable food produced finally a desire for salt so painful that it can hardly be described." We are not familiar with any prolonged experiments with salt-free diets on man. But persons on ordinary diets who have gone for a long time without sodium chlorid complain in general of lack of appetite (owing to the unpalatability of the food), and of some vague or general bodily distress—a condition similar to that induced by monotonous and incomplete diets.—A. J. Carlson, Control of Hunger in Health and Disease.

A NEW TREATMENT FOR PARALYSIS AGITANS *

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An Italian author[1] states that in paralysis agitans "no treatment is of any avail," and "there is no authentic case of recovery." A severely distressing malady, of acknowledged incurable nature, and until now of absolutely untreatable form, deserves a few minutes' consideration when even only slight and temporary relief from suffering has been brought to the patient.

The clinical details of the case that determine the diagnosis run as follows:

History.—(M. R.—P. H. No. 3040).—Woman, aged 52, married, German, housewife, first came to the Psychopathic Hospital, June 29, 1915, complaining that the hands trembled, the feet dragged, and the body felt constantly heavy. The trouble began in 1909, when her left arm commenced to tremble. This continued from July to October, and then disappeared. February 2 it began again, and had gradually increased since. The left arm had also grown gradually weaker and stiffer, and its use now amounted to very little. The right arm began to tremble about the same time as the left, but she could use it more. For a year the lower extremities had also showed tremor, and the left one was stiff. Use of the right arm gave an intense shoulder pain. There was much pain in the muscles of the left arm. The tremor ceased with effort, was absent at night, and was worse in excitement. Work was much interrupted by the slowness of the patient's movements, and general stiffness. She was restless and trembled in bed for half an hour before she was able to get to sleep. This all amounted to severe, constant suffering.

The patient had had measles. Menstruation began at 19; hysterectomy had been performed for suspected tumor at 42. This was followed by "pleurisy" and "nervous prostration" Three years after the operation a sponge was removed from the upper abdomen.

The patient's mother died of cholera in 1866 and her father at 62 of pleurisy. Four children were well.

Examintion.—This in general was negative. Below the left breast was the scar of the sponge removal, below the umbilicus the scar of the laparotomy. There was clonic rotation of hands. There were varicose veins on the legs. The tongue extended with tremor. The arm reflexes and patellar jerks were active. The gait was bear-like. The left leg was somewhat spastic; this was more noticeable when walking fast. Oscillations were about four to the second. There was very marked tremor in speech.

A diagnosis of paralysis agitans was made.

Treatment and Results.—The patient was assigned some treatment for the marked tremor in her speech. I was inspired to try *something,* because of the marked improvement obtained in a previous speech case of so-called "essential tremor," in which the patient had been treated for two years without improvement at another hospital. I gave some vowels to be sounded in a prolonged steady fashion, with no intention of attacking the general condition.

To make a long story short, the patient soon returned to relate that the tremor in the hands was a little better; and she felt better. I took the hint, and applied slow motions to the arms and legs to be executed for fifteen minutes, three times a day. The tremor, stiffness and distress gradually grew less. In about two weeks she had an hour of complete relief from all her symptoms—tremor, stiffness, tiredness, pain in arms and heaviness. She could soon go to sleep at once on retiring without tossing about as before for half an iour. Later, she had two hours of complete relief again as ibove, and at another time went from 7 to 11 o'clock one vening entirely free from symptoms. She was not seen y me at these times, but I have no reason to doubt her vords or minimize her claim. She has become so devoted o the exercises that she now takes them merely for the relief hey bring. Since February the scales have turned. At that ime she had sciatica, and ceased exercising, while confined n bed. With this all the symptoms returned and were as evere as they were before. When seen, June 5, 1916, she iad begun to return to her routine again with returning relief.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Rizzuto: Policlinico, Rome, Nov. 21, 1915; abstr., The Journal A. M. A., Jan. 22, 1916, p. 316.

Let me give the motions in detail:

CONTROL EXERCISES FOR PARALYSIS AGITANS

Patient stands with all clothing constrictions emoved. All motions should be executed slowly. The speed is about 3 feet in ten seconds. All sudden, uick or reflex-like motions should be omitted. Each xercise is repeated three times. The patient should ractice from fifteen to thirty minutes, three times a lay. Exercises:

1. Right arm up to side. Down (shoulder level).
2. Right arm up front. Down.
3. Right arm up back. Down.
4. Right arm flex. Extend.
5. Right hand open. Shut.

6-10. Same for left arm.

11-15. Same for both arms together.

16. Right leg up to side. Down.
17. Right leg up front. Down.
18. Right leg up. Back. Down.
19. Right leg flex. Extend.
20. Toes extend. Flex.

21-25. Same for left leg.

The form of the exercise may be varied from those iven, but the important point is the *slowness*.

One case proves little. I should be glad to hear the esults from any who try these exercises. A series f cases are now under treatment to be reported later. find no treatment like this in the books on paralysis gitans.

In one case, at least, the marked temporary relief rom severe suffering has amply repaid for all the rouble to do the exercises.

SUMMARY

A marked case of paralysis agitans was treated with low moving exercises taken for fifteen minutes three imes a day, and resulted in (1) a general constant elief of bad feelings, (2) occasionally an hour of comlete relief from all distressing symptoms, and (3) a uickly gained repose into sleep on retiring.

The treatment, though giving marked relief from ntense suffering even to the point of recovering norial conditions for hours at a time, proves no cure, nd the symptoms all returned when the exercises were mitted; but they showed improvement again when esumed, and also again gave relief.

110 Bay State Road.

Symbolism and Fact.—Too often symbolism and tradition overn us in our daily affairs, and especially in the conderation of these vital problems of age, growth and death. Ve conceive time to be a lean, repulsive old man with an our-glass and scythe, mowing down the human race. Death also personified and looked on as a "grim reaper" by athologists as well as poets. Now, time is a mere matheatical abstraction, a synthesis of space and motion. It can o more kill a man than can the Rule of Three. Man is not ıased to the grave by an absurd old man with a scythe and n hour-glass, but by myriads of microscopic enemies, by reptococci, largely, and spirochetes and pneumococci, and hers of that ilk.—Eugene L. Fisk.

CLONORCHIS SINENSIS IN ORIENTALS ARRIVING IN THE UNITED STATES

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Very little attention seems to have been paid to this parasite during the last few years in this country, and very few references to it can be found in our literature. In 1890 Biggs reported a case found postmortem in New York. In 1895 Johnson reported several cases in Montreal. In 1906 Mark Johnson White of the United States Public Health Service reported eighteen cases in Chinese found postmortem during the plague investigations in San Francisco in 1901 and 1902.

Surgeon-General Blue[1] mentions *Clonorchis sinensis* as one of the parasites that should be looked for and guarded against.

Craig[2] draws attention to the disease caused by this parasite, and states that over twenty cases have been reported in the United States.

The present article is based on the examination of 686 Chinese and thirty-two Japanese; 507 of the Chinese were examined on arrival on the Pacific Mail Steamship Company's line at San Francisco, and the results relate only to the incidence of the infection, as no physical examination or later observations were possible. All of these, while en route, had been treated for hookworm disease with thymol.

In this series of 507 examinations, 105, or over 20 per cent., were found to harbor the *Clonorchis sinensis*. The accompanying table shows the number of passengers examined and found infected on each steamer. None of them on casual inspection showed evidence of serious physical maladies. Anemia and general debility, possibly the result of the hookworm disease and the treatment they had just undergone for it, were all that was observed.

RESULT OF EXAMINATION

Steamer No.	Passengers Examined	Number Infected	Percentage Infected
1	102	19	18
2	82	7	8
3	45	21	46
4	85	24	28
5	61	18	29
6	142	16	11

In this connection it should be stated that all of these people had been examined prior to embarkation in the Orient, and none had been allowed to embark who showed evidence of any serious malady.

Of ninety-seven additional persons examined after arrival, some having been treated for hookworm and some not, twenty, or over 20 per cent., were found infected. Thus, out of 604 Chinese arriving at San Francisco, 125, or practically 20 per cent., were found to harbor the *Clonorchis sinensis*.

The examination of eighty-two sick Chinese, residents of California, showed twenty-four, or over 29 per cent., to harbor the infection. The longest any of these persons had been in the United States without a visit to China was eight years. Several had been in this country continuously for from four to six years.

An examination of thirty-two sick Japanese, residents of California, showed four infected, a percentage of 12. All of these had been in the United States but a short time. Thirteen of the twenty-eight persons showed no symptoms that could be directly attributed to the clonorchis infection. Three had enlarged livers and three enlarged spleens. Ten had tenderness over the liver, spleen or upper abdomen, and several were subject to attacks of pain in these regions, sometimes with vomiting. One had ascites and edema of the feet. Fleeting pains in the muscles and joints were frequently complained of. A pasty complexion was usually observed, though the hemoglobin was not very greatly reduced — ranging in the series from 62 to 92 per cent. The eosinophil count averaged 5 per cent. The stools showed almost constantly a reaction for occult blood.

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[1] Blue, Rupert: Prevention of Oriental Diseases, address before the American Academy of Medicine, 1915.

[2] Craig: Am. Jour. Trop. Med., July, 1915.

In general the patients were decidedly below par, most of them having to discontinue work occasionally on account of their symptoms.

No necropsies have been obtained by me. White, of the Public Health Service, in the necropsies done by him, states that the parasites were confined to the biliary passages, gallbladder and intestines in numbers varying from two to 800. Only a few were found in the duodenum and gallbladder, and but shreds of dead ones in the colon. None were found in other organs. There were found mucosal thickening and moderate fusiform dilatation of the bile passages. The liver substance adjacent to ducts was firm and showed many small hemorrhages apparently due to obstructed capillaries.

Sambuc, in Indo-China, has reported two cases in which the parasites were found at necropsy in the pancreatic ducts.

It is stated that ova of this parasite have been found in the abdominal lymphatics and in the abscesses not adjacent to the biliary passages.

As to the frequency with which the disease is found in the Orient, Mathis demonstrated it, in the Tonkin district, in 5 per cent. of those examined.

Cadbury, in an examination of seventy-six students from Canton, found it in over 10 per cent. It is stated[3] that in some districts 17 per cent. of the population are affected.

In Japan, according to Katsumada, there are districts in which over 50 per cent. of the inhabitants are infected.

In Japan the clonorchis has been found in dogs, cats and hogs as well as in human beings.

In China Leiper found it in the dog, but was unable to demonstrate the intermediate host, which in Japan has been shown to be a fish. It is believed by some that the fish is the second intermediate host, the first being unknown.

There seems to be a great difference of opinion as to the pathogenicity of this parasite, some believing that it usually causes no symptoms, while others claim that serious symptoms are frequently produced.

Manson says:

> This parasite, which for long was supposed to be practically innocuous, is now held to be the cause of a serious disease of the liver, which may terminate fatally. Indeed, there can be no doubt of this when one considers that in some of the cases recorded several thousand parasites were present.

Castellani and Chalmers say:

> There is an abnormal appetite, but the general health remains good for some time, though the liver enlarges and becomes painful, while jaundice may be present. The spleen also enlarges. The disease is apparently very chronic, but toward the end emaciation, ascites, edema about the feet and legs, and diarrhea lead to death from exhaustion.

White expressed the opinion that the importation of this fluke into the United States is a distinct menace to the public health.

In view of the fact that this disease is incurable, and that if once implanted in this country it would be practically impossible to eradicate it completely, it would seem to be the part of wisdom to prevent its wholesale importation, at least until such time as it has been reasonably demonstrated that we have not a suitable fish or other animal capable of acting as an intermediate host.

Experimenting with cats, without an intermediate host, I have been unable to transmit the disease through the skin or by feeding. Naturally these results would be expected in view of our present knowledge of the transmission of other digenetic trematodes where it has been so clearly shown recently by Leiper in the case of *Schistosoma japonica* and bilharzia that the infection can take place only after the development in the intermediate host of the cercaria, which may enter the final host directly through the skin.

In the diagnosis of clonorchis infections, the very small size of the egg makes it quite possible for it to be overlooked. Furthermore, in light infections but very few eggs may be found in the stool.

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[3] Maxwell and Jeffery: Diseases of China.

THE COMPOSITION AND PHYSIOLOGIC ACTIVITY OF THE PINEAL GLAND *

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CHICAGO

Within the last few years the pineal gland has attracted some attention as a result of experiments conducted by Dana and Berkeley,[1] and McCord.[2] They fed this gland to young animals such as dogs, guinea-pigs, chicks, rabbits, cats, etc., and found that it caused them to outgrow the control animals, both in size and in sexual maturity. The addition of even small amounts of desiccated gland to the food is stated to be sufficient to produce marked results. It has also been found that infant glands are more active and give better results than adult glands. The present investigation was carried out for the purpose of determining the constituents and physiologic activity of this gland and to ascertain if any difference exists in glands from different species and between glands from young and from mature animals. Cattle, sheep and lambs, which usually furnish the raw material for pineal preparations in this country, were selected for this purpose. Approximately 900 glands from full-grown cattle were collected during March, 1915. During December, 1915, and January, 1916, 1,458 glands from cattle, 1,348 glands from sheep and 5,062 glands from lambs were obtained.

The glands were removed from the brains immediately after the heads were opened, and carefully trimmed, which in this case is a very easy matter, as the glands have but little connective tissue attachment and are free from adherent fat. The cattle glands are long and fusiform, often with black spots, while the sheep and lamb glands are short and plump and more uniformly light colored. The glands were weighed and stored at freezing temperature until the entire lot had been collected. The various lots were minced finely and desiccated in vacuo at a temperature between 35 and 37 C. After drying to constant weight, the glands were coarsely ground and extracted with petroleum benzin in a Soxhlet apparatus. The weight of the fresh glands, together with the loss of moisture and petroleum ether-soluble substance, will be found in the accompanying tabulation. On the desiccated fat-free material, moisture, ash, phosphoric acid and total nitrogen were determined.

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* From the Research Laboratory in Organotherapeutics, Armour & Co.

1. Dana, C. L., and Berkeley, W. N.: Med. Rec., New York, May 10, 1913, p. 835; Berkeley, W. N.: Ibid., March 21, 1914, p. 513.
2. McCord, C. P.: The Pineal Gland in Relation to Somatic, Sexual and Mental Development, The Journal A. M. A., July 18, 1914, p. 232; id., ibid., Aug. 7, 1915, p. 517.

When these figures are compared it will be noticed that cattle glands are relatively small and that sheep and lambs contain much more pineal tissue per unit of bodyweight than cattle. The ash and phosphorus in the infant glands are somewhat less and the total nitrogen slightly higher than in adult glands. Practically no difference exists in the phosphorus content of cattle glands from two successive years, while there is considerable variation in the ash content. There is no obvious relation between phosphorus and total ash. Pineal glands from lambs contain less phosphorus than sheep glands, and these, in turn, less than cattle glands. All the samples were tested for epinephrin and iodin with negative results.

The petroleum ether-soluble portions of the various lots of glands, after evaporation of the solvent, were of a transparent amber color and of waxy consistency, resembling crude lipoids from brain tissue both in odor and appearance. A sample from full grown cattle glands contained 5.7 per cent. phosphorus, calculated as pentoxid, equivalent to 64.1 per cent. of lecithin.

The physiologic action of pineal extract on unstriped muscle was determined, in this investigation, by the isolated uterus method generally employed in the standardization work of pituitary liquid made from the posterior lobe of the pituitary body. Ten per cent. solutions of the various lots of fresh glands and the equivalent of the desiccated glands were made both with neutral and slightly acidulated isotonic salt solution. The finely hashed or powdered glands were macerated with the solvents, boiled for ten minutes and filtered. Various amount of the different liquids were diluted with Locke's solution and their contracting power compared with a 1:20,000,000 dilution of betaimidazolylethylamin hydrochlorid. All the pineal liquids tested possessed slight contracting power on the uterus of the virgin guinea-pig. These contractions were, however, even smaller than those caused by anterior lobe extract of similar strength and consequently insignificant in comparison with those produced by an equal amount of the posterior lobe of the pituitary body. No material difference could be detected between the extracts made from infant glands and those from adult glands. In this connection it should be remembered that solutions made from ordinary brain tissue possess some uterine contracting power.

The ductless glands of medicinal merit, such as the thyroid, the suprarenals and the pituitary body, all show distinct physiologic actions on the system which can readily be observed, measured and recorded. If the pineal gland possesses therapeutic value, it would be natural to expect such activity, in some form or other; but in contrast to the important results reported on the feeding of even minute quantities of this organ stand out the insignificant results obtained by actual physiologic testing of the gland. Much of the published work along these lines refers to the action of the pineal gland on the blood pressure. Eyster and Jordan[4] found that aqueous extracts of the pineal body, on intravenous injection, produced a slight fall of mean arterial blood pressure and a moderate and transitory diuresis, but no change in the pulse. On the excised heart the pineal had no important effect. Ott and Scott[4] arrived at the same conclusions, and further noticed that pineal extract increased the contractile power in the pregnant uterus and the intestinal wall to a slight degree. On the other hand, Dixon and Halliburton,[5] as well as Dana and Berkeley,[1] all reported negative blood pressure experiments, by the use of pineal extract made with various solvents. When these reports are averaged, it becomes very evident that the action of pineal extract on the blood pressure is quite insignificant.

If the problem is observed from the opposite direction, namely, the systemic changes caused by extirpation of the glands, the results are equally negative.

WEIGHT OF GLANDS OF CATTLE, SHEEP AND LAMBS, WITH LOSS OF MOISTURE AND PETROLEUM ETHER-SOLUBLE SUBSTANCE

	Fresh Glands							Desiccated Fat-Free Material									
	Total Number of Glands	Average Weight of Glands	Maximum Weight of Glands	Minimum Weight of Glands	Moisture in Fresh Tissue	Petroleum Ether-Soluble	Yield of Desiccated Fat-Free Material	Moisture	Ash	Phosphorus Pentoxid (P_2O_5)	Total Nitrogen	Protein (Nitrogen × 6.25)	Ash (Dry Basis)	Phosphorus Pentoxid (P_2O_5) (Dry Basis)	Total Nitrogen (Dry Basis)	Protein (Dry Basis)
		Gm.	Gm.	Gm	%	%	%	%	%	%	%	%	%	%	%	%
Pineal glands from cattle, collected March, 1915	886	0.21	0.60	0.1	83.9	2.2	13.9	3.75	7.35	3.76	12.72	79.50	7.63	3.91	13.22	82.63
Pineal glands from cattle, collected December, 1915, and January, 1916	1,458	0.18	0.35	0.0	81.6	2.8	15.6	5.10	8.10	3.75	12.68	78.94	8.53	3.95	13.31	83.19
Pineal glands from sheep, collected December, 1915, and January, 1916	1,348	0.12	0.25	0.0	82.7	2.5	14.8	5.65	8.20	3.44	12.68	79.25	8.69	3.65	13.44	84.00
Pineal glands from lambs, collected December, 1915, and January, 1916	5.062	0.08	0.18	0.0	83.5	2.5	14.0	6.25	7.05	3.16	12.83	80.19	7.52	3.37	13.69	85.56

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3. Eyster, J. A. E., and Jordan, H. E.: Proc. Am. Jour. Physiol., 1910-1911, xxiii, 25.
4. Ott, I., and Scott, J. C.: Month. Cycl. and Med. Bull. (Philadelphia), 1912, v, 207
5. Dixon and Halliburton: Quart. Jour. Exper. Physiol., 1909.

Dandy[6] states that following the removal of the pineal, no sexual precocity or indolence, no adiposity or emaciation, no somatic or mental precocity or retardation were observed. The experiments yielded nothing to sustain the view that the pineal gland has an active endocrine function of importance during either infancy or adult life. The pineal is apparently not essential to life, and seems to have no influence on the well-being of the animal.

CONCLUSIONS

Comparisons have been made between pineal glands from cattle, sheep and lambs. It was found that beef glands are relatively small and that both sheep and lambs contain much more pineal tissue per unit of body weight than do cattle. Infant glands contain less phosphorus and more total nitrogen than adult glands.

Pineal glands from both species show only slight contracting power on unstriped muscle. This is very much less than that produced by equal amounts of the posterior lobe of the pituitary body, and not sufficient to be of physiologic significance.

Since the actions of pineal glands, both on the blood pressure, the pulse rate and the excised heart, as well as on the uterine and intestinal muscle, are insignificant in therapeutic doses, and since health is not influenced by extirpation of the gland, it becomes difficult, at least with our present knowledge of physiologic chemistry, to accept or even consider the pineal body as an internal secretory organ of medicinal value.

THE SALICYLATES

III. SALICYLATE ALBUMINURIA *

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There is no uniform agreement as to the appearance of albumin in urine, following the administration of salicylate in rheumatic and normal individuals. Its presence is claimed by some,[1] and doubted or denied by others.[2] Because of the confusion in the mode of application of tests for albumin, the origin of the albuminuria, that is, whether febrile or renal, has also remained unsettled. The object of the present contribution is to settle definitely whether or not salicylates can cause albuminuria, and if it is of febrile origin.

The excretion of albumin was studied qualitatively (heat and ferrocyanid tests), and quantitatively (gravimetric method of Folin and Denis[3]), together with phenolsulphonephthalein excretion in some and the nonprotein nitrogen of the blood in the majority, of sixteen patients. Nine of these suffered with rheumatic fever, and seven were nonrheumatic and practically normal. Sodium salicylate was administered in doses of 2 gm. every hour, in the form of solution until signs of "toxicity," that is, ringing in the ears, deafness, dizziness and nausea appeared, when the administration was stopped. The fluid intake was maintained constant, usually 80 c.c. of water, together with 20 c.c. of the salicylate solution, being administered every hour until "toxicity," and then 200 c.c. of water every two hours until the experiment terminated, which usually required from three to four days. Urine was collected in ten-hour periods until salicyl free. At the same time the usual clinical observations on pulse, blood pressure, respiration and temperature were also carefully recorded. With the exception of the temperature, which was reduced in the rheumatic individuals, there were no important changes demonstrable in these functions, and, therefore, they may be considered of no importance in connection with the problem here under consideration. Table 1 contains various pertinent data from the clinical histories of all the individuals.

SALICYLATE CAUSES ALBUMINURIA

Turning now to the urinary changes, it was found that salicylate causes prompt albuminuria, together with the appearance of leukocytes and bodies resembling small granular casts, in both rheumatic and nonrheumatic individuals. When the urine, before the administration of salicyl, was free from these elements, they disappeared at the end of the experiment (third to fourth day), that is, on the completion of salicyl excretion. On the other hand, if the urine showed the presence of these elements before salicyl, they tended to persist, though markedly diminished, after salicyl excretion was completed.

The presence of small, oblong and round granular bodies suggested the presence of casts. In ordinary clinical examinations, such bodies would undoubtedly be considered as casts. However, the presence of easily discernible nuclei in the granular masses suggests leukocytic disintegration, occurring in hypotonic urines such as these generally happened to be. Moreover, in dogs during the administration of salicyl, in doses corresponding to those used in human individuals, the freshly obtained urines always showed the presence, chiefly, of well preserved leukocytes, and also red blood corpuscles. It may be doubted, therefore, whether these bodies are casts in the ordinary sense, particularly if it is remembered that casts are somewhat later manifestations, whereas here acute conditions (a matter of a few hours) are concerned.

The maximum excretion of albumin took place at the end of about ten hours after administration, that is, approximately at "toxicity." Chart 1 illustrates the quantitative excretion of albumin by the different individuals, and shows that the course for both rheumatic and nonrheumatic individuals is the same. Chart 2 (diuresis) illustrates that excretion of albumin takes place independently of the water output. The urine output at "toxicity" is considerably diminished, and hence the concentration of albumin is markedly increased.

ALBUMINURIA IS NOT OF FEBRILE ORIGIN

The results of previous observers leave open the possibility that the albuminuria might be of febrile origin rather than due to the salicylate. The results of the observations here reported settle this point definitely on the side of the salicylate, simply because of the fact that albumin, leukocytes and castlike bodies promptly appear in the urines of afebrile and nonrheumatic individuals. The sequence of events, that is, appearance of the albumin, maximum excretion and its course and abatement took place in practically the same way.

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[6] Dandy, W. E.: Jour. Exper. Surg., 1915, xxii, 237.

* From the Medical Clinic of City Hospital and the Pharmacological Laboratory, Western Reserve University.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Owen: Brit. Med. Jour., 1881, ii, 1081. Ackeren: Charité-ann., 1890, xv, 253. Lüthje: Deutsch. Arch. f. klin. Med., 1902, lxxiv, 163. Kleinberger and Oxenius: Ibid., 1904, lxxx, 225. Frey: München. med. Wchnschr., 1905, lii, 1326. Glaesgen: Ibid., 1911, lviii, 1125. Chistoni and Lapresa: Arch. di farmacol., 1909, viii, 63. Rocco: Ibid., 1913, xiii, 567. Quenstaedt: Therap. d. Gegenw., 1905, xlvi, 97.

[2] Knecht: München. med. Wchnschr., 1904, li, 956. Brugsch: Therap. d. Gegenw., 1904, xlv, 58. Mamlock: Med. Klin., 1905, i, 523; i, 53. Wiley: U. S. Dept. Ag. Bur. Chem. Bull., 84, Part II, 1906. Ehrmann: München. med. Wchnschr., 1907, liv, 2595. Hanzlik, P. J.: A Study of the Toxicity of the Salicylates Based on Clinical Statistics, The Journal A. M. A., March 20, 1913, p. 957.

[3] Folin and Denis: Jour. Biol. Chem., 1914, xviii, 273.

In animals (dogs and cats) which gave no evidences of albuminuria previous to the injection of salicylate, a prompt appearance of albumin and leukocytes and red blood corpuscles in the urine followed the injection of salicylate. No quantitative estimations were made; but, judging from qualitative tests, the course of the albuminuria was about the same as in human individuals.

EFFECT ON RENAL FUNCTION

The severity of the reaction (albuminuria, etc.), together with a marked depression in urine excretion, might be referred to some interference with renal function. To aid in the elucidation of this, the phenolsulphonephthalein excretion, and nonprotein nitrogen of the blood at different periods during an experiment, that is, before salicyl, at "toxicity," twelve hours after "toxicity," and at the end of the experiment, were studied.

Nonprotein Nitrogen.—Table 2 presents the results that were obtained. These show practically no important differences between the different periods. In some cases (particularly nonrheumatics) there appears to be a slight accumulation of nonprotein nitrogen, in others (particularly rheumatics) a slight diminution at "toxicity," when the albuminuria is most pronounced. The results which we have accumulated with animals are too few and uncertain to merit consideration. It may be mentioned that one animal (Cat 4), which had received three "toxic" doses of salicylate within forty-five hours, showed a marked accumulation of nonprotein nitrogen (from 22 to 130 mg.) in the blood at the end of this time. This animal also showed the most marked cloudy swelling of the kidney. The results which we have obtained with human material are somewhat similar to those of Denis, who found that when the nonprotein nitrogen of the blood was about normal, salicylate produced practically no effect on this fraction. However, when it was abnormally high, a considerable diminution took place after the administration of the drug.

Phenolsulphonephthalein Excretion. — This remained about the same throughout all periods in three (6, 7 and 8) nonrheumatic individuals; somewhat decreased in two (14 and 15), and somewhat increased in two (13 and 16) at "toxicity," as compared with the period before salicyl was administered. On the whole, the effects cannot be interpreted as a diminution of renal functional efficiency.

Water Excretion.—All individuals (both rheumatic and nonrheumatic) showed a diminution in water excretion at "toxicity" (Chart 2). This can be explained to a large extent as due to the marked sweating which took place particularly in the rheumatic patients.

TABLE 1.—CLINICAL DATA *

Number and Patient	Diagnosis	Condition of Temperature	Fluid Intake	Toxic Dose of Salicyl,† Gm.	Diaphoresis	Urine Output at "Toxicity" or Shortly After	Urinary Changes					
							Albumin		White Blood Corpuscles		Granular Casts or Castlike Bodies	
							Before Salicyl	During Salicyl Medication	Before Salicyl	During Salicyl Medication	Before Salicyl	During Salicyl Medication
				Nonrheumatic								
(F. D.)	Appendicitis T. B. kidney(?)	Afebrile	180 c.c. every hr. for 7 hrs. 300 c.c. every 2 hrs. thereafter	12.04	Mild	Lessened	+ tr.	+ inc.	+ oc.	+ inc.	—	+
(L. E.)	Tabes dorsalis	Afebrile	150 c.c. every hr. for 8 hrs. 300 c.c. every 2 hrs. thereafter	13.76	Marked	Lessened	+ tr.	+ inc.	+ oc.	+ inc.	—	+
(H. M.)	Normal	Afebrile	150 c.c. every hr. for 9 hrs. 400 c.c. every 2 hrs. thereafter	15.48	Mild	Lessened	—	+	+ oc.	+ inc.	—	+
(A. P.)	Normal	Afebrile	100 c.c. every hr. for 12 hrs. 200 c.c. every 2 hrs. thereafter	14.96	Very mild	Lessened	—	+	—	+	—	+
(J. B.)	Normal	Afebrile	100 c.c. every hr. for 11 hrs. 200 c.c. every 2 hrs. thereafter	19.30	....	Lessened	+ tr.	+ inc.	—	+	—	+
(D. T.)¶	Normal	Afebrile	100 c.c. every hr. for 7 hrs. 200 c.c. every 2 hrs. thereafter	13.3‡	Mild	Lessened	+ tr.	+ inc.	—	+	—	—
(J. T.)¶	Normal	Afebrile	100 c.c. every hr. for 6 hrs.	10.5	Mild	Lessened	+ tr.	+ inc.	+ oc.	+ inc.	—	—
(M. Z.)¶	Normal	Febrile	100 c.c. every hr. for 6 hrs.	10.5	Marked	Unchanged	+ st.	+ inc.	+	+ inc.	+	+
(M. C.)¶	Normal	Afebrile	100 c.c. every hr. for 6 hrs. 200 c.c. every 2 hrs. thereafter	12.3	Mild	Markedly diminished	+ tr.	+ inc.	+ oc.	+ inc.	+ oc.	+ inc.
				Rheumatic								
(P. F.)¶	R. F.	Febrile	256 c.c. every hr. for 12 hrs. 256 c.c. every 2 hrs. thereafter	13.41	Moderate	Lessened	—	+				
(J. M.)	R. F.	Febrile	170 c.c. every hr. for 8 hrs. 300 c.c. every 2 hrs. thereafter	12.81	Profuse	Lessened	—	+	—	+	—	+
(W. C.)	R. F.	Febrile	100 c.c. every hr. for 9 hrs. 200 c.c. every 2 hrs. thereafter	15.48	Profuse	Lessened	+ tr.	+ inc.	+ oc.	+ inc.	+ oc.	+ inc.
(J. H.)¶	R. F.	Febrile	220 c.c. every hr. for 8 hrs. 440 c.c. every 2 hrs. thereafter	14.45	Profuse	Lessened	+	+ inc.	—	+	—	+
(J. L.)¶	R. F.	Febrile	200 c.c. every hr. for 8 hrs. 400 c.c. every 2 hrs. thereafter	14.45	Very profuse	Lessened	+ tr.	+ inc.	+ oc.	+ inc.	—	+ oc.
(S. V.)	R. F.	Febrile	100 c.c. every hr. first 11 hrs. 200 c.c. every 2 hrs. thereafter	18.33	Moderate	Lessened	+ tr.	+ inc.	+ oc.	+ inc.	+	+ inc.
(W. B.)	R. F. Old T. B. lesion of apex	.... Febrile	100 c.c. every hr. for 5 hrs. 200 c.c. every 2 hrs. thereafter	8.75	Very profuse	Lessened	+ tr.	+ inc.	—	+	—	+

* In this table the various signs and abbreviations have meanings as follows: R. F. = rheumatic fever; plus (+) sign, present; minus (—) sign, absent; tr., trace; inc., increased; oc., occasional; st., strong.

† Salicyl was administered in form of sodium salicylate, expressed as salicylic acid.

¶ The albuminuria in this individual was not studied quantitatively. In such cases, the urines were either utilized for other quantitative studies, or they had stood too long to give trustworthy results for albumin

‡ Also sodium bicarbonate, 14 gm.

Histologic Examination of the Kidney.—The kidneys of four animals (three dogs and one cat) which had received salicylate, and showed marked albuminuria, leukocytes and erythrocytes in the urine, were examined by Professor Karsner of the pathologic laboratory. His description and interpretation of these, and brief protocols of the experiments, are as follows:

Experiment 1.—Dog, 3.1 kg. Urine before salicyl was albumin free; received 0.3 gm. sodium salicylate per kilogram by mouth; one hour later there was marked albuminuria. On the following day there was still marked albuminuria; received two doses of 0.3 gm. each per kilogram, but vomited almost immediately after each dose; 4 gm. of salicylate were then injected in three divided doses hypodermically within thirty minutes; animal was killed one and one-fourth hours after last dose. Albuminuria was severe; red and white cells were present in the urine.

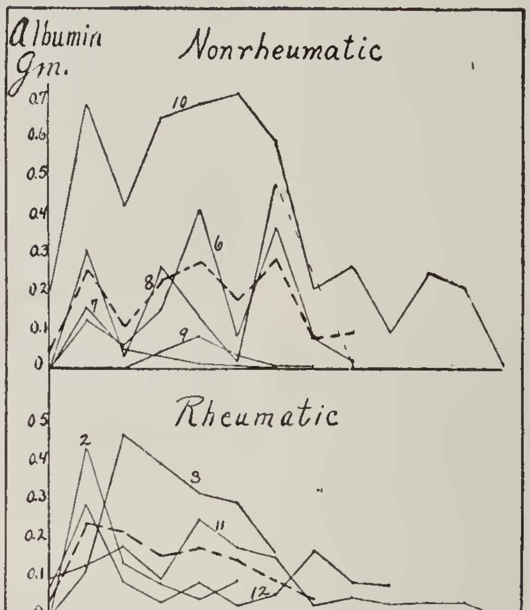

Chart 1.—Effect of salicylate on excretion of albumin in urine of rheumatic and nonrheumatic individuals. In this and the following chart, the numbers refer to the individuals; the broken lines represent averages.

Glomeruli show slight congestion but otherwise normal tufts; occasional glomeruli show albuminous precipitate in the subcapsular space. Epithelium of the proximal convoluted tubules shows moderate cloudy swelling; the lumina of these tubules show much granular albuminous precipitate. Other parts of the tubule are normal. There are no casts.

Diagnosis.—Cloudy swelling of kidney.

Experiment 2.—Dog, 5.4 kg. Urine before salicyl contained a trace of albumin, which was markedly increased together with the appearance of white and red cells after the subcutaneous injection of 0.9 gm. sodium salicylate. Two days later the animal received 3.3 gm. salicylate in two divided doses; the animal died during the night; urine from bladder gave strong albumin tests and showed the presence of white and red corpuscles.

Picture somewhat obscured by postmortem degeneration. Glomerular tufts normal save for slight congestion; the subcapsular spaces contain much granular precipitate and also a moderate number of desquamated capsular epithelial cells; the latter, however, are probably the result of postmortem change. The epithelium of the convoluted tubules shows marked granularity, and the lumina contain many albuminous granules. There are no casts. Other tubules show less marked granular change. Around some of the large blood vessels there is an old connective tissue growth.

Diagnosis.—Postmortem degeneration and probably cloudy swelling of kidney.

Experiment 3.—Dog, 5.6 Kg. For four days previous to injection of salicylate, urine showed a trace of albumin. On day of experiment, urine was albumin free. Received single injection of 0.05 gm. salicylate per kilogram hypodermically; seven hours later urine gave strong albumin tests and showed presence of white and red corpuscles; dog found dead in cage next morning; 5 c.c. of urine were obtained from the bladder, and this gave very strong albumin tests, and showed numerous white corpuscles and granular castlike bodies. Blood before salicyl contained 52 mg. nonprotein nitrogen in 100 c.c.; seven hours after injection of salicyl, and when albuminuria was pronounced, 62.3 mg. in 100 c.c.

Postmortem degeneration has advanced to such a degree as to render description useless.

Experiment 4.—Cat, 3.2 kg. Urine before salicyl showed questionable trace of albumin for two days; 1.05 gm. sodium salicylate were injected in three divided doses in the course of forty-five hours; 700 c.c. water were administered at different times, and about 300 c.c. urine were voided during this interval. Animal was killed. Urine at all times gave marked albumin tests and showed many white and a few red blood corpuscles. Before the administration of salicyl the blood contained 22.4 mg. nonprotein nitrogen in 100 c.c.; just before the animal was killed, the blood contained 130 mg. in 100 c.c.

The glomeruli show practically normal vascular tufts; the subcapsular space in many instances shows a moderate amount of albuminous precipitate; a small number of glomeruli show swelling of the capsular epithelium. The epithelium of the proximal convoluted tubules shows well marked granularity of the protoplasm, in some instances hyalin, droplet formation, and the tubular lumina contain much granular albuminous precipitate and not infrequently many desquamated epithelial cells. The tubules otherwise are normal; there are no casts.

Diagnosis.—Cloudy swelling of kidney. The change might be called by some authors an acute tubular nephritis, but without more marked tubular change, and especially in the absence of notable change in the glomeruli tuft, such a diagnosis seems hardly justifiable.

Summarizing the various evidences of the effects of salicylate on renal function, it can be said that so far as the phenolsulphonephthalein excretion and nonprotein nitrogen of the blood are concerned, no marked deficiency in the functional efficiency of the kidney has been demonstrated. The diminution in water excretion can be explained by the diaphoresis. Morphologically, there also does not appear to be any clear cut evidence of nephritis. However, Ackeren[4]

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[4] Ackeren: Charité-ann., 1890, xv, 253.

TABLE 2.—NONPROTEIN NITROGEN OF THE BLOOD AND PHENOLSULPHONEPHTHALEIN EXCRETION IN THE URINE OF RHEUMATIC AND NONRHEUMATIC INDIVIDUALS RECEIVING FULL THERAPEUTIC DOSES OF SALICYLATE

Period	Nonrheumatic Individuals																	Rheumatic Individuals						
	6		7		8		9		10		13		14		15		16	5		11		12		12†
	N. P. N.*	Phthalein*	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.	Phthalein	N. P. N.
Before salicyl..........	42.6	60	30.6	55	27.5	70	33.3	..	24.0	..	52.2	62	52.2	70	53.1	74	25	33.1	..	31.1	..	40.6	..	66.3
At "toxicity"..........	49.6	55	44.6	60	35.5	60	48.2	..	14.2	..	42.3	75	52.5	50	63.2	25	35	24.0	..	24.1	..	29.4	..	63.1
12 hrs. after "toxicity"	54.6	60	41.6	55	27.5	65	49.2	..	16.5	..	....	...	....	...	....	..	..	26.9	..	21.3	..	14.1		
End of experiment.....	76.6	60	16.6	60	10.2	70	39.3	..	19.5	..	....	...	....	...	....	..	..	29.4	..	24.3				

* The N. P. N. (nonprotein nitrogen of blood) represents mg. in 100 c.c. of blood. The method of Folin and Denis (Jour. Biol. Chem., 1912, xi, 527) was used with 5 c.c. of blood, 10 c.c. of filtrate, and distillation (using hundredth normal acid and alkali) instead of the colorimetric procedure. The phenolsulphonephthalein excretion was carried out in the usual way, the figures representing percentage of excretion in two hours.

† Used 2½ months previously; convalescing; required 9.0 gm. salicylate for "toxicity."

claims to have produced hemorrhagic nephritis in rabbits with salicylic acid. Vinci[5] reports a toxic parenchymatous nephritis in an individual (45 years of age) who died thirty-one hours after the ingestion of 35 gm. of sodium salicylate. Pronounced renal lesions in experimental animals due to salicyl are also reported by Vinci.

In this connection, it is interesting to note that Denis[6] has demonstrated a reduction of the uric acid content of the blood following the administration of salicylate in full therapeutic doses, the nonprotein nitrogen of the blood at the same time remaining unchanged or reduced. These effects were interpreted as due to an increase in renal permeability. It has been observed previously by many investigators[7] that salicylates cause an increase of uric acid excretion in the urine, and the causes for this have been variously stated, but in no case was the uric acid content of the blood studied. Benzoic acid, which is chemically related to salicylic acid (ortho-oxybenzoic acid), has been found by Denis[8] to decrease the uric acid content of the blood and simultaneously increase the excretion in urine. On the other hand, para-oxybenzoic acid, which is therapeutically inert in rheumatic fever, did not affect the uric acid content of the blood and urine. Cinnamic and quinic acids also had practically no effect on the uric acid of the blood and urine.

The excretion of albumin and the presence, chiefly, of leukocytes, and in animals, of leukocytes and erythrocytes, could conceivably be due to an increase in renal vascular permeability. In this connection, it might be recalled that certain clinicians[9] claim to have successfully used salicylate for the absorption of fluid from pleural cavities (increased permeability of serous membranes), and Oswald[10] claims that salicylate increases the permeability of colloids for electrolytes, and it has previously been demonstrated by one of us (P. J. H.[11]) that salicylate markedly increases the permeability of xcised intestine for iodid. Taking all of hese evidences together, it would seem hat salicylate is capable of increasing the permeability of organs for diffusible substances. Whether the increased permeability to albumin and cells is an analogous phenomenon is a disputable question.

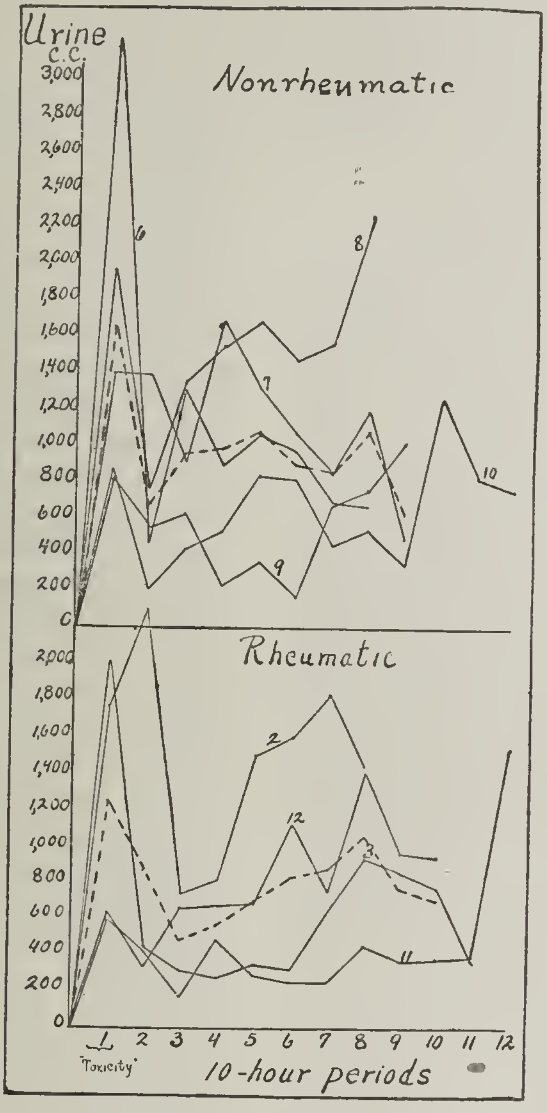

Chart 2.—Effect of salicylate on diuresis in rheumatic and nonrheumatic individuals.

CONCLUSIONS

1. Following the administration of full therapeutic doses of sodium salicylate, the urines of both rheumatic and nonrheumatic (normal) individuals showed the presence of albumin, eukocytes and bodies resembling small granular casts.

2. Quantitatively, the albuminuria reaches its maximum at "toxicity" (ringing and deafness in ears, vomiting, etc.); then gradually diminishes and even-ually disappears, a trace of albumin persisting in hose individuals who showed a trace of albumin before the administration of the salicylate.

3. The phenolsulphonephthalein excretion and nonprotein nitrogen of the blood at different periods during an experiment, that is, before salicyl, at "toxicity," twelve hours after "toxicity," and at the end of the experiment (third to fourth day) show no decisive differences.

4. The water excretion at "toxicity" is diminished, and this can be explained by the marked sweating which occurs particularly in rheumatic individuals.

5. The albuminuria is not of febrile origin because it is promptly produced in the afebrile organism; the sequence of events, that is, appearance of albumin, maximum excretion, its course and abatement, taking place precisely the same way.

6. Observations on animals with doses of salicylate corresponding to those used in human individuals led to the demonstration of prompt and severe albuminuria, together with white and red blood corpuscles in the urine.

7. Morphologically, the kidney shows distinct cloudy swelling, affecting particularly the proximal convoluted tubules, associated with the appearance of granular albuminous precipitate in the subcapsular space of the malpighian body.[12]

We wish to express our thanks to Prof. E. P. Carter for permission to use the clinical material of the Medical Clinic at City Hospital; to Prof. Howard T. Karsner for examination and interpretation of the kidney material; to Dr. F. C. Tyng, resident physician, and all those at City Hospital who have contributed their services in numerous ways in this and other salicyl investigations.

ABSTRACT OF DISCUSSION

Dr. Torald Sollmann, Cleveland: The series of Dr. Hanzlik settles the dispute of the occurrence of albuminuria after the administration of the salicylates. With this series of experiments there is no doubt that the doses of salicylates used therapeutically do produce albuminuria. Whether that has any significance or not is yet to be decided and will require further work. Of course, the occurrence of albumin should make one cautious with the administration of the salicylates where renal changes are known to exist. It does not appear that permanent damage is done with the doses ordinarily employed. As far as is known these patients do recover perfectly, the albumin disappears and leaves no change behind. The question depends on the causation of this albuminuria. Is this albuminuria due to inflammatory changes in the kidneys, or to the increased permeability. This is a question still further to be investigated. Dr. Hanzlik reports variable results as to nitrogen retention and the phenolphthalein test which might be due to two factors—a nephritic change which tends toward retention, and an increased permeability which tends toward increased excretion. The two things may exist at the same time so that in some of the cases you might have the nonprotein nitrogen in the blood increased, in others decreased.

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[5] Vinci: Arch. di farmacol. sper., 1905, iv, Nos. 2, 3; Bioch. Centralbl., 1905, iv, 240.

[6] Denis: Jour. Pharmacol. and Exper. Therap., 1915, vii, 255.

[7] Compare Hanzlik: Annual Report (1914) Therapeutic Research Committee, Council on Pharmacy and Chemistry, American Medical Association, 1915, p. 55.

[8] Denis: Jour. Pharmacol. and Exper. Therap., 1915, vii, 601.

[9] Dock: Tr. Michigan Med. Soc., 1895, xix, 121. Köster: Therap. Monatsh., 1892, vi, 117. Leonardi and Aster: Deutsch. Ztschr. f. rakt. Med., 1876, xxxiii, 367.

[10] Oswald: Ztschr. f. exper. Path. u. Therap., 1910, viii, 226.

[11] Hanzlik, P. J.: Jour. Pharmacol and Exper. Therap., 1912, i, 387.

[12] The reaction of the blood (H^+ concentration), using the method of Levy, Rowntree and Marriott (Arch. Int. Med., September, 1915, p. 389), in Patients 13, 14 and 15 was 7.4, 7.4 and 7.55, respectively, before salicyl, and 7.4, 7.4 and 7.55, respectively, at "toxicity." That is, the reaction was slightly alkaline and remained unchanged at "toxicity." This does not agree with the claims of certain clinicians that "toxicity" by salicylates is associated with or due to acidosis, and the reason for giving sodium bicarbonate with salicylate to prevent acidosis. More data are being collected for a future report in this connection.

Dr. R. L. Wilbur, San Francisco: How long before this inflammation of the kidney subsides after the salicylates are stopped? Is there any difference from the administration of aspirin, etc., instead of the salicylates? Might it interfere with man passing a life insurance examination to have recently taken the salicylates? I have seen albuminuria where the question was an open one as to whether the albumin was due to the salicylates or to the acute condition for which the drug was taken or to permanent renal damage. The condition cleared up in a few weeks, but the insurance company was undecided whether the man was a proper risk or not, even after a delay of a year after such a finding.

Dr. Irwin J. Moyer, Pittsburgh: I presume Dr. Hanzlik has taken kidneys that are mostly normal before the administration of the salicylates. I would like to have an expression, however, as to how they do affect any previous renal condition. The question has been asked as to how long this continues. It is a common experience that the salicylates increase the elimination of uric acid for some time; but this soon subsides and I do not know that the salicylates increase the uric acid after a very definite length of time. It is a very practical question to determine what the effect of the salicylates are on the renal conditions.

Dr. Paul J. Hanzlik, Cleveland: As to whether or not urines were examined before the salicylate was administered—they were, in every case, and sometimes they showed albumin before the salicylate was administered, and in these cases the albumin is increased and does not disappear altogether after the salicylate is excreted. However, in a general way, the albuminuria ceases when the salicylate is excreted. The duration of the albuminuria is about three to four days after the administration of "toxic" doses of salicylate—in one case 110 hours; in another case 120 hours, and in still another, only fifty hours. There is a considerable variation. With repeated "toxic" doses we do not know what would happen in the human organism. In one animal, albuminuria appeared after each dose, three repeated "toxic" doses having been used, and there was a marked accumulation of nonprotein nitrogen in the blood, and marked cloudy swelling of the kidneys. As to what connection this has with life insurance I do not know, for we do not know how permanent these changes are. As far as the albuminuria is concerned, in those individuals who do not show albuminuria before the administration of salicylate, it is not permanent. I have not tried aspirin. The question of uric acid is interesting. It is true that the uric acid content of the blood is diminished following full therapeutic doses of the salicylates, but this returns practically to normal after the salicylate is excreted.

Drugs and Their Effects.—A discussion at a board of guardians in the Midlands as to the action of a medical officer in prescribing large doses of dangerous drugs, such as strychnin, says the *Medical Press and Circular*, Nov. 15, 1916, suggests the enormous number of drugs which are prescribed in everyday practice, and with whose actions the physician, save for some textbook knowledge, is usually not intimately acquainted. The nurse in a general hospital, if she be of an observant nature, must have often wondered why, in certain conditions, the same drugs, in the same doses, are always prescribed by the same man. She must frequently ask herself if the physician really is aware of what effect, if any, the medicine has had, and she must needs come to the conclusion that in the vast majority of cases the rule-of-thumb method is what most men work by. We have not far to go to obtain examples of drugs, which, in spite of their age long use, are still retained as active and frequently exhibited remedies, for the want of a proper knowledge of their effects. There are few house physicians who have not, at some time or other, been called to the bedside of a patient dying of pneumonia to inject some fraction of a grain of strychnin. In many of the modern textbooks 1/30 or 1/60 grain is still recommended in the heart failure of pneumonic patients, and yet is there any proof that either dose can be of the slightest value as regards the state of the heart?

APPENDICITIS AND PULMONARY TUBERCULOSIS *

HUGH M. KINGHORN, M.D.

SARANAC LAKE, N. Y.

The facts here presented were based on my cases treated at Saranac Lake, N. Y., by the open air method from October, 1905, to June 19, 1916.

Patients who undergo climatic treatment for pulmonary tuberculosis have comparatively few serious digestive disturbances. One would hardly expect this to be so, as they are taking an increased diet, and many are taking either no exercise whatever or a limited amount of exercise. These patients, however, are constantly in the open air, and their whole habit of life is such as to keep them in the best possible physical condition. The digestive system seems to respond to the increased strain put on it, and unless there is some organic condition somewhere in it, it usually gives little trouble.

All lung specialists place great importance on a good digestion as an important requirement to give a good prognosis in cases with pulmonary phthisis. A patient with a bad digestion will always be given a guarded prognosis. It goes without saying that the examination of the patient is not complete without a careful inquiry into the digestive system, and also a careful physical examination of the abdomen.

Appendicitis and intestinal tuberculosis are the two organic conditions in the intestines which are most frequently encountered in treating patients with pulmonary tuberculosis.

It is well known that intestinal tuberculosis is one of the most serious complications that can occur in the course of cases of pulmonary phthisis. Up to the present time it has been considered a terminal complication. When our patients have developed positive symptoms of intestinal tuberculosis we have given them an absolutely bad prognosis. This rather hopeless view may be modified in the future, as some of these patients with intestinal tuberculosis may be much benefited by operation, that is, by removal of the disease in the bowel if the disease is not too disseminated. Up to the present time the results of operation have not been very encouraging.

The majority of cases of appendicitis occurring in patients with pulmonary tuberculosis have the usual classical symptoms. There are several types of cases which are not classical and which can easily be overlooked. One is that type of case in which there are more or less chronic symptoms of intestinal indigestion. The symptoms may be hardly definite or severe enough to direct our attention to the appendix, but by examining this organ we may find that the symptoms are due to a chronic appendicitis. My attention was first directed to such cases by Dr. J. R. Byers of the Laurentian Sanitarium of St. Agathe des Mont, P. Q., Canada. He informed me that he had given relief by operation to a considerable number of patients who had had these chronic symptoms of intestinal indigestion and which he had found to be caused by the appendix. I have found this to be true.

Another type which is frequently encountered in tuberculous patients occurs as a mild appendicitis. It frequently happens that the physician is called to see the patient on account of cramps in the abdomen. Advice may be asked of the physician over the telephone, as the patient may think that the cramps are of no importance. Such patients are usually taking a considerable quantity of milk. The usual advice given is for the patient to stop taking milk for some days and to take a dose of castor oil or some other purga- ive. The results that follow these directions are usually good, and frequently nothing more is heard from the patient. This, however, is not a safe procedure. It is much safer to see the patient and exam- ne the abdomen. The physician will frequently find hat such cramps are due to an appendicitis. I recall one case in which the cramps were of so slight a nature as scarcely to demand an examination of the abdomen. This case went to abscess formation and a fecal fistula. Had an examination of the abdomen been made at the nset, this condition would have been avoided. In nother case the patient complained only of vomiting and of no pain in the abdomen. Examination revealed a well defined mass about the appendix and marked enderness over this organ.

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* Read before the American Climatological and Clinical Association, Washington, D. C., May, 1916.

* Because of lack of space, this article is abbreviated in The Journal by omission of tables and case histories. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

There is still another masked form of appendicitis vhich is emphasized by Dieulafoy and which we occa- ionally see in our pulmonary cases. The onset of this orm is by diarrhea. If our patient has been taking arge quantities of milk, we are apt to think that the liarrhea is due to the milk. We have become so ccustomed to see constipation accompany appendi- itis that we may not recognize appendicitis accom- anied by diarrhea. An error in diagnosis may then eadily occur. If a patient has abdominal pain and iarrhea, we should make frequent physical examina- ions of the abdomen and try to find the seat of the ain.

FREQUENCY OF APPENDICITIS IN PATIENTS WITH PULMONARY TUBERCULOSIS UNDERGOING CLIMATIC TREATMENT

From October, 1905, to June 19, 1916, I treated 727 atients with well established pulmonary tuberculosis. 'hey were all under climatic treatment at Saranac ake, N. Y. Of this number there were 425 males and 02 females. The total number of cases of appendi- itis in the 727 patients was forty-three, or 5.9 per ent. Of this number, twenty-nine were males and ourteen were females. It is thus seen that the disease 'as more prevalent in the male than in the female. or instance, of the 425 males, twenty-nine had appen- icitis, 6.8 per cent.; while of the 302 females, four- een had appendicitis, 4.6 per cent. As regards age, our cases occurred up to and including 20 years; venty-two occurred between 20 and 30 years (exclud- g 20 and including 30); twelve between 30 and 40 ears, and five between 40 and 50 years.

These figures are similar to those obtained from ie records of cases of appendicitis that occurred in pparently healthy persons. In my series as well as in l tables of statistics of the disease, it is seen that e disease is distinctly one of early life. The majority ' cases occur up to and including the thirtieth year of fe. Between 31 and 40 years a fair proportion curs, while after 40 years the disease diminishes.

Sex plays a certain part, as the disease occurs in ales more frequently than in females, according to all oservers. There is no satisfactory explanation for is fact. Some authors have believed that the addi- onal blood supply obtained in females through the ppendiculo-ovarian ligament prevents obliteration of the circulation, thus obviating an important cause of the disease.

FREQUENCY OF OPERATION

Of the forty-three patients with appendicitis, twenty-eight were operated on, 65.1 per cent., and fifteen recovered without operation, 34.9 per cent. Of those who underwent operation, some were operated on during the attack and others during the interval. Of those who did not undergo operation, the symptoms were so mild in character as not to demand operation.

PROGNOSIS

Of the twenty-eight patients who underwent operation, three, or 10.7 per cent., died. Two deaths occurred on the third day, and one occurred four months following operation. The first case was one of fulminating appendicitis, and though operation was performed within twenty-four hours of the onset of the attack, there was already infection of the peritoneum, and the patient died on the third day after the operation. His case was moderately advanced, and he was in good physical condition. The second patient was operated on in the interval. He had a moderately advanced case and was in good physical condition. He had suffered from a mild attack of appendicitis, but a swelling in the right iliac region persisted. The diagnosis in this case was a probable case of localized intestinal tuberculosis. At operation this proved to be correct, and the appendix, cecum and ileocecal valve and part of the ascending colon were found to be tuberculous and were removed. On the third day after the operation the patient sank rapidly and died. The cause of his death was regarded as delayed shock, but no postmortem examination was made of the abdomen. Chloroform was used in the first case, and local anesthesia of novocain and epinephrin chlorid and then nitrous oxid in the second. The third patient was operated on in the interval. At operation the cecum and appendix were found to be tuberculous, and there was also extensive tuberculosis of the small bowel. The disease was so extensive that no cutting was done, and the abdomen was closed. Nitrous oxid and oxygen were used for anesthesia. The patient died four months later of general tuberculosis. She had a far advanced case and was in poor physical condition. All of the twenty-eight patients seemed to act well during the operation, and there were no deaths on the operating table.

The mortality of this series of forty-three cases (operative and nonoperative cases) was 6.9 per cent. (that is, three deaths in forty-three cases).

In the acute cases in which operation was performed, there was a mortality of 9.1 per cent. (one death in eleven cases). In the interval operations there was a mortality of 11.7 per cent. (two deaths in seventeen operations). Both these patients had extensive intestinal tuberculosis. It is of interest to compare this mortality, which occurred with patients suffering from pulmonary tuberculosis, with the mortality which occurs with patients free from tuberculosis.

Rotter's[1] statistics show that in 213 cases, 8.9 per cent. of the patients died. In twenty-one cases there was diffuse peritonitis on admission to the hospital. Of these patients, seven, or 33.3 per cent., recovered, while fourteen, or 66.6 per cent., died. The latter accounts for nearly two thirds of the total mortality of 8.9 per cent. Of 192 cases with circumscribed perityphilitis, 156 patients (82 per cent.) recovered under medical treatment. Of the remaining thirty-six, thirty-three were operated on, and two died; three died without surgical intervention. There were, therefore, only five deaths (2.5 per cent.) among 192 cases of circumscribed perityphlitis.

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[1] Rotter: Osler's System of Medicine, v, 429.

Treves[2] states that the general mortality of perityphlitis in all its aspects has been estimated at 11 per cent. If an abscess forms, the mortality is raised to between 30 and 40 per cent.

Sahli[3] collected reports of 7,213 cases, of which 473 patients were operated on, while 6,740 were not. Of the latter group, 91 per cent. recovered. Recurrences took place in 4,593 cases; and of these, 3,635 recovered without further recurrences.

Up to the beginning of the year 1909, Schnitzler[4] had operated in 2,000 cases: 1,063 interval operations, with a mortality of 0.47 per cent. (five deaths), and 937 acute cases, with a mortality of 10.5 per cent. (ninety-nine deaths). It is thus seen that in these 2,000 operations there was a mortality of 104, or 5.2 per cent.

Comparing my series with these series, one sees that patients with pulmonary tuberculosis undergoing climatic treatment stand the operation for appendicitis exceedingly well.

FREQUENCY OF TUBERCULOSIS OF THE APPENDIX

In all cases in which operation was performed, careful search of the appendix was made to see if there was any tuberculosis present. Of the twenty-eight patients who underwent operation, well defined tuberculosis of the appendix was found in seven (25 per cent.). Five of these patients were in the moderately advanced and two in the far advanced stage of pulmonary tuberculosis. Tuberculosis of the appendix seems, therefore, to be present in the advanced stages of phthisis. None of the incipient cases showed evidence of tuberculosis in the appendix. Excluding the incipient cases, and combining the moderately advanced and far advanced cases, there was a percentage of 31.8 in which there was tuberculosis of the appendix (twenty-two cases, in seven of which there was tuberculosis of the appendix).

Primary tuberculosis of the appendix is believed to be very rare. In a few instances it has been encountered. Like other forms of intestinal tuberculosis, tuberculosis of the appendix is usually secondary to tuberculosis of the lungs. It may occur independently of other involvement of the intestines, but is more commonly found in association with tuberculosis of the cecum. Letulle states that in necropsies he has never found tuberculosis of the appendix without other lesions of the same nature in some other portion of the body.

Tuberculosis of the appendix seems to be more common in males (about 60 per cent.) than in females (40 per cent.).[5] The age incidence in sixty-four cases collected by Müller was: from 2 to 9 years, three cases; from 10 to 19 years, eighteen cases; from 20 to 29 years, twenty-one cases; from 30 to 39 years, sixteen cases, and from 40 to 47 years, six cases.

My statistics are few, but of seven patients with tuberculosis of the appendix four were males (57 per cent.) and three were females (43 per cent.). Four patients were between 20 and 30 years, one between 30 and forty years, one between 40 and 50 years, and one at 16 years.

In 3,055 operations for appendicitis from various sources, fifty, or 1.6 per cent., were found tuberculous.[6] These statistics correspond with those of Lockwood,[7] who states that it is found in 2 per cent. of the operative cases.

THE EFFECT OF THE OPERATION

One would think not only that these patients would stand operation badly, but also that the shock of the operation and the irritation of the anesthetic would have a bad effect on the disease in the lungs. First, with regard to the danger of operation: There were twenty-eight cases in which operation was performed. No deaths occurred during the operation. These patients were in all stages of pulmonary tuberculosis, and their physical conditions varied. Most of them were in good physical condition. All were under climatic treatment, and this fact may have had some influence on the way they stood operation. Four patients with advanced pulmonary disease were in poor physical condition. All stood the operation well. I can say, therefore, that the immediate danger from operation is slight, and does not seem to be more than that which occurs with healthy persons.

Secondly, with regard to the after-effects of the operation on the pulmonary disease and on the general condition of the patient: Of the twenty-eight patients operated on, there were two deaths within three days of the operation and one death within four months. One patient died of a septicemia following a fulminating appendicitis; one patient died of probable delayed shock following a serious operation for removal of the appendix, cecum, part of the ileum and part of the ascending colon, all of which were tuberculous; the third patient failed rapidly after operation, and died within four months. No cutting was done in this case, as extensive disease of the appendix and bowels was found, and it was impossible to remove all the disease. This patient was failing rapidly previous to operation, had a far advanced case, and was in poor physical condition. In 10.7 per cent. of cases (three in twenty-eight) there was a bad effect from operation. In twenty-five cases (89 per cent.) there was no bad effect on either the general or the lung condition. These patients stood the operation remarkably well, and within a short time were just as well as they were before operation. The operation seemed to have no ill effect whatever on the lungs. Many of them showed a remarkable improvement and gained rapidly in weight. Of the seven patients who had tuberculosis of the appendix, one is alive, well and at work, one died within a year of operation, one died four years after operation, one died four months after operation, and one died three days after operation. The two remaining patients are still under treatment for their pulmonary tuberculosis and are doing well.

CHOICE OF AN ANESTHETIC

When a general anesthetic is employed, that one should be used which is safest and which will cause the least irritation to the lungs. Occasionally in my series of cases a local anesthetic of epinephrin chlorid and novocain was used and acted well. This can be used in only a limited number of cases, but if it can be used, is to be preferred above all other anesthetics, as it diminishes to a minimum the danger of shock, and causes no irritation to the lungs. It was used in two of my cases with complete satisfaction.

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[2] Treves: System of Surgery, ii, 627.
[3] Sahli: Osler's System of Medicine, v, 429.
[4] Schnitzler: Keen's Surgery, vi, 553.
[5] Keen's Surgery, vi, 571.
[6] Müller: Keen's System of Surgery, vi, 571.
[7] Lockwood: Osler's System of Medicine.

If local anesthesia cannot be employed, the combination of nitrous oxid and oxygen is, in my judgment, the anesthetic of choice. This was used in twenty cases. One patient died of probable delayed hock on the third day after operation. The appendix and cecum and part of the ascending colon were removed on account of tuberculous disease. A second patient grew rapidly worse after operation and died in our months. Here no cutting was done on account of extensive intestinal tuberculosis. In both cases the anesthetic did not seem to cause any irritation to the ungs. In the remaining eighteen cases in which nitrous oxid and oxygen were used for anesthesia, here was no evidence whatever of any irritation to the ungs, and the lungs did not suffer in any way as a esult of operation. Chloroform was given in three ases. One of these patients had a fulminating appenicitis and died on the third day after operation. The emaining two patients experienced no ill effects on the ungs from this anesthetic.

Ether was given to three patients, and all three xperienced no ill effects whatever on the lungs from his anesthetic.

The prevailing opinion seems to be that ether should ot be used on patients with pulmonary tuberculosis n account of its irritating the lungs. Chloroform is ess irritating than ether, but is more dangerous to the fe of the patient. In the hands of a reliable anesthe-ist, it is to be preferred to ether in these cases. Nitrous oxid and oxygen is, in my judgment, the anes-hetic of choice to be used in these cases. In my cases proved to be satisfactory in every way, and there was o sign of irritation to the lungs. Dr. John B. Murhy[8] suggests the use of spinal anesthesia in cases of uberculosis of the appendix, but I have had no experince with it. In the discussion which took place at Washington in May, 1916, at the meeting of the Amerian Climatological and Clinical Association on the hoice of an anesthetic for patients with pulmonary uberculosis, physicians from Colorado spoke very ighly of the safety of ether in such cases when given y the drop method. They regard ether to be just as afe and just as suitable as nitrous oxid and oxygen, nd to be just as free from harmful after-effects, proided it is given by this method.

THE QUESTION OF OPERATION

Here we have to consider appendicitis in its acute orm, and in its mild or chronic forms. In my ases, when appendicitis occurred acutely, there as a mortality of 9 per cent. (one death in eleven perations for acute appendicitis). In 937 operations or acute appendicitis, Schnitzler had a mortality of nety-nine, or 10.5 per cent. Of twenty-eight tients of all classes of my cases, that is, acute, mild nd chronic appendicitis, who were operated on, there as a mortality of 10.7 per cent. (three deaths in enty-eight). From careful observation of my tuber-ulous patients not only during but also after opera-on, I believe that these acute cases should be garded as we regard apparently healthy patients, nd that the lung condition should be excluded when e are making our decisions as to whether or not to perate. I think that this belief is justified from the facts that there were no deaths during operation, and that there were no bad effects on the lungs as a result of operation, and also because the mortality from operation was almost the same as in healthy persons. Patients with pulmonary tuberculosis stand the operation for appendicitis remarkably well. This conclusion applies also to pulmonary patients in a feeble condition. These patients also stood operation remarkably well.

When the appendicitis is mild or chronic, I think the pulmonary condition should be considered. When mild or chronic attacks occur in patients in good physical condition, we should choose a time for operation which is most suitable. Many factors will influence the time to be chosen. Such patients stand operation well, and should be treated as we treat healthy persons. Their lung condition should not be considered against the danger or detriment to their health from appendicitis.

When mild or chronic attacks occur in patients in feeble or poor physical condition, the question of operation should be decided only after careful consideration. Each case must be considered by itself. Such patients stand operation well. Should repeated attacks endanger their health or keep them from taking sufficient nourishment, the appendix should be removed. I have seen remarkable improvement in such cases follow operation. One patient (a feeble woman with an advanced case), gained in weight from 85 to 135 pounds as a result of operation, a gain of 50 pounds, and there was a corresponding improvement in her lung condition.

POLYCYTHEMIA

PRELIMINARY REPORT OF A CASE WITH A HITHERTO UNDESCRIBED INCREASED RESISTANCE OF THE RED CELLS TO HEMOLYTIC AMBOCEPTOR *

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In the reports by Lutenbacher[1] and by Lucas,[2] both reviewing the literature up to 1912, 196 unquestionable cases of essential polycythemia are described. Since then about fifty cases have been added. Polycythemia, polycythemia rubra (from the color of the skin), erythremia, Vaquez' disease or Osler's disease, as it is variously called, was first described by Vaquez in 1892. It shows a persistent, causeless increase of the red cells in the blood, chronic cyanosis, usually a large spleen, and the absence of cardiac, renal or other circulatory disturbance that might account for the symptoms.

Symptoms.—Cyanosis is nearly always present. The general appearance has been strikingly described as "Indian red." The skin, especially where thin, as that of the nose, ears and about the eyes, and that of the lips and the mucosa of the mouth, is bluish or purplish. Plethora is manifested in the skin by swollen veins and capillaries, and in the alimentary tract by digestive disturbances, of which vomiting, obstinate constipation and spontaneous hemorrhages are the chief. Dyspnea on slight exertion results from the engorgement of the lungs.

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[8] Murphy, J. B.: Keene's Surgery, vi, 571.

* Read before the San Diego County Medical Society, June 6, 1916.

[1] Lutenbacher, R.: L'érythrémie, Paris, G. Steinheil, 1912. This monograph covers the entire subject thoroughly.

[2] Lucas, W. S.: Erythremia, or Polycythemia with Chronic Cyanosis and Splenomegaly, Arch. Int. Med., December, 1912, p. 597. This is a review of cases to 1912.

In spite of the increased viscosity of the blood and the increased proportion of cells to plasma, the blood pressure is usually normal, and the right heart is not hypertrophied. In a form of polycythemia reported by Geisbock,[3] characterized by hypertension, this is a complication, due to coexisting arterial or renal disease. The cardiac examination should rule out the existence of lesions sufficient to provoke a compensatory erythrocytosis. The Roentgen ray should supplement the stethoscopic examination in doubtful cases.

In the majority of cases a trace of albumin, and not infrequently casts are found. The glandular system is normal. The temperature is unaffected.

Nervous System.—Nearly all the cases show cerebral symptoms. Syncopal sensations with or without loss of consciousness, vertigo, Ménière's syndrome and paralyses are reported. A changed mental state is usual, with general depression, irritability, amnesia or insomnia. Headache is common. Neuralgic pains, pains in the left hypochondrium, sensations of fulness in the head, hot flashes, and later sensations of cold, are usual.

Spleen.—Splenomegaly does not form an integral part of the picture, although present in about three fourths of the patients, even reaching the iliac fossa. The enlarged spleen may precede the increase in red cells. The liver is sometimes slightly enlarged as a result of the plethora.

Hematology.—The red cell count varies normally between 4,500,000 and 5,500,000. The limit for a healthy man in a low altitude is about 5,800,000. In polycythemia the red count is over 6,000,000, usually between 7,000,000 and 11,000,000. In thirteen cases, counts of 12,000,000 or over have been described, the highest two (those of Seufert[4]) being 15,000,000 and 15,500,000. The number varies at different times in the same patient, the range being about 1,000,000; but in seven cases the range was from 3,000,000 to 4,500,000.

Several cases have been seen in the anerythremic period. Lutenbacher's patient had cyanosis four years and enlarged spleen one year, before coming under treatment. At that time the red cells were only 4,800,000, but rose gradually to 9,000,000 in the course of a year.

With the reds the leukocytes are increased, averaging 15,000, but may be normal, or 30,000 or over. The polymorphonuclears show characteristically an increase from the normal proportion of 60 per cent. to 80 per cent. or more, the eosinophils from 3 to 9 per cent., at the expense of lymphocytes.

The red cells are mature cells, practically normal in appearance, but medullary hyperactivity is shown by the presence of small numbers of nucleated reds, of polychromatophilia, and myelocytes, in slight degree at least, in the majority of cases. The color index is less than unity. The hemoglobin is increased, but not in exact ratio to the red cells; from 125 to 150 per cent. is reported, "up to the limit of the scale"; one case had 240 per cent. hemoglobin. In other chronic cyanoses the size of the red cells is larger than normal, about 8 microns, in the polycytosis of altitudes smaller, averaging 6 microns. In polycythemia the cells are of about average size, and even compose nine tenths of the whole blood. Where the cell count is very high, the cells are necessarily smaller, and microcytes are present.

In the few cases in which the tests were made, the resistance of the globules to hypotonic solutions and to other serums was normal (except one, mentioned further on).

The blood is darker than normal. The viscosity is increased. Weber found it twice normal in two cases. The coagulation time is shortened. The oxygen capacity increases proportionately to the hemoglobin. The total volume of the blood is increased, in the few estimations being from two to three times the normal amount for the weight. There is then a real plethora.

Pathologic Anatomy.—The liver shows enlarged blood capillaries, as do other organs. The spleen in the cases with splenomegaly shows active congestion, but no essential histologic change. One case showed increased erythrolytic activity of the macrophages. The enlargement of the spleen has been found due to tuberculosis, syphilis and malaria, and in these cases it may be supposed that the polycythemia is secondary to the changes in the spleen, and the loss of erythrolytic action. This was proved true in a case of Rist and Parvu[5] with a red count of 7,700,000; after the extirpation of an ecchinococcic cyst of the spleen the polycythemia and cyanosis were cured. Such cases are not the essential polycythemia, and the same is true of cases of portal or splenic stasis from thrombosis, phlebitis or cirrhosis of the liver, in which the stasis is the cause of the increase of the reds and of the enlarged spleen.

The pathognomonic change is in the bone marrow. The fatty marrow of the long bones normal in the adult is replaced by that of a red fetal type, very vascular, and showing active production of red cells.

The anatomic examination proves the myelogenous origin of true polycythemia.

Etiology.—The age of onset is usually between 40 and 60. Sex, race and other factors seem to be unimportant.

Metchnikoff assumes that some toxin of a hemolytic nature is manufactured by the spleen and is absorbed in the circulation in minute quantities, not sufficient to cause hemolysis, but sufficient to excite a reaction in the blood-forming organs. Experimentally minute doses of a hemolytic serum injected into the blood of anemic individuals has raised the number of reds, and the amount of hemoglobin.[6]

The cause of polycythemia is unknown. It is comparable to leukemia, and, as that is a hyperblastosis, a tumor of the tissues forming leukocytes, polycythemia or erythremia is a hyperblastosis, a tumor of the tissues forming erythrocytes. There are transitional cases, as Blumenthal's,[7] in which the myelocytes numbered 36 per cent., along with a red count of 11,450,000.

Course.—There is an anerythremic phase in which the medullary reaction is compensated for by the hyperactivity of the spleen, destroying the red cells, and preventing the development of erythrocytosis. Later come crises of plethora, increase of the red cells, cyanosis, vertigos, headaches and neuralgias. The disease is progressively but slowly fatal, with a duration of from ten to fifteen years. With the hyperemia hemorrhages are frequent, occurring in about a fourth of the cases. Epistaxis, bleeding gums, hematoma hematemesis and melena are reported. Two patients had transitory relief after menorrhagia. Ten patients (aged from 28 to 53, averaging 42) had cerebral hemorrhage or thrombosis; and cerebral hemorrhage, or hemorrhage from the gastro-intestinal tract may be the cause of death.

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[3] Geisbock, quoted by Lutenbacher: Deutsch. Arch. f. klin. Med., 1905, lxxxiii, 396.

[4] Seufert, E. C.: Am. Jour. Med. Sc., 1910, cxl, 832.

[5] Rist, Kindberg and Parvu: Soc. méd. d. hôp., 1910, cited by Lutenbacher (Footnote 1).

[6] Belonovsky: St. Petersburg, 1902, cited by Lutenbacher (Footnote 1).

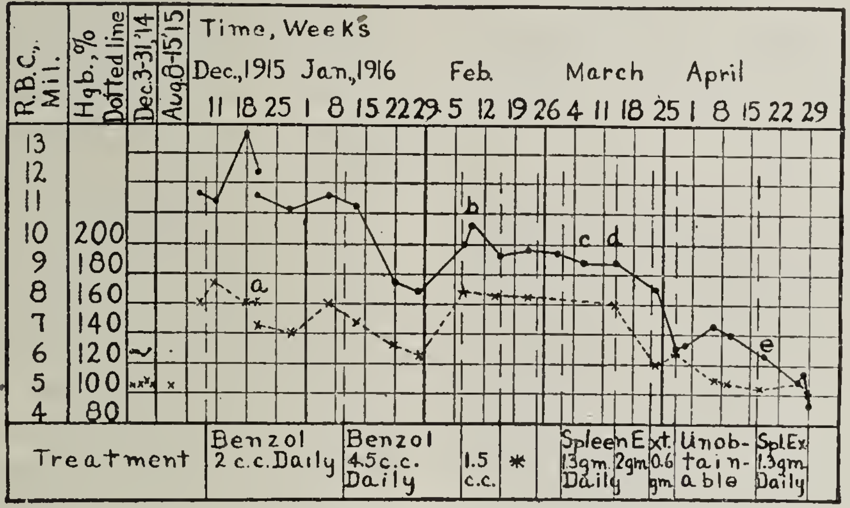
[7] Reported by Lutenbacher (Footnote 1).

Diagnosis.—The diagnosis is made on the presence of polycythemia with cyanosis, symptoms of cerebral congestion, polymorphonuclear increase, and, usually, an enlarged spleen. The increase of red cells must be absolute and persistent, and circulatory disturbance of cardiac, pulmonary or other origin must be ruled out.

The relative polycythemias due to prolonged vomiting, severe diarrhea (cholera), other causes of loss of fluid, and to pyloric stenosis must be excluded. Friedman[8] reported twenty-five cases of gastric and duodenal ulcer, and pancreatic disease with very high red counts. The forms due to high altitude, to congenital heart disease, to mediastinal tumors, and the occasional high counts after a hearty protein meal must not be confused.

Treatment.—Three patients died soon after splenectomy. Venesection, without result in three cases, furnished transitory relief in seven others. Of chemical agents, iron, quinin, arsenic, the salicylates, oxygen inhalation and many others have been useless, and of biologic agents, thyroid, pituitary extract and tuberculin were without effect.

Aside from one patient cured by applications of the Roentgen ray to the spleen (several others were treated without change) benzol (benzene, C_6H_6) has the only cures to its credit. After its use in leukemia it was suggested for polycythemia, and reports of five cases were collected by McLester,[9] including his own, in which an apparent cure had been effected, besides one other in which it had no effect.



Polycythemia: *a*, venesection; *b*, hemolytic resistance, five times normal; *c*, hemolytic resistance over four times normal; *d*, hemolytic resistance over two times normal; *e*, hemolytic resistance normal; * indicates spleen, raw, 25 gm. daily.

REPORT OF CASE

A man, aged 54, who had been under the care of Dr. Oatman since Dec. 7, 1915, gave a history of having been a robust, active business man until February, 1914, when he had a stroke, leaving a partial hemiplegia of the right ide. In October of the same year a second stroke occaioned an increase of the right sided palsy, from which ecovery was also practically complete. From this time on rritability, querulousness, and carelessness in money matters ccentuated themselves to the point at which he had to be ept away from business.

The cyanosis began gradually, and was noticeable by December, 1914, when at each of four weekly examinations he polycythemia was noted, about 6,500,000 reds, hemoglobin 08 per cent., white count 16,000 and 10,000. Blood pressure, ystolic, 138 to 168; diastolic, 104 to 124. Pulse, 80. During 915 he was examined several times; the polycythemia was resent (11,000,000?) but the record not obtainable. He was reated with small doses of benzol without effect. Many etails are unobtainable, owing to his mental state at the me. Two blood counts in August, 1915, showed 6,300,000 eds; whites, 9,000; hemoglobin, 105 per cent. A weakly ositive Wassermann reaction was reported.

Dec. 7, 1915, examination revealed a rather large framed man, of very dark, cyanotic appearance, weak, slow and uncertain in movement, cheerful at times, and with a marked loss of recent memory. With his attendants he was quite irritable.

The subjective complaints were of vertigo, and dizziness on standing or attempts at walking, painful sensation of cold in the hands and feet especially, and neuritis in the right leg preventing sleep. He had obstinate constipation.

The color of his nose, ears, and particularly of the lips and tongue was a dark purplish. The venules of the skin were distended. In the muscular system there was marked weakness. The grasp was uncertain. The patient walked slowly and with difficulty, partly owing to weakness, partly to the right foot drop, partly to the dizziness. Control of the fingers was poor.

The glands were not palpable. Examination of the heart and lungs was negative. There was some dyspnea on exertion. The pulse was normal, blood pressure, systolic, 160; diastolic, 100. The urine gave a trace of albumin. Temperature was normal the whole period of observation. Liver and spleen were not enlarged to percussion, nor was the spleen palpable. Reflexes were normal except for absence of the right patellar. Sensation was normal. Speech was slow. Amnesia was marked, and there was disorientation at times.

Blood.—The blood was very dark, viscid, spreading with difficulty on the slides. Fresh blood was negative. Hemoglobin 160 per cent. (taken with Sahli), equivalent to 22 gm. hemoglobin instead of the normal 14 gm. per hundred c.c. The white count was 22,200; red cells, 11,720,000; color index, 2/3. Differential count: polymorphonuclears, 87.25 per cent.; lymphocytes, 6 per cent.; mononuclears and transitionals, 5.75 per cent.; eosinophils, 0 per cent.; basophils, 1 per cent. There were no nucleated reds. Some of the platelets were two-thirds the size of the red cells.

Benzol, 2 c.c. daily, was started December 9 (McLester's mixture was used).

The highest count was December 18, reds 13,862,000; hemoglobin, 160.5 per cent.; leukocytes, 21,600; microcytes present in large number.

December 21, Dr. Oatman performed a venesection, removing over a liter (quart) of blood, and replacing it with saline solution. During this operation the patient's color changed to the healthy pinkish tint normal in one with dilated capillaries. The blood count an hour before venesection after twelve days of benzol therapy was 12,324,000; hemoglobin, 160 per cent. Differential count: polymorphonuclears, 81.85 per cent.; lymphocytes, 10.55 per cent.; mononuclears, 4.15 per cent.; (700) transitionals, 1.40 per cent.; eosinophils, 1.55 per cent.; basophils, 0.55 per cent.; myelocytes (neutral), 0.55 per cent. We wished to estimate the total volume of the blood with vital red, by the method of Keith, Rowntree and Geraghty,[10] but there was none of the drug in the country. The liter removed was possibly a fifth or sixth of the total quantity. Four hours and a half after the operation the patient looked as cyanotic as before, reds, 11,740,000; hemoglobin, 150 per cent.

By January 12 he seemed stronger and better, had better use of his fingers, his mental state was clearer, and he could walk short distances, in spite of the blood picture remaining about the same. The benzol was increased to 4.5 c.c.

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[8] Friedman: Progr. Med., 1914, ii.

[9] McLester, J. S.: Benzol in the Treatment of Polycythemia Rubra, HE JOURNAL A. M. A., May 2, 1914, p. 1381.

[10] Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med., October, 1915, p. 547.

per day. The pain in the right foot and leg was severe at this time. Injections of the nerve by Dr. Byars, during the absence of Dr. Oatman, gave relief.

Blood counts around 8,000,000 led us to think he was improving, but apparently it was only one of the oscillations common in these cases, as the polymorphonuclears remained about 80 per cent.; lymphocytes, 12 per cent.; eosinophils, 3 per cent., and February 7 the count was 10,000,000.

The benzol was reduced on account of the poor appetite of the patient. A Wassermann test on this date was negative. His cells formed eight-ninths of the total blood mass, instead of 50 per cent., normal. The patient's corpuscles showed no hemolysis against two units of antihuman amboceptor (twice the amount necessary to hemolyze normal corpuscles) in equal volume percentage (5 per cent.). The following day on titrating the patient's corpuscles against antihuman amboceptor, in order to hemolyze his corpuscles, it was found necessary to use five times the quantity of amboceptor used to hemolyze normal corpuscles (details in accompanying table). The resistance to hypotonic solutions was found to be normal, hemolysis beginning at 0.48 per cent. saline and complete in 0.30 per cent. saline. (Corpuscles added to solutions from 0.20 per cent. salt to 0.60 per cent. by 0.01).

RESULTS OF TITRATION *

Amboceptor Units	Complement Units	Patient's Corpuscles, 5%, C.c.	Result†	Normal Corpuscles 5% 0.1 C.c., Complement 1 Unit	
				Ambo. Units	Result
1	1	0.1	0		
1.5	1	0.1	h/2		
2.5	1	0.1	h		
4	1	0.1	hhh	4/5	hhh
4.5	1	0.1	hhh	1	hhhh
5	1	0.1	hhhh	6/5	hhhh‡

* No hemolysis with antisheep amboceptor.
† Complete hemolysis is indicated by hhhh.
‡ 2 units, hhhh, etc.

Although the theory of a greater resistance of the cells has been advanced, previous reports have not detailed any work tending to prove or disprove the idea, with the exception of the work of Guinon, Rist and Simon,[11] whose patient had cells showing a slightly greater resistance to hemolysis in hypotonic solutions, and the cases reported by Weber,[12] and by Lutenbacher, which were normal. However, the cell resistance in these cases was tested against dilute salt solutions, against normal serum, and antisheep amboceptor. No one tested the cell resistance to *antihuman* amboceptor. Since our case was examined, Freund and Rexford[13] have reported a case of polycythemia in which this test was made and the cell resistance found normal.

February 16, apparently on the up curve of the red count, raw spleen was administered, from 25 to 30 gm. per day, and continued until February 25. From March 2, splenic extract, 1.3 gm. daily, was administered.

A hemolysis test, March 6, showed a resistance to antihuman amboceptor of over four times that of normal corpuscles. By March 13 only two times that amount of amboceptor was required. As the red count was stationary, the splenic extract was increased to a dose of 2 gm. a day. March 24, the hemoglobin dropped to 120 per cent., reds 8,680,000. The dose of spleen was reduced to 0.6 gm. daily until March 28. The cyanosis was almost gone, mental condition and general condition were greatly improved, and memory was good. A cystitis had become troublesome, hematuria was said to have occurred March 27, but urine examination, March 28, showed no blood, urophein or urohematin (blood destruction). The differential count was normal.

During the time the splenic extract was not obtainable, the red count rose to over 7,000,000. April 17, 1.3 gm. of dry spleen were given daily again, the hemolytic test showed a normal resistance to antihuman amboceptor, hemoglobin was normal, and the cell count likewise. The treatment was then discontinued for a month in order that results might be watched.

Blood examination, June 27, two months after the last examination shown on the chart (April 29), without treatment, was as follows: hemoglobin 106 per cent.; red count, 4,980,000; whites, 9,200; blood pressure, systolic, 170; diastolic, 90; differential count, normal; hemolytic resistance, normal.

COMMENT

In this case with a small spleen, the destruction of the red cells was evidently at fault, although the hyperactivity of the marrow is shown in the blood picture. The inactivity of the spleen is shown in the effect of administering extract of spleen, and in the increased resistance of the red cells to destruction by a hemolytic agent (antihuman amboceptor). It is possible that Metchnikoff's theory of causation is correct in this case, namely, that minute doses of hemolysin are being taken into the circulation, possibly from an atrophic spleen, in quantity sufficient only to stimulate the formation of red cells, and in our case, the genesis of cells of increased resistance to the hemolytic agent. This theory is supported by the fact of the several tests, and by the result of the therapy with spleen, with the idea of stimulating this organ. First there is a flattening of the curve of the red count, and the absolute reduction of the count with larger dosage of spleen; a slight increase on suspension of the extract, and prompt reduction on its resumption. Further observation will clear up this point.

Polycythemia is a very rare disease, but the opposite blood picture, pernicious anemia, is common. The present case is suggestive of new lines of work in anemia.

607 Watts Building.

THE CONTROL OF THE NAUSEA AND VOMITING OF PREGNANCY

BY INTRAMUSCULAR INJECTIONS OF CORPUS LUTEUM EXTRACT

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A preliminary report on this subject has already appeared.[1] Herewith is presented the result of further experience.

THEORY

Every woman, during the period of sexual activity, is constantly absorbing corpus luteum. No sooner is the corpus luteum of one menstruation disposed of, than another appears to take its place. With the onset of pregnancy, this absorption ceases. The corpus luteum of pregnancy constantly increases in size, until it reaches its acme about the third month. From this time on, it is gradually absorbed. The nausea of pregnancy, beginning during the period of nonabsorption, disappears about the time that the corpus luteum begins to decrease in size. Is it not reasonable to assume that this is not coincidence, but cause and effect, and that the corpus luteum plays an important part in relation to the nausea?

Based on this idea, corpus luteum extract was administered intramuscularly, with the results shown below.

CASE RECORDS

It has now been used in twenty-five consecutive cases, taken without any attempt to choose the favorable or eliminate the unfavorable. It was successful in controlling the nausea and vomiting in twenty-one of the twenty-five. In four it proved a complete failure, and did not in any way check the vomiting. The essential points regarding the successful cases will be presented under the heading of dosage, as I think it unnecessary to detail the histories of the twenty-one successes. The failures offer a more interesting field:

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[11] Guinon, Rist and Simon: Bull. et mém. Soc. med d. hôp. de Paris, 1904, Series 3, xxi, 786.

[12] Weber, Lancet, London, 1906, ii, 1433.

[13] Freund, H. A., and Rexford, W. K.: Serologic Examinations in a Case of Polycythemia, Arch. Int. Med., March, 1916, p. 415.

[1] Hirst, J. C.: Corpus Luteum Extract in the Nausea of Pregnancy, The Journal A. M. A., Feb. 26, 1916, p. 645.

Failure 1.—Primipara (Case 4 in the preliminary report), aged 24, with severe nausea, received four doses of 1 c.c. each, and was worse than ever. The nausea was finally controlled by lavage and large doses of bromid, but there was no effect from the corpus luteum. This patient has a large goiter, which may or may not be a factor in her case. She was delivered, Aug. 9, 1916.

Failure 2.—Quadripara with severe nausea, eight weeks pregnant, received five doses of 1 c.c. each with absolutely no beneficial effect. This patient is the only one who showed any reaction to the extract. The reaction took the form of severe hives, with intense itching, all over the body. She had had a similar reaction to an immunizing dose of diphtheria antitoxin two years previously. When she was ten weeks pregnant, she suddenly developed dysuria. On examination, a retroversion of the gravid uterus was discovered. This was replaced, and the nausea ceased almost at once. This was evidently a case of the reflex type, and certainly was not influenced by the corpus luteum extract.

Failure 3.—Primipara, nine weeks pregnant, farmer's wife, received twelve doses of 1 c.c. each, with no good effect. She then refused further treatment, and the nausea persisted until the fourteenth week. In this patient, there does not seem to have been any palliative of the failure, such as might be suspected at least in the first two.

Failure 4.—Tertipara with severe nausea, who had had similar nausea in the other pregnancies, received twelve doses of 1 c.c. each, and then treatment was discontinued as no good effect was noted. The nausea was not in the least relieved. Here also there are no palliating circumstances.

Of the successful cases, two were of the pernicious type, in which the vomiting was so severe that the termination of pregnancy was seriously considered. In one of these, fourteen doses were given (two daily, 1 c.c. each) and in the other, seventeen (also twice daily). In both, the vomiting was entirely controlled.

The smallest number of doses in any successful case was four. This patient showed such a prompt response that I am confident her vomiting was neurotic in type and would have been controlled by any method of treatment which made a similar mental impression.

The largest number of doses was forty-two. This was in Case 5 in the preliminary report. The patient had previously had two hydatid moles, so that this was her third pregnancy. There was no need of further treatment after the tenth dose, as the nausea had ceased. The treatment was continued on the chance that it might have some effect in preventing a third mole. The patient was delivered at term of a female child, Aug. 8, 1916.

The average number of doses required in successful cases was eleven.

DOSAGE AND METHOD OF ADMINISTRATION

In the average case of nausea, in which it amounts only to discomfort, and the vomiting is limited to one or two morning attacks, the patient will usually respond to a dose of 1 c.c. every other day for five or six doses. Particularly is this true in the cases in which the nausea has begun to decline. In these cases the effect is almost immediate. In the more severe cases, when nausea is constant, and the patients are subject to frequent paroxysms of vomiting at any time during the day, the dose should be 1 c.c. daily for from twelve to fifteen doses. During the period of treatment, the patient's activity should be curtailed, and as much rest as possible is essential.

In the pernicious cases, I have given 1 c.c. twice daily, and should not hesitate to give more than this. These patients are confined to bed, of course.

The doses suggested above are average only, and I should not hesitate to give 2 or more cubic centimeters to a dose in severe cases in which a decision as to the value of the method must be reached without delay.

The site of the injection is prepared by cleansing with tincture of green soap and alcohol. The deltoid is my preference. The syringe used is glass, and it and the needle are boiled, and allowed to cool before the extract is drawn up from the ampule.

Alcohol is not a safe antiseptic to prepare a syringe for injection of any animal extract.

The site of the injection is gently massaged for a minute or two after the needle is withdrawn.

All injections are given deep, into the muscle, and *never* subcutaneously.

MATERIAL

The material used is in ampules, containing ⅓ grain of soluble corpus luteum powder in 16 minims of physiologic salt solution saturated with chlorbutanol for its local anesthetic effect. This amount is equivalent to 2½ grains of desiccated corpora lutea.

As to the sterility of this preparation, I have no misgivings. In several hundred injections, there has not been a single abscess. There is sometimes a red area around the site of the injection, for twenty-four hours, which is slightly tender, and this is less common the deeper the injection is given. A compress of alcohol and water, equal parts, promptly relieves this. Except in one case (Failure 2) there has been no general reaction and no anaphylaxis. The reaction in the case mentioned was of short duration, and occurred in a person evidently markedly susceptible. Not one of the patients aborted. This is somewhat remarkable. With the normal ratio of 25 per cent., it would not have been unusual if six had done so. Theoretically, at least, there should be some risk of abortion in the use of luteum extract, but the facts do not confirm the theory. At the very least, it can be stated definitely that the method does not add to the risk of abortion.

Another curious fact is the sedative action in markedly neurasthenic cases. Not only was the nausea improved, but also the patients' nervous phenomena. The dizziness, headache and other nervous manifestations of early pregnancy seemed to be remarkably controlled.

The percentage of success in this series (84) coincides with that of the preliminary report (80). As the cases were not selected, but taken consecutively, I see no reason why the results in a much larger number should vary far from this. It is too much to claim, in a subject so complex as the nausea of pregnancy, that any single agent should prove specific. Based on the foregoing results, however, it seems justifiable to assert that here is an important factor which heretofore has not received the attention it deserves, and it is my hope that more extended trial by the profession at large will prove that this assertion is not unfounded.

Since preparing this article additional cases have been observed, making a total of thirty-two successful cases of thirty-six studied.

1823 Pine Street.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1759*)

CREATIN AND CREATININ

Creatin is methyl-guanidin-acetic acid. Creatinin is an anhydrid of creatin.

Creatinin is a normal constituent of the urine, and the daily excretion is from 1 to 2 gm. It is both of exogenous and endogenous origin.

Many investigators have found that in nephritis there is retention of creatinin in the blood, and it has been found that if over 5 mg. of creatinin per hundred c.c. are retained, the outcome is fatal. The creatinin retention probably follows, and is coincident with the nonprotein nitrogen retention of the blood. It has been shown that there is a slight increase of the creatinin in the blood after a full meal, and in infections.

The creatin and creatinin content of the blood of children was recently investigated by Veeder and Johnston,[30] who examined seventy-five children in various stages of scarlet fever. They found that there is no apparent relationship between the amount of creatin and creatinin, but there is less creatin in the blood of children than in the blood of adults. On the other hand, creatin is found normally in the urine of children, but is not present in the urine of adults. Contrary to previous presumption, these investigators did not find any definite relation between the total nonprotein nitrogen and the creatinin-creatin content of the blood.

As stated, creatin is a normal constituent of children's urine, but is rare in the adult. The relation of the creatinin output to the amount of muscular tissue in adults is not the relation of the creatinin to the muscle tissue in children before puberty.

Cutler and Morse[31] have lately found in two children with nephritis no relation between the creatin and creatinin output and the amount of the fever.

Rose[32] and others, in experimental studies on creatin and creatinin, find that, contrary to the general belief, protein feeding in a starving man promptly reduces the creatin output to nothing. Administration of large doses of creatin in an ordinary individual causes some increase in the output of creatinin. This increase is doubtless due to the conversion of creatin intake to creatinin, and not to an increased output of endogenous creatinin.

EXPERIMENTAL NEPHRITIS

It cannot yet be definitely proved by tests of function exactly which parts of the kidney are pathologically affected. This has been shown recently by Frothingham,[33] though Potter and Bell[34] state their belief that an experimental tartaric acid nephritis shows that phenolsulphonephthalein, indigocarmin and methylene blue are excreted by the convoluted tubules. In acute glomerular nephritis caused by scarlet fever there is often a complete suppression of urine, that is, no water is passed by the kidneys. This bears out the belief that most of the water of urine is secreted by the glomeruli.

It has not been shown that the kidney has an internal secretion; it can, however, synthesize hippuric acid from glycocoll and benzoic acid, salicylic acid from salicylic acid and glycocoll. Uric acid has been shown to be excreted by the convoluted tubules and by the ascending loop of Henle, and urine leaving the Bowman capsule is alkaline, becoming acid in the convoluted tubules.

Christian,[35] in summing up some practical results obtained from experimental nephritis, states that the administration of diuretic drugs, such as potassium acetate, caffein, theobromin sodium salicylate, theocin, and even water, shortens rather than prolongs the lives of these animals. Even when one or other of these drugs at first stimulates the excretion of urine, it soon lessens the excretion and does harm. Therefore not only should renal irritants not be given, but even renal stimulants should not be used in the therapy of acute or subacute nephritis. Large amounts of potassium salts, chlorids and iodids, and the substitution of potassium chlorid for sodium chlorid caused poisoning in the animals which were suffering from experimental nephritis. Hence such drugs must be dangerous to human beings who have acute nephritis, and even large amounts of water may do harm by first promoting excretion and then wearying defective kidneys. Therefore, as noted by Christian, after diuresis there is often a lowered output of nitrogen.

ABNORMALITIES OF THE URINE

A person weighing 50 pounds should normally excrete about 32 gm. of solids in the urine per day; one weighing 100 pounds, about 57 gm.; one weighing 150 pounds, about 76 gm., and one weighing 200 pounds, about 88 gm. Girls and women ordinarily do not excrete as large an amount, owing to a less active life. After the age of 40, the excretion generally diminishes progressively, in some cases becoming 30 per cent. less after the age of 60.

A simple method of computing the total solids in the urine is to take the specific gravity of the twenty-four hour specimen, multiply the total number of ounces of this specimen by the last two figures of the specific gravity, and add to it 10 per cent. of the figure thus obtained. The result will be the total amount of solids passed, provided the urine does not contain albumin or sugar.

With retention of chlorids in the body there is also a retention of water, but with the free excretion of chlorids, the water excretion is also increased.

The following is a discussion of conditions often not isolated and not demanding treatment, but nevertheless worthy of brief consideration.

POLYURIA: DIABETES INSIPIDUS

Transient polyuria is of frequent occurrence and may be due to nervous irritability or to nervous tension as seen in hysteria; in normal individuals, it may be due to some temporary nervous excitement. It may also be due to a sudden change of temperature, to the drinking of too much water, to an increased consumption of tea, coffee, or caffein; to a diuretic drug, or to intestinal indigestion. Polyuria may also be caused by fevers, by chronic hypertension, by cerebral injuries, by some growth or lesion in the brain, or by a pituitary disturbance.

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[30] Veeder, B. S., and Johnston, M. R.: The Creatinin and Creatin Content of the Blood of Children, Am. Jour. Dis. Child., August, 1916, p. 136.

[31] Cutter, I. S., and Morse, Max: Studies in the Metabolism of Children, Am. Jour. Dis. Child., May, 1916, p. 326.

[32] Rose, W. C., and Dimmitt, F. W.: Experimental Studies on Creatin and Creatinin, VII, The Fate of Creatin and Creatinin when Administered to Man, Jour. Biol. Chem., 1916, xxvi, 345.

[33] Frothingham: Am. Jour. Med. Sc., January, 1916, p. 72.

[34] Potter and Bell: Am. Jour. Med. Sc., February, 1915, p. 236.

[35] Christian: Am. Jour. Med. Sc., May, 1916, p. 625.

Protracted polyuria, termed diabetes insipidus, is a peculiar condition causing the patient to pass gallons of urine per day of a specific gravity approximately that of water, namely, from 1.000 to 1.005. These patients suffer from an inordinate thirst, and unless large amounts of water are consumed, their tissues waste. They often suffer from vomiting, diarrhea or constipation, and headaches. If the patient is a child, growth is often stunted.

It was thought that the kidneys of these patients could not secrete urine of ordinary specific gravity, and hence to eliminate the solids an enormous amount of water was required. Patients apparently cured by treatment seem to disprove this hypothesis, and recently it has been shown that this condition is probably caused by a disturbance of the hypophysis cerebri. It has long been known that pathologic conditions in the brain cause polyuria. It is also known that pituitary extract stimulates the kidneys and at times acts as a diuretic, and that the posterior lobe of the hypophysis has some control over the kidney secretion. The relation between the pituitary and the kidneys has been described by Cushing in his book on the "Pituitary Body and Its Disorders." That a diminished secretion of the pituitary is a cause of diabetes insipidus seems to be borne out clinically, as some success has been reported in feeding posterior lobe extract to these patients.

At times modification of the circulation, raising the blood pressure when it is low and lowering it when it is high, will diminish polyuria. Bromids may act on the nervous system to correct polyuria; atropin has been successful at times; but in the real diabetes insipidus the most successful drug has been ergot, in fairly large doses and long continued. It is to be hoped that posterior hypophysis extract will be more successful.

In real diabetes insipidus, deprivation of water is impossible. The amount may be reduced somewhat, but the frequency with which water is needed cannot be reduced, and serious head and stomach symptoms may be the result of an attempt to limit the intake of water.

ANURIA

This condition may result from nephritis, from any serious condition of the genito-urinary tract, or reflexly in serious abdominal diseases. It may be the result of ow blood pressure or of so-called hysterical conditions. Before anuria, or suppression, is diagnosed, it must be known that the bladder is empty and the ureters not obstructed.

A nephritic patient cannot live long with suppression; but in cases of nervous suppression, anuria may be a symptom fòr days.

If suppression is caused by uremia, the treatment is hat of uremic poisoning. If there is obstruction, surgical interference of some kind is necessary. If the circulation is at fault, because of cardiac failure, digialis and caffein may be indicated. If hemorrhage has occurred, and at times without hemorrhage having occurred, hypodermoclysis of physiologic sodium chlorid solution or a colon injection of salt solution may be given.

LOW ACIDITY OF THE URINE

This is a condition which seldom requires treatment. Urine which is neutral or close to neutral is not quite normal, except, perhaps, directly after a meal. The pelvis of the kidneys, the ureters, the bladder, and the urethra, under normal conditions, require that the urine be acid. Subacid or faintly alkaline urine has a tendency to deposit alkaline salts, to cause an increased secretion of mucus, and to irritate the bladder. Many pathogenic bacteria gain a foothold and grow in the parts bathed by this neutral or alkaline urine, which would not grow in acid urine. If there are symptoms of bladder irritability, and no other cause is ascertained than an alkaline or subacid urine, the patient should be allowed more meat unless it is otherwise contraindicated. He may also be given one of the following: dilute hydrochloric acid, hexamethylenamin or acid sodium phosphate. A gastric hyperacidity may be present, causing low acidity of the urine. This condition should be treated in the usual way by gastric sedatives and the administration of substances which inhibit acidity, such as olive oil, butter and atropin.

When on account of hyperacidity of the urine, or on account of acute irritation of the bladder or urethra, it is advisable to render the urine alkaline for a time, alkaline treatment should not be too long continued, as an alkaline urine may allow phosphate deposits on uric acid calculi, or decomposition and formation of ammonia in an already irritated bladder. The seriousness of chronic cystitis is, of course, recognized.

PHOSPHATURIA

If the urine is alkaline there may be a more or less constant phosphaturia, sometimes causing the passage of milky urine with a pinkish deposit more or less admixed with mucus on standing. Phosphaturia occurs in many nervous conditions, both organic and inorganic, at times, even in insomnia. In these cases all nervous excitement and mental irritation should be prevented, and sexual indulgence prohibited for a time.

The phosphates of these salts come mainly from the food, but are also derived from the breaking down of nucleic acid and proteins of the tissues. The phosphates are therefore increased in wasting diseases and in some forms of leukemia, but may be diminished in pregnancy when needed for the bones of the fetus.

A prolonged phosphaturia is a drain on the system, and there is always danger of causing deposits in the bladder, causing cystitis to develop. The same treatment should be given in phosphaturia as that suggested for diminished acidity of the urine, combined with any treatment required by the general condition of the patient.

(*To be continued*)

New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

PERTUSSIS BACILLUS VACCINE (See N. N. R., 1916, p. 321).

H. K. Mulford Company, Philadelphia.

Pertussis Bacterin-Mulford.—Marketed in boxes of 4 syringes containing 50, 100, 200 and 400 million killed, Bordet-Gengou bacilli.

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SATURDAY, DECEMBER 16, 1916

THE LAST SIGNIFICANT FIGURE

In a delightful essay on "The Points of a Good Job," Richard C. Cabot[1] has intimated that we want some monotony, because monotony supplies the relief from the immense strain and cost of fresh thinking. It may be, as he suggests, that we should revolt and destroy any undertaking which is not somewhat monotonous. Nevertheless the habitual elements in us sometimes go to the very limit of expression. In one respect, doubtless among countless others if the truth were known, the dictates of custom have long been overworked in scientific literature: i. e., the publication of data in the form of a wealth of figures which cannot possibly have any serious significance if we overcome the inertia of habit and take the initiative of interpreting them.

The Journal is no exception to the numerous periodicals and books which are wasting printers' ink, space, several people's time, and the reader's energy in presenting results expressed in more decimal places than are justified by the conditions involved. It might even be argued by a hyperethical person that all such publications are guilty of moral delinquency in creating a false impression of the accuracy of experimental results. When we stop to consider seriously what is involved in stating, for example, that the diet furnished 2,763.6 calories (when at best a large element of guesswork is involved in the calculation as well as the analyses on which it was based) ; or that the urine contained 16.8347 per cent. of nitrogen (although an error of only ten minutes in the collection of the day's sample would affect the last four of these figures even if ideally perfect analytic procedures were employed) ; or that the blood contains 0.1234 gm. of sugar per hundred c.c. (despite the errors of the methods of measurement, etc.), or when the weight of moist feces is expressed to two decimal places, as we recently observed in a manuscript, despite the obvious impossibility of a quantitative defecation, are we not ready to institute a much needed reform?

Gephart, Du Bois and Lusk[2] have lately reminded workers in scientific laboratories that it is extremely desirable to get along with the smallest number of digits which will do justice to the experiment and yet allow other investigators to recalculate the work. As the result of a critical consideration of the number of places of significant figures in the data of metabolism experiments, they have evolved a series of rules for metabolism work, in which the analytic error is seldom much less than 1 per cent. This applies quite as well to most of the figures which need to appear on the pages of a medical journal.

Here are the conclusions to which we heartily subscribe and which are earnestly recommended to every reader who engages in the preparation of scientific manuscripts:

> A variation of 1 per cent. in the result of an experiment would not change its significance or affect its interpretation. For these reasons, it seems unnecessary to publish more than three significant figures in the tables of data, and in some cases it is not worth while to publish more than two. In order to avoid the accumulated rejection error, it is advisable to retain four figures wherever possible in the calculations, and reject the fourth digit only in the final result.

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[1] Cabot, R. C.: What Men Live By, Boston, 1914, p. 30.

[2] Gephart, F. C.; Du Bois, E. F., and Lusk, Graham: Clinical Calorimetry, xviii, The Number of Places of Significant Figures in the Data of Metabolism Experiments, Jour. Biol. Chem., 1916, xxvii, 217.

INSTINCT, DIET, AND DEFICIENCY DISEASES

The statement is sometimes made by physiologists that the instinct furnishes the best guide to an adequate ration. The experience of diverse species is cited as an illustration of what is believed to be some fundamental principle. How erroneous this may be has lately been pointed out by McCollum[1] and his collaborators at the University of Wisconsin. A group of animals which have shown themselves singularly suited to the study of problems in nutrition were offered an exceptionally liberal variety of vegetable foods. They thus had the opportunity to select a varied and well appointed ration from the following plant products always offered to them: corn, wheat, oats, barley or rye kernel, polished rice, peas, beans, cottonseed meal, cottonseed flour, alfalfa, corn germ, wheat germ, flaxseed oil meal, peanuts, onions, cabbage, corn gluten, or wheat gluten. The result of this experiment was a failure to obtain adequate nutrition.

It may be supposed that something is lacking, in the collection of foods enumerated, for perfect nutrition, despite the apparent variety of materials. This is, however, not the case; for when comparable animals were subjected to a restricted dietary regimen of suitable proportions of the ground corn, alfalfa flour, and peas, they thrived and reared a second and a third generation on the same ration. Appetite thus fails to be a perpetually safe guide to nutrition.

Much is said, particularly in the recent discussions about the so-called deficiency diseases, concerning the importance of great variety in diet to insure the presence of every essential nutritive ingredient. The work of scientific students of nutrition is making it more evident, however, that when once the indispensable factors are recognized they can be obtained in suitable quality and quantity from a few products. Simplicity in diet will not be found incompatible with health when the dietary laws are once firmly established. Failures hitherto have been due to ignorance rather than to the paucity of the dietary essentials in common foods. McCollum points out that the practically complete success in the nutrition of rats with strictly vegetarian diets made up of but three natural foodstuffs, and the failure attending the employment of a wider variety in the food mixture, emphasizes the fallacy of the assumption that the safest plan, to insure perfect nutrition, is to include a wide variety in the selection of the constituents of the diet. So long as definite knowledge is wanting concerning the specific nutritive properties of the constituents of the diet, variety will unquestionably make for safety, but will not by any means assure safety, and, indeed, can scarcely secure the optimum result in any considerable percentage of cases. As soon as we possess an adequate knowledge of the specific properties of our natural foodstuffs and their supplementary relations to each other, it will certainly be possible to compound fairly simple and even monotonous diets which can be depended on to induce physiologic well-being closely approximating the optimum.

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[1] McCollum, E. V.: Simmonds, N., and Pitz, W.: The Vegetarian Diet in the Light of Our Present Knowledge of Nutrition, Am. Jour. Physiol., 1916, xli, 333.

Although it now is certain, from the observations of the Wisconsin school, that all of the components of a successful diet are present in foods of plant origin, the satisfactory enforcement of a purely vegetarian diet in man calls for a degree of knowledge not widespread among propagandists for onesided dietaries. Fortunately milk, eggs and butter, with their incomparable nutrient virtues, are commonly admitted to the vegetarian regimen. McCollum remarks that the conscientious adherence to a vegetarian diet by one who has no adequate technical knowledge regarding the subject of diet appears to be fraught with danger since among the foods of vegetable origin, ordinarily consumed by human beings, several dietary factors are as a rule of an unsatisfactory chemical character.

An adequate diet calls for sufficient energy in the form of food. In the light of present-day knowledge the latter must furnish sufficient protein of suitable quality as well as quantity, adequate inorganic ingredients in proper proportions, and a supply of vitamins, food hormones, or whatever it may be proposed to term these indispensable accessory substances. In the recent discussions of the etiology of pellagra much has been said about the "lack of vitamins" in the diet of pellagrins. McCollum believes that there has been too much emphasis placed on the importance of the "as yet unidentified chemical factors lumped together as vitamins." So far as the evidence is available, is it not quite as reasonable to assume that there is some maladjustment of better recognized constituents of the diet in some of the "deficiency diseases," and that the vitamin problem is by no means the paramount one?

DISSOCIATED JAUNDICE

The growing tendency to examine the blood for diagnostic purposes on occasions when it was formerly customary to resort to urinary analyses alone has shown certain advantages belonging to the newer technic. Not only do the proportions of certain constituents, such as the various types of nonprotein nitrogenous compounds — urea, uric acid, creatin and creatinin — give clues to the possibility of either metabolic or renal upsets; occasionally the undue accumulation of a substance like sugar in the blood will reveal an incipient disorder before the excess of carbohydrate finds its way through the kidney filter and manifests itself in a urinary test. Thus a pathognomonic hyperglycemia may be discovered in the absence of a detectable glycosuria.

Hitherto it has been the custom of exceedingly few clinical observers to examine the blood for evidences of the presence of bile salts and bile pigments. What the superficial examination of the skin or sclera failed to disclose was left to a more painstaking test of the urine for biliary products to reveal. Examinations of this sort rarely go beyond that at present. It is becoming more and more evident, however, that without an examination of the plasma one is never justified in assuming that biliary constituents have not been retained in the blood.

Bilirubin and bile salts may both be present in very marked concentration in the plasma, and neither pigment nor salts appear in the urine. This fact has been substantiated by the recent observations of Hoover and Blankenhorn[1] of Cleveland. In the first place they emphasize that the adsorptive property of plasma for bile salts as well as bile pigments has hitherto not been clearly perceived. According to their observations the plasma may under some conditions, not yet well understood, retain a large amount of bile pigment and yield none of it to the kidney, although the kidney function may be perfectly normal. This adsorptive property of the plasma may hold bile pigment so firmly in its grasp that no pigment will be yielded to the tissues; so the disparity between icterus of the plasma and icterus of the skin may in some few instances be as striking as the disparity between cholemia and choluria. Adsorption of bile salts is not nearly so marked as adsorption of bile pigment, but in primary anemia, particularly, the presence of bile salts in the plasma without the presence of bile salts in the urine has been abundantly confirmed in the experience of Hoover and Blankenhorn.

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[1] Hoover, C. F., and Blankenhorn, M. A.: Dissociated Jaundice, Arch. Int. Med., September, 1916, p. 289.

There may be pronounced cholemia without choluria and also without icterus of the tissues.

The recognition of these possibilities directs consideration to the subject of "dissociated jaundice" which has formed a topic for discussion in the French clinical literature of recent years.[2] This postulates that the bile pigments and salts may reach the circulation independently of each other. So long as no attention was paid to a careful study of the biliary products in the plasma, there was no guarantee that the apparently separate appearance of either pigments or salts in the urine was not due to some "dissociation" brought by the renal filter rather than by the liver. Thus it is quite conceivable that the kidneys may at times allow the passage of the bile salts while the pigments cannot penetrate them. A true cholemia would thus fail to be accompanied by the appearance of a supposedly diagnostic sign, bile pigment, in the urine. It would not be an instance of true dissociated jaundice of hepatic origin, but merely a separation of two biliary products by renal elimination of bile salts.

Hoover and Blankenhorn insist that when bile salts without bile pigment are found in the plasma, we are bound by our present knowledge to assume there exists a genuine dissociated jaundice of hepatic origin, for thus far there is no clinical or experimental evidence to show there can be an extrahepatic origin of bile salts. In all their experimental and clinical studies they find no evidence that bile pigment can be eliminated through the kidney and bile salts retained in the plasma. If the two biliary elements are separated by renal elimination, it will always be bile pigment which will be retained in the plasma and not bile salts. The Cleveland clinicians have found true dissociated jaundice of hepatic origin in two cases of primary anemia and in two cases of lead poisoning. In the four cases bile salts were found in the blood in large amounts, that is, quite as pronounced as in complete jaundice of marked severity.

Excepting in jaundice of hemolytic origin and in complete jaundice which has undergone renal dissociation, bile pigment was not found without bile salts in the plasma. A few years ago it would have been decided unorthodox to expect bile pigment in either plasma or urine without some liver complication to occasion the perversion. It will become necessary, judging by the present outlook, to abandon the doctrine that there can be no jaundice without the agency of the liver. The investigations of Whipple and his collaborators have furnished such convincing evidences of extrahepatic jaundice that the possibility of its occurrence can no longer be neglected. Hoover and Blankenhorn are ready with a modified nomenclature for the future. To avoid confusion, they remark, in using the term "dissociation icterus" it will be advisable to employ a terminology which will indicate the source of the dissociation of biliary elements in the plasma. "Complete icterus" will mean the presence of bile pigment and bile salts in the blood. "Hemolytic icterus" implies the presence of bilirubin in the blood without bile salts, when bilirubin is formed extrahepatically. "Hepatic dissociation icterus" implies the presence of bilirubin or bile salts separately shunted into the blood stream. By "renal dissociation icterus" is meant the presence of bile pigment in the plasma due to separation of the biliary elements through renal filtration of the bile salts.

Current Comment

MEDICAL PROGRESS IN THE NAVY

The year ending June 30, 1916, has been a notable one in naval affairs, marking the largest expansion in times of peace in the history of the navy, according to the report of the secretary of the navy just issued. The naval appropriation act, framed during this period but not approved until Aug. 29, 1916, appropriated $313,384,212 for 1917, more than twice as much as any previous naval appropriation. Naturally, the section in the report in which physicians are most interested is that on health and sanitation. Much credit is due to the medical department of the navy for the maintenance of high standards, as is evidenced by the report. The death rate during the year was 4.48 per thousand. Fifty-one deaths (or one sixth of the entire number) were due to drowning; of these, twenty-one were caused by the sinking of the submarine *F-4*. The other predominant causes of death were tuberculosis and pneumonia. The medical officers of the navy have also carried on a large amount of work in Haiti and Santo Domingo. Acting in unison with a commission of Haitian physicians, the existing public health laws have been revised and sanitary conditions greatly improved. The naval act increased the medical corps from 347 officers and 1,500 men to 600 officers and 3,000 men, and increased the total appropriation for the medical department from $682,000 to $1,187,728. It also authorized the construction of a model hospital ship, which promises to be a marked advance on anything now afloat. The two professional training schools for the hospital corps, one on the Atlantic at Newport and one on the Pacific at San Francisco, have been making satisfactory progress. Schools for training native women in nursing have been established in Samoa and Guam. Homes for nurses at Mare Island and Boston have been provided, and provisions have been made on the coast line south of Norfolk and Mare Island, which is as yet unprovided with navy hospitals, for calling into being mobile Red Cross hospitals of 250 beds each. The correspondence school for the medical reserve corps has been initiated. While not directly connected with medicine, all will be interested in the recommendations of Secretary Daniels regarding oil conservation. When the three year construction program authorized by Congress is completed, the navy will require 6,721,000 barrels of fuel oil annually luring times of peace and about three times that mount in time of war. All of the new ships are oil urners. Before definitely entering on the construcion of oil-burning battleships, the Navy Department, n 1913, asked the Department of the Interior for nformation regarding the probable fuel oil situation wenty years hence. The Department of the Interior eplied that the land reserved by the government would robably supply a sufficient amount of fuel oil for a eriod greater than the life of any battleship to be onstructed during the next decade. Mr. Daniels recmmends the conservation of all oil reserve lands lready set aside, and the finding and setting aside of ther oil-bearing reserves.

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[2] For a bibliography of the subject see Lemièrre, Brulé and Garban: Les rétentions biliaires par lésion de la cellule hépatique, Semaine méd., 1914, xxxiv, 301.

ANOTHER "CONTEMPTUOUS VERDICT"

For many months the New York *Tribune* has been onducting a magnificent campaign for honesty in dvertising. It has fearlessly exposed misrepresentaion in advertising and has condemned, in no uncertain vords, fraudulent and deceptive methods of business lealing. This has been done through a series of rticles written by Samuel Hopkins Adams, the author f the well-known series on fakes and swindles in he "patent medicine" business — the "Great Amerian Fraud." In connection with this work the *Tribune* ias maintained a "Bureau of Investigations" that has lone a wide public service under the efficient direction f Miss Anne L. Pierce, who was for many years ssistant to Dr. Harvey W. Wiley. In the course of ts campaign the *Tribune* found it necessary in the ublic interest to expose the methods of a rug dealer, nd took occasion to refer to this man as a "dealer in ugs, furniture, fakes, frauds and swindles in a large nd commodious pitfall" on Fifth Avenue. The rug ealer sued the *Tribune* for libel, asking $50,000 damges. The trial lasted two weeks and the jury brought n a verdict of 6 cents for the plaintiff. This, under he New York law, means that the *Tribune* will have o pay a total of twelve cents, the judgment plus costs o an equal amount! One of the attorneys for the *ribune* declared that a verdict such as this "indicated hat while every detail of the libelous part of the rticle complained of was not proved to be literally rue, the essential substance of the defamatory charges as proved." He said further that it "was known in he parlance of the courts as a 'contemptuous verdict.'" his is the first of a number of actions pending against e *Tribune* and based on grounds similar to those aken in the suit just ended. It is said that the aggreate demands for damages amounts to more than a illion dollars. It will not be surprising if many of ese suits never come to trial, in view of the verdict ust given. The *Tribune's* case is of interest to physiians because of the recent libel suit against the Amerian Medical Association. In the Wine of Cardui suit, will be remembered, the concern considered it had een injured to the extent of $100,000; the jury warded it 1 cent! In the *Tribune's* case the plainff asked for $50,000; the jury gave him 6 cents! uestion: If a 6 cent award in a $50,000 case constiutes a "contemptuous verdict," what kind of a verdict a 1 cent award in a $100,000 case?

A NATIONAL LEPROSARIUM

The bill providing for the national control of leprosy by the United States Public Health Service has already been discussed in THE JOURNAL.[1] It provides for an appropriation of $250,000 for a national leprosarium, passed the lower house, and was on the Senate calendar when Congress adjourned last summer. It is now before the Senate for action.[2] There are few diseases that create the horror and consternation in the public mind that leprosy arouses. Yet it is of a mildly contagious nature and, in this country, is a small factor; it is estimated that there are only about 1,000 cases in the entire country. With the exception of three states which maintain permanent leprosariums, the number of leprosy patients in any state is too small to justify the erection and maintenance of state hospitals. Most of the difficulties connected with the care of leprosy have been due to disputes regarding the jurisdiction and responsibility of different states or to questions arising from the interstate transportation of lepers. The problem is a national one. While the exact method of transmission of leprosy has not yet been determined, practical experience shows that segregation is the most effective method of controlling the disease. A national hospital for lepers would make the control of this disease possible, and will solve a problem which has been most perplexing. The expenditure involved is small. It is better to appropriate $250,000 now and to bring the disease under control than to allow leprosy to develop for ten years more, when an appropriation of three or four times as much may be necessary. It is hoped that the Senate will act on this measure without delay, and that physicians and other scientific men throughout the country will urge on their senators the importance of the adoption of this bill.

WATER ABSORPTION CAPACITY OF BRAIN TISSUE IN DELIRIUM TREMENS

The water absorption capacity of the brain, as shown by Nuzum and Le Count,[3] is high in the brain of persons dying from conditions of cerebral asphyxia, particularly those associated with acidosis. One such condition with a high water absorption capacity of the brain is delirium tremens. It is to be hoped that Drs. Nuzum and Le Count will complete these interesting experiments by a determination of the absolute water content of the brain tissue in a few typical cases, including the necessary controls. Their results afford some confirmation of Martin H. Fischer's views as to the causation of edema. Fischer, it will be remembered, starts from a consideration of the conduct of organic gels, notably fibrin and gelatin, in the presence of acid. These substances, when exposed to acid solutions of suitable concentration, imbibe water to an amount much in excess of the quantity which they are able to absorb of pure water or neutral solutions. By exposing various organs of different animals to conditions in which local asphyxia, and therefore local acidosis, is produced, Fischer succeeded in demonstrating that edema of the organ resulted.[4] Fischer has also shown that the addition to these acid solutions of certain substances, particularly neutral electrolytes and glucose, will diminish the imbibition of water, and will cause the partial dehydration of the gel which has already become "edematous." From this he derives indications for the treament of edema, namely, the intravenous administration of such hypertonic solutions of these neutral or alkaline electrolytes as are tolerated by the organism, and, in certain cases, of glucose. Fischer's work appears to have been the inspiration of that of Hogan,[5] whose article, by the way, is also complementary to the paper by Nuzum and Le Count. In the treatment of delirium tremens, Dr. Hogan employs intravenous administration of alkaline salt solutions and glucose. For the use of the last named substance there is a double indication. Not only does it share with electrolytes the property of dehydrating the tissues, but it has the additional function of counteracting a starvation acidosis. His solution contains, among other ingredients, sodium bicarbonate, and he sterilizes by boiling, whereby the bicarbonate is decomposed, more or less, with the formation of carbonate. The liquid injected must, therefore, be distinctly alkaline. As fear has been expressed by some therapeutists that injection of boiled solutions of sodium bicarbonate might cause gelation of the plasma, it is interesting to note that this objection seems to be ruled out by Dr. Hogan's results.

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[1] A National Leprosarium, Current Comment, THE JOURNAL A. M. A., March 4, 1916, p. 746. General News, Jan. 22, 1916, p. 287; May 13, 1916, p. 1560; June 10, 1916, p. 1685.

[2] Congressional Grist, General News, THE JOURNAL A. M. A., this issue, p. 1858.

[3] Nuzum, Frank, and Le Count, E. R.: The Ability of Brain Tissue to Take Up Water in Delirium Tremens and Other Conditions, THE JOURNAL A. M. A., this issue, p. 1822.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

State Board Election.—The annual meeting of the state board of health was held in Little Rock, November 18. Dr. Joseph T. Clegg, Siloam Springs, was elected president; Dr. Burrell A. Fletcher, McClelland, vice president, and Dr. Charles W. Garrison, secretary and state health officer.

Hospital News.—At the meeting of the staff of the Michael Meagher Memorial Hospital, Texarkana, November 2, Dr. Jean A. Lightfoot was elected president of the staff; Dr. Robert L. Grant, vice president; Dr. Benjamin F. Dixon, secretary, and Sister Raphael, treasurer and superintendent of the hospital.

DISTRICT OF COLUMBIA

Prevention of Venereal Diseases.—The Commissioners of the District have asked Congress to provide an appropriation whereby the Health Department can make free laboratory examinations for physicians for the diagnosis of syphilis and gonorrhea and maintain a venereal clinic.

Freedmen's Hospital Work and Needs.—The annual report of Dr. W. A. Warfield, surgeon in chief of Freedmen's Hospital, which has just been made public, shows that during the fiscal year 1916 the institution had 3,671 indoor patients, as compared with 3,535 during the preceding year. Dr. Warfield calls attention to the need for a pathologic building and to the lack of suitable quarters for laboratory study, and asks that wards be provided for eye cases and for diseases of the nervous system. He recommends an increase in the force of employees and larger salaries for the employees in the lower grades, the latter recommendation being supported by a plea for more competent workers in the minor positions and less frequent changing of workers than obtains under existing conditions.

ILLINOIS

Personal.—Dr. John H. Rice, Quincy, was operated on for the removal of gallstones, November 27.——Dr. Edgar A. Green, Ridgeway, has been appointed local examining physician by the Illinois Service Commission.

Diphtheria.—At Hoopeston, Vermilion County, November 17, twenty-four cases of diphtheria were reported to the state board of health in twenty-four hours and the state epidemiologist and laboratory assistant were sent to Hoopeston to study the epidemic.

Chicago

New Infirmary Building.—Plans for a new infirmary, to cost $500,000 and to be an integral part of the Municipal Tuberculosis Sanatorium, have been completed by the architect, Mr. Jarvis Hunt, and are under the direction of Dr. Albert J. Ochsner. The infirmary will have a large roof garden; kitchen and dining rooms will be on the top floor; on three sides there will be direct sunlight; at the south end of each floor will be a large sun parlor, and there will be an English basement for the provision of light occupation for patients. The building is intended to handle only such patients as are too ill for cottage treatment.

Personal.—Dr. E. Wyllys Andrews has been appointed chief of staff of the Mercy Hospital and head of the Department of Surgery of the Northwestern University Medical School.——Dr. J. Elliott Royer has been elected professor of neurology in the College of Medicine of the University of Illinois.——Drs. Bertram W. Sippy, Asher F. Sippy, Fred Drennan and Gatewood were injured in a collision between the automobile in which they were riding and an automobile truck, December 19. Dr. Bertram Sippy sustained severe bruises and Dr Asher F. Sippy a fractured rib and bruises.——Dr. Gottlieb A. Lurie has been appointed by the state board of health district health officer for the southern district of Illinois, with headquarters at Mount Vernon.

IOWA

The Typhus Situation.—Another case of typhus has been discovered at Fort Madison. All patients with the disease previously reported are in good condition, and the threatened epidemic is well in hand.

Personal.—Dr. Henry J. Piper, Randolph, was struck by an automobile, November 29, fracturing his right leg below the knee.——Dr. Warren B. Klinetop, Charles City, was severely injured by the collapse of a scaffolding, November 30.

MARYLAND

Personal.—Dr. William H. Park, director of the bureau of laboratories, New York City Health Department, spoke at a recent public health meeting in Baltimore, held at the Johns Hopkins University, on "The Dangers from Impure Milk and the Importance of Milk as a Food."——Dr. John D. Blake, commissioner of health of Baltimore, is ill at his home from overwork.

Meetings.—At the annual meeting of the Baltimore City Medical Society, held at the Medical and Chirurgical Faculty building, Dr. Thomas S. Cullen was elected president; Dr. William T. Watson, vice president; Dr. Emil Novak, secretary, and Dr. William S. Gardner, treasurer. Dr. Joseph C. Bloodgood addressed the annual meeting, his topic being "Recent Observations on Bone Tumors."

Hospitals Form Union.—An organization of most of the hospitals in Baltimore to protect themselves against the high cost of living, and to accomplish reforms that they could not accomplish singly, was created at a meeting of representatives of seven hospitals held at the Mercy Hospital during the past week. It was called The Hospital Conference ssociation of Maryland. The following hospitals were repre-ented: Maryland General, University, Mercy, St. Joseph's, t. Agnes, Hebrew and the Union Protestant Infirmary. ohns Hopkins Hospital, though it is not yet officially con-ected with the union, was declared to be in sympathy with s principles. Its first act was to raise the fees in compensa-on cases—cases that are within the purview of the Work-ien's Compensation Act. Its next act will be to obtain a eduction of hospital water rents, or to have hospitals, espe-ially those having charity wards, exempted from water rents. the plan to raise fees in compensation cases goes through, 2 a day instead of $1 for each patient will be asked. Johns [opkins Hospital has already raised its rate for such cases) $2.50 a day. The object of the union is to bring about a oser relation and cooperation between hospitals and to take ie initiative in bringing about consistent legislation affect-ig the interests of hospitals throughout the state. There as no discussion of a united effort to increase the fees equired from private patients, though the Johns Hopkins, [aryland General and the Hebrew hospitals have already one so.

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[4] Fischer, M. H.: Contribution to Colloid-Chemical Analysis of Absorption and Secretion, Lancet-Clinic, June 22 and 29, 1912; A Further Response to Some Criticisms of the Colloid-Chemical Theory of Water Absorption by Protoplasm, The Journal A. M. A., Oct. 19, 1912, p. 1429; Nature, Cause and Relief of Nephritis, New Jersey Med. Soc. Jour., March, 1914; Relation Between Chlorid Retention, Edema and Acidosis, The Journal A. M. A., Jan. 23, 1915, p. 325; Classification, Prognosis and Treatment in the Nephritides, abstr., ibid., July 29, 1916, p. 391.

[5] Hogan, J. J.: Treatment of Acute Alcoholic Delirium, The Journal A. M. A., this issue, p. 1826.

NEW YORK

Clinic for Infantile Paralysis.—A clinic was held in Syra-use under the supervision of the state department of health, ecember 15 and 16, to teach methods for the after-care of fantile paralysis. This clinic, like other similar clinics eing held throughout the eastern states, was in charge of r. Robert W. Lovett of Harvard Medical School.

Personal.—Dr. Waldon E. Muns, formerly of Bellevue Hos-ital laboratory, New York, has been appointed first assistant acteriologist in the Syracuse city laboratory, succeeding r. William L. Culpepper, resigned to accept a position with ie International Health Board of the Rockefeller Founda-on.——Dr. Bernard L. Wyatt, Trudeau Sanatorium, Saranac ake, has resigned to accept the position of superintendent the Fayette County, Kentucky, Tuberculosis Sanatorium. r. Wyatt will assume his new duties in April, and it is lanned to open the sanatorium to receive patients by July 1.

New York City

Hospital Name Changed.—The Long Island State Hospital r the Insane, Brooklyn, will hereafter be known as the rooklyn State Hospital.

Occupational Clinic.—The Municipal Civil Commission is ideavoring to enroll medical men for the occupational clinic the health department, which is located at 49 Lafayette treet. The object of the clinic is to safeguard the city against ihealthy food handlers in restaurants or other places.

New Medical Quarterly.—The department of charities has egun the publication of a quarterly for the purpose of pre-enting medical articles embodying the results of the scien-fic work done by the various hospitals of the department. his publication is entitled the *Bulletin of the Department Public Charities.*

Portrait Presented.—On December 4, at the convocation of ie student body and faculty of Long Island Hospital, the raduating class presented to the institution a portrait of e late Dr. Joseph H. Raymond, formerly secretary of the culty and professor of hygiene. Dr. John D. Rushmore ccepted the portrait on behalf of the faculty.

Academy Election.—At the annual election of the New ork Academy of Medicine, December 7, the following offi-rs were elected: president, Dr. Walter B. James; vice presi-ent, Dr. Edwin B. Cragin; trustee, Dr. Charles L. Dana; ember of committee on admissions, Dr. Samuel A. Brown, id member of committee on library, Dr. Warren Coleman.

Open Window Week.—The fresh air campaign which the ealth department has prosecuted so vigorously during the ist week culminated on Sunday, December 10, by what has en designated as the "Finley Hike." This was an eight-ile walk from the Stadium of City College to Getty Square, onkers, in which representatives of various walking clubs, e students of City College, and as many of the public in eneral as could be persuaded to, joined the party. President nley donated three silver and twenty-five bronze medals to awarded to those whom the judges and scorers thought eserving. A further means of impressing on the public the ilue of fresh air is the attempt to organize a new "I. W. W.," at is, "I Walk to Work" club. As an inducement to join is company the health department holds out the following: Valk a mile in the open air twice a day. It will add ten ars to your life. If you do not believe it, try it and see."

NORTH CAROLINA

Hospital Notes.—Fairview Hospital has been incorporated at Newbern, with a capital stock of $5,000, by Dr. George A. Caton and others.——Dr. John W. Long, Greensboro, has begun the reconstruction of a residence in that city for a hospital.

Public Health Nursing.—The state board of health has established, through its bureau of tuberculosis, a public health service, under the charge of Miss S. H. Cabaniss. One half of the salary and the traveling expenses of the director of this service is paid by the Metropolitan Life Insurance Company.

Personal.—Surgeon Benjamin W. Brown, U. S. P. H. S., who is making an unofficial health investigation of Charlotte, gave an illustrated lecture in that city, November 9, on "The Government's Fight for Health."—Dr. David B. Sloan has been commissioned first lieutenant, N. C. N. G., succeeding Dr. John H. Pease, Canton, deceased, and has joined his command on the Southern frontier.——Senior Surgeon James B. Stoner, U. S. P. H. S., who has been stationed for the last two years at Wilmington, but has recently been on duty in New York with the force engaged in the infantile paralysis epidemic, has returned to Wilmington prior to assuming his duties as immigrant inspector at Montreal.——Dr. John C. Wessell, Wilmington, has been appointed acting assistant surgeon, U. S. P. H. S., and assigned to dutv at the Marine Hospital.——Dr. Harry Q. Alexander, Matthews, has been reelected, for the ninth term, president of the State Farmers Union, and Dr. James M. Templeton, Cary, has been reelected vice president.

NORTH DAKOTA

Poliomyelitis.—The *Bulletin* of the North Dakota State Board of Health for October says that the number of cases of infantile paralysis in the state had reached seventeen, six of which proved fatal. The cases were distributed by counties as follows: Bottineau, 3; Cass, 4, with 2 deaths; Stutsman, 1, with 1 death; Sargeant, 1; Cavalier, 3; Grand Forks, 2; Kidder, 1, with 1 death; Divide, 1, with 1 death, and Golden Valley, 1, with 1 death.

Kotana Association Organized.—Physicians of northwestern North Dakota and northeastern Montana, at a meeting held in Williston, N. D., November 27, effected the organization of the Kotana Medical Association, whose territory includes the counties of Williams, McKenzie, Divide and the west half of Mountrail and Drake, in North Dakota, and Sheridan and Richland counties in Montana. The following officers were elected: president, Dr. Carlos S. Jones; vice president, Dr. Hilmar T. Skovholt, and secretary, Dr. Thomas J. Strong, all of Williston.

PENNSYLVANIA

Academy Buys Property.—The Pittsburgh Academy of Medicine has purchased, for $25,000, the property of the Bellefield Club on Craig Street, 50 by 140 feet, improved with a two story brick building.

Personal.—Dr. David R. Morgan, Edwardsville, has sailed for France, where he will begin work as superintendent of Army Hospital No. 10, Paris.——Dr. William S. O'Neill Sherman has returned to Pittsburgh after a study of European war conditions.——A complimentary banquet was tendered by the McKane County Medical Society to its president, Maj. William C. Hogen, M. C., Pa. N. G., who will soon return to his duties as chief medical officer of the Sixteenth Pennsylvania Infantry, at Camp Stewart, El Paso, Texas.——Dr. T. Lyle Hazlett, Pittsburgh, chief surgeon of a Red Cross hospital in Persia, has returned on furlough after nearly two years in the Russian service.——Dr. William H. Howell, Altoona, fell while entering the Altoona Hospital, November 17, fracturing a bone in his elbow and spraining his left foot.——Lieut.-Com. Wesley H. Rennie, U. S. N., has resigned, and will practice in Chester.——Dr. Horace R. Smith, Altoona, underwent an operation at the Altoona Hospital, November 15, for the amputation of three fingers of the left hand on account of Roentgen-ray burns.

Philadelphia

Colver Foundation Lectures.—Dr. William W. Keen of the class of 1859 of Brown University, Providence, R. I., will deliver a series of three lectures under the Colver Foundation at that university, beginning January 10, where his subject will be "Medical Research and Human Welfare."

Crippled Children's Home Opened.—The St. Edmund's Home for Crippled Children, the first Catholic institution of its kind in the country, was dedicated, December 8, by Archbishop Pendergrast. The building is a four-story structure containing a chapel, dormitories, dining room, class rooms, recreation halls and an infirmary; it has a capacity for sixty children.

Personal.—The house of Dr. John K. Knorr was ransacked by burglars, December 1, who secured more than $1,000 worth of valuables.——Dr. and Mrs. John W. Millick were severely injured by the overturning of their automobile between Holmesburg and Bustleton, November 26.——Dr. William H. Jeffreys, formerly a missionary in China, has been chosen superintendent of the City Mission of the Protestant Episcopal Church in old St. Paul's Church.——Dr. Elwood R. Kirby has been appointed chief surgeon of the genito-urinary department of the Philadelphia General Hospital.

Tuberculosis Week.—The National Medical Examination Day, set for December 6, in observation of tuberculosis week, was inaugurated in Philadelphia by the introduction of medical examination of employees in six of the city's large department stores and all the industrial concerns in the city, involving more than 70,000 employees. Although the factories have been under scientific management for some time, the introduction of medical examination of every employee once a year has caused production to be increased 42 per cent., while the cost of production has decreased 10 per cent. The committee carrying on the campaign of Tuberculosis Week includes Drs. Charles J. Hatfield, Joseph F. Neff, former director of the department of health and charities; Walter S. Cornell, chief of the department of school and medical inspection, and Charles S. Miller of the department of health.

Improvements at Philadelphia Hospital.—For the first time in its history, the Philadelphia Hospital (Blockley) has a diet kitchen, and the nurses of the institution are being given a course in dietetics by a trained dietitian. A porch has been built for tuberculous patients, where 150 patients can be accommodated. The women's Tuberculosis Ward has been wired for electricity and the historic rats have been abolished. The women's advisory board has decided to concentrate its efforts for the next year to the extension of the social service system, and asks for enough social service workers to protect the community from the discharged patients; to follow up the cases and see that the children left uncared for are placed in suitable homes, and that feebleminded boys and girls, after leaving the institution, are put into the proper institutions. They are also asking for a home for nurses so that three nurses will not have to occupy one small room, as they do at present.

WYOMING

State Board Meeting.—At a meeting of the state board of health, held in Cheyenne, November 17, the general conditions for sanitation and good health of the state were discussed, and preliminary steps were taken toward a joint meeting with the State Board of Medical Examiners, to consider joint topics of interest.

Society News.—Physicians of Natrona County met in Casper, October 19, and organized a county medical society, electing the following temporary officers: Dr. Joseph F. O'Donnell, president; Dr. Marshall C. Keith, vice president, and Dr. Foster, secretary. At the first regular meeting of the society, November 18, the temporary officers were elected to permanent positions.——The Northwestern Wyoming Medical Society, at its meeting held in Cody, elected Dr. Herbert T. Harris, Basin, president; Dr. Delmah S. Hamilton, Greybull, vice president, and Dr. Jesse D. Lewellen, Powell, secretary-treasurer.

CANADA

New Graduates.—Forty-seven have recently passed the final examinations of the Faculty of Medicine, University of Toronto. All of them have enlisted for service in the medical corps, and will leave in the immediate future for overseas service. Four have already seen service.——A special convocation was held on the evening of November 28 in Grant Hall, Queen's University, Kingston, Ont., at which sixty-three medical graduates were granted their degrees. All these graduates will go overseas shortly to serve at the front.

Tuberculosis Among Canadian Troops.—A conference of experts in tuberculosis has been arranged to meet in Ottawa, to advise the Dominion of Canada Hospital Commission regarding the location of sanatoriums; the most recent methods of treatment, diet and exercise; the maximum and minimum capacities of sanatoriums, and other questions regarding tuberculosis among the Canadian troops. There are already 370 Canadian soldiers suffering from tuberculosis in the sanatoriums of the various provinces, of whom 175, or nearly 50 per cent., have been overseas, and about thirty soldiers a month are being returned to Canada from abroad suffering with the disease. The members of the conference are Dr. Alfred Thompson, M. P., Dawson, Yukon, president, and Drs. Edward R. Baldwin, Saranac Lake, N. Y.; Charles D. Parfitt, Gravenhurst, Ont.; Jabez H. Elliott, Toronto, and John R. Byers, St. Agathe-des-Monts, Quebec.

Personal.—Capt. W. J. Kirby, A. M. C., has been transferred from Training Depot No. 1 to that of Medical Officer 198th Battalion for overseas service.——Capt. Kent Manning, A. M. C., is to be Medical Officer of the 205th Overseas Battalion.——Col. A. E. Ross, M. P. P., C. M. G., with the 1st Canadian Division as A. D. M. S., will remain at his post of duty. He has recently been acting on a special board appointed to inquire into Canadian hospital conditions in England.——Lieut. Francis Carl Howard, Toronto, a student in medicine at the University of Toronto, died in Frankfort, Germany, the same day that he was wounded and captured, September 9.——Capt. Victor Moorhouse, M.D., Toronto, son of Dr. H. H. Moorhouse, and brother of Dr. Walter Moorhouse, commander of a machine gun battery at the front, has been awarded the Military Cross for gallantry. He is a graduate of the class of 1912, University of Toronto.——Lieut.-Col. Ethelbert B. Hardy, A. M. C., Toronto, has been awarded the D. S. O.——Dr. John A. McCollum, Toronto, has been accepted for overseas service.——Dr. Walter B. Seaton, R. A. M. C., Fort Erie, Ont., has returned on furlough from the Western Front.——Capt. Henry H. Argue, formerly assistant superintendent of the Toronto General Hospital, has been awarded the Military Cross for conspicuous bravery in action.——Capt. Arthur J. Ireland, who went overseas with the C. A. M. C., was transferred to the R. A. M. C., and sent to France, where he has recently been specially mentioned in despatches.

GENERAL

Naval Training Schools Enlarged.—On account of the increase in the Hospital Corps of the Navy, authorized by the Naval Appropriation Act, the training schools for hospital corps men at Newport and San Francisco will be enlarged.

To Study Infantile Paralysis.—Dr. A. M. Stimson, assistant director of the Hygienic Laboratory, has been assigned by the U. S. Public Health Service to collaborate with the bacteriologists at Rochester, Minn., in the study of the bacteriology of poliomyelitis.

Compulsory Health Insurance Opposed by Labor.—At the conference on social insurance, in Washington, D. C., December 5-9, Samuel Gompers, president of the American Federation of Labor, protested in no uncertain terms against the enactment of legislation providing for compulsory health insurance. Mr. Gompers argued that compulsory social insurance would tend to make class distinctions rigid; and that it would not reduce poverty, because the relief afforded by it would be merely temporary. Organized labor, he said, would not give its consent to any effort to compel those in industrial activities to take out health and accident insurance policies.

Congressional Grist.—The second session of the Sixty-Fourth Congress has convened with several bills of interest to the medical profession on the calendar. Bills have passed the House and are now pending in the Senate to provide for the treatment and care of persons afflicted with leprosy (H. R. 193), to create a bureau of labor safety in the Department of Labor (H. R. 153), and to amend the act incorporating the American Red Cross (H. R. 14426). A bill to provide federal aid in caring for indigent tuberculous persons (S. 5885) has been favorably reported by the committee and is now on the Senate calendar, but has passed neither House nor Senate.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Chicago, Medical Department, a donation of $200,000 by Mr. Charles H. Ruddock, New York.

New York Skin and Cancer Hospital, a gift of the property adjoining the hospital, as a memorial of his mother, by William G. Van Antwerp.

Mount Sinai Hospital, New York, $2,500; Montefiore Home and Beth srael Hospital, each $1,000, by the will of Mrs. Emma Calman.

Mount Sinai Hospital, New York, $5,000, Montefiore Home for hronic Invalids, Home for Aged and Infirm Hebrews, and Beth Israel Iospital Association, each $2,500, by the will of Jaques Halle.

Presbyterian Hospital, New York, $350,000, by the will of Charles V. Harkness.

Clifton Springs (N. Y.), Sanitarium, a bequest of $3,324.55; nurses' und of the Clifton Springs Sanitarium, $1,000, by the will of Mary . Foster.

Alabama Maternity Home, Mobile, $1,400, as a result of a canvass.

Aid to the Belgian Profession.—The report of the treasurer f the committee of American physicians for the aid of the elgian profession, for the quarter ending Nov. 30, 1916, shows ie following contributions:

r. Edward E. Mayer, Pittsburgh		$ 10.00
r. W. C. Cahall, Philadelphia (3rd contribution)		1.40
eceipts for the quarter ending November 30		$ 11.40
reviously reported receipts		7,946.86
Total receipts		$7,958.26
reviously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,274 standard boxes of food at 2.30	2,930.20	
353 standard boxes of food at 2.28	804.84	
Total disbursements		$7,310.04
Balance		$648.22

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh.

FOREIGN

Neisser's Bequest to the City of Breslau.—The late Prof. . Neisser bequeathed his property to the city of Breslau. It valued at 1,500,000 marks, nearly $400,000. He stipulated iat his villa with its art treasures be maintained as a iuseum for contemporaneous art, and further, that the rooms e used in giving high grade municipal concerts and similar itertainments.

Deaths in the Profession Abroad.—H. Hochhaus, professor f internal medicine at the University of Cologne, aged 56. —H. Kurella, a neurologist of Berlin, formerly editor of ie *Zentralblatt für Nervenheilkunde* and of the *Zeitschrift ir Elektrotherapie*, aged 58.——F. Kleinhans, professor of ostetrics at the University of Prague.——A. von Hippel, itil 1914 regular professor of ophthalmology at the Univerty of Göttingen, author of numerous works on the eye, color indness and school myopia, and pioneer in operative treatent of myopia and of lesions in the cornea. His seventieth rthday was celebrated two days before his death.

A New Italian Journal Devoted to the Cardiovascular ystem.—The *Policlinico* of Rome publishes three journals, e *Sezione pratica*, a weekly, and the *Sezione chirurgica* and e *Sezione medica*, which appear monthly. All three are dexed regularly by The Journal. A few months ago the *oliclinico* editors began to publish the monthly *Annali igiene*, a long established journal devoted to hygiene. Now omes the announcement of the founding of a new monthly urnal, *Le malattie del cuore*, devoted exclusively to the rdiovascular system. The editor in chief is Prof. F. ariani of Genoa, but the address of the journal is the me as of all the *Policlinico* publications, Via Sistina 14, ome. Subscription 18 lire ($3.60). The suspension of the *inica medica* of Milan is announced, "for lack of material, e collaborators being all otherwise engaged at present."

Annual Meeting of the German Preventive Society.—A ommittee was appointed at last year's meeting to suggest ays and means to arrest the spread of venereal diseases, id their report at the recent meeting called for a complete ansformation of the present system of supervision of prosution, with penalties for those who knowingly transmit enereal diseases, special graduate courses for physicians, nalties for treatment and for offering treatment of venereal seases by the unqualified, and the organization of a course sexual pedagogics in colleges and universities. Hahn of amburg reported on the welfare work for those with veneal diseases. Consulting headquarters, he says, have been ganized all over Germany by the social insurance boards, id they are proving so popular that at Hamburg the rooms id medical force already have had to be enlarged. The jection that these welfare dispensaries conflict with prossional secrecy he dismisses by saying that almost any mmunication from the physician to the insurance authoris conflicts with the strict enforcement of professional crecy. Another objection that has been made is that the nsulting offices come between the patient and the physician, pping the patient's confidence in his physician. In reality, he declares, it works out just the opposite. It has been found further that those with venereal disease are very glad to get advice and treatment free. Instead of driving them to quacks, the opposite effect seems to be realized. The free specialist consulting dispensaries are proving a powerful means of defending the public against quacks.

WAR NOTES

Refugee Physicians at Budapest.—The *Medizinische Klinik* relates that there has been much distress among the physicians who had to flee from Roumania when it entered the war. Many saved nothing but their lives.

Hospital Workers Sail.—Nine physicians and hospital workers sailed on the Transatlantique Line steamship *Rochambeau* to join the Harjes-Norton Section of the American Volunteer Motor Ambulance Company, in France.

Milk Supply in Berlin.—The *Deutsche medizinische Wochenschrift* mentions that whole milk can be obtained only for children under 6, the sick and the pregnant. Only families with children above this to 10 years old can obtain skimmed milk.

Physicians' Unit Organized.—At a meeting called by Dr. George Gellhorn at St. Louis, December 1, a unit of the American Physicians' Expedition was organized, and $5,125 of the $30,000 required to finance a unit of physicians and nurses was subscribed. Eight units have already been organized in the United States, namely, three in New York, two in Chicago and one each in Philadelphia, Indianapolis and Milwaukee.

BERLIN LETTER

(Received December 13, 1916)

Berlin, Oct. 10, 1916.

Personals

DEATHS IN THE PROFESSION

In the five months during which my letters have not reached you, there were, of course, a large number of changes in the teaching staffs of our universities, the chief of which I will communicate to the readers of The Journal. I believe that this will be of interest, not only to German-American physicians but also to such American physicians as have personally, or in the course of their studies, been acquainted with the German universities. Noteworthy, particularly, is the large number of deaths. The rapidly succeeding deaths cause one to wonder whether the fierce fighting which is taking place in the field has not an influence on the vitality of those who remain at home, particularly as one considers the more aged. Certainly the strong psychical influence which depresses many sensitive persons in these times, and which influences their vitality, must be considered, especially in relation to the deaths of relatives who are serving for the Fatherland. After all, however, such an influence is a rather rare consideration. Nevertheless, in this time in which one is repeatedly affected by the deaths of numerous friends and relatives, and also by each noteworthy death at home, he is inclined to relate what psychologically might well be connected, these deaths with those occurring in the field. When one considers, however, that many of the university professors who died were elderly, one realizes that their deaths were natural occurrences. On May 24 the well-known anatomist and anthropologist of Strassburg, **Gustav Schwalbe**, died at the age of 74.——At the same time, the University of Strassburg lost the director of the pathologic institute, **Chiari**, aged 65.——In the battle of Verdun, **Dibbelt**, the privatdozent of Giessen, died. He had just been appointed director of the pathologic institute of the city hospital in Mainz.——Following a severe wound, **Dr. Lühe**, the professor of comparative anatomy at Königsberg, died in May, aged 46.——At the end of the same month, following infection in the course of his work, the well-known specialist of surgery of the gallbladder, **Kehr**, died in Berlin, aged 54. He had removed to Berlin from Halberstadt many years ago.——A few days before his seventieth birthday, **von Bruns**, well-known surgeon, died June 2, of pneumonia.——On July 6, we lost the noted anatomist, **Albert Fraenkel**, aged 68, for many years director of the Urban Berlin City Hospital. A few months before he had given up his position, and a severe infection of the heart prevented his carrying out his *otium cum dignitate*. He was a nephew of Ludwig Traube, and one of the older Berlin pupils of von Leyden. Of his many important studies probably the most important was the discovery of the pneumococcus. Most of his work concerned the diseases of the lungs, and he was as well informed concerning the pathology of these diseases as concerning their clinical manifestations.——On August 27, the noted anthropologist of Munich, **Ranke,** died, aged 80.

About the same time, **Adolf Weil,** the discoverer of the disease which bears his name, died at the ager of 68, in Wiesbaden. Some time ago he gave up active work at the University of Dorpat because of illness and moved to Wiesbaden. His work was particularly important in relation to heart diseases.

On July 30, the University of Breslau lost one of its professors, **Albert Neisser,** probably one of the greatest dermatologists of his time. To him we owe the discovery of the cause of gonorrhea at a time in which the foundations of bacteriology had not yet been established by Robert Koch. Of the greatest importance were also his studies concerning bacteriology and relations to disease of the leprosy bacillus, as well as his bacteriologic and clinical studies concerning syphilis. One remembers particularly the trip which he made to Batavia in order to study on monkeys the infection and treatment of syphilis. He developed a bladder infection following an operation for the removal of a stone subsequent to an inflammation of the bladder. Neisser was also a widely learned man aside from his knowledge of medicine. He had especial interest in the various arts, being particularly interested in music. He attended practically every noteworthy musical entertainment in Germany, and one was accustomed to see him at every great musical entertainment not only in Berlin, but in Leipzig, Stuttgart and other places. His residence was in effect a museum, containing wonderful paintings, and special prominence was given to paintings by two artists whose work was successful only through his interest and patronage. There are also several Böcklins.

Five days before his seventieth birthday, the well-known surgeon of Jena, **B. Riedel,** died. His most important work concerned abdominal surgery. His most important literary works were his monographs on German surgery, and tumors of the throat, and the editing and revising of the second and third parts of von König's system of surgery.

September 13, **E. Richter,** professor of surgery, and editor of the *Zentralblatt für Chirurgie,* died in Breslau, aged 79. Among his most important work was his textbook on the surgery of gunshot wounds in war.

On October 3, the well-known surgeon of Heidelberg, **Czerny,** died, aged 74. He occupied most of his time as surgeon in one of the hospitals for the wounded during the first year of the war, and his observations have been published in various places. In this work with his usual freedom of speech he criticized various methods and thereby incurred the ill-will of many persons. These quarrels were, however, because of the importance of the war, very quickly discontinued. Nevertheless, they served to rather diminish the importance of Czerny's work.

APPOINTMENTS TO UNIVERSITY CHAIRS

These numerous deaths caused many vacancies in the teaching staffs of our various universities, most of which were filled by the appointment of new men. Some of the vacancies are not yet filled. Hoffmann, who held the chair of physiology in Königsberg, was appointed to the same chair in Marburg.——His privat-dozent Weiss succeeded him at Königsberg.——Lüthge of Kiel, who died of typhus, was succeeded by Schittenhelm, whose position in Königsberg was filled by Matthes of Marburg.——Matthes was succeeded by v. Bergmann, director of the department of internal medicine in the city hospital of Altona, son of the well-known surgeon of the same name.——Kirschner, a son of the chief mayor of Berlin, succeeded Friedrich, through whose death the chair in surgery at Königsberg became vacant.——The privat-dozent for children's diseases, Stolte of Berlin, was called to Breslau to succeed Tobler, whose death has been announced.——In Königsberg also, Professor Sobotta of Würzburg was called to the professorship of anatomy.——Kleist of Erlangen has been appointed director of the clinic in psychiatry at Rostock.——The newly made *Extraordinariat* of internal medicine at this same university was filled by the appointment of Curschmann, director of the city hospital in Mainz, son of the Leipzig clinician.——Chiari was succeeded by Mönckeberg, demonstrator at the city hospital in Düsseldorf, who therefore moves to Strassburg.——The position of A. Wolff, who held the chair of dermatology at Strassburg, was filled by the privat-dozent Arndt of Berlin.——Schmidt of Giessen succeeded von Römer as director of the hygienic institute in Halle.——Kisskalt of Königsberg became ordinariat in hygiene at Kiel.——Von Wasielewski of Heidelberg was appointed director of the hygienic institute in Rostock.——A. Baginsky has resigned as director of the Kaiser und Kaiserin Friederich Kinderkrankenhaus in Berlin. In view of the war, however, he will continue his work for the present and his successor will probably be Finkelstein.

HONORS TO NOTED PHYSICIANS

Fortunately, some of the veterans among our medical authorities survive the changed mode of life under the conditions of war, and some of them have celebrated their seventieth, and even their eightieth birthday, amid testimonials of appreciation from the medical profession and from other circles. Among them is the internist Bäumler of Freiburg, whose eightieth birthday was celebrated May 13, also Mannkopff, formerly director of the Marburg medical clinic whose eightieth birthday fell on June 5.——The Berlin ophthalmologist, Hirschberg, was made honorary member of the Berlin Medical Society on the recent fiftieth anniversary of his doctorate.——This fiftieth anniversary was celebrated also in June by Trendelenburg, formerly of Leipzig; and by Filehne the pharmacologist, formerly of Breslau.——Also in June the fiftieth professional anniversary of the bacteriologist and lung specialist, Max Wolff of Berlin, and in September, Haase, the anatomist, formerly of Breslau, was celebrated.

WALDEYER'S EIGHTIETH BIRTHDAY

October 6, the eightieth birthday of Waldeyer, was celebrated with much ceremony. In a time of peace this would certainly have been celebrated like the eightieth birthday of Virchow, with the participation of the medical profession the world around, but under prevailing conditions the celebration was restricted to German physicians. But in spite of the seriousness of our days, Waldeyer received numerous honors. Delegates from societies and universities all over Germany came to bring him their congratulations. Ministerialdirektor Kirchner presented him with a bronze portrait plaque in the name of his friends and pupils. The Leopoldinische Akademie der Wissenschaften at Halle bestowed the golden Cothenius medal on him, and he was made an honorary member of the Anthropological Association. The kaiser conferred a hereditary title of nobility on him. Although Waldeyer is still amazingly vigorous mentally, yet he intends to give up his chair at the end of next semester.

The War

RESULTS OF TREATMENT IN THE MILITARY HOSPITALS

The official figures have been published in regard to the treatment of the sick and wounded in the military hospitals of the entire home zone throughout Germany. They show that 90.2 per cent. of the men became fit for duty again; 1.4 per cent. died; 8.4 per cent. were left unfit for military service or were dismissed from the ranks. In consequence of the hygienic measures enforced, especially the protecting vaccinations, the number of cases of epidemic diseases in the armies has declined almost to the vanishing point. These have always been scattered cases and the military measures have never been disturbed by epidemics.

WAR LOSSES IN THE PROFESSION

The losses in the medical force of the German army and navy, according the first six hundred casualty lists, have been as follows: fallen, 342; died of disease, 186; severely wounded, 176; slightly wounded, 553; taken prisoner, 156; missing, 87.

Fund Collected for Physicians Serving with the Army

For some time the profession in Berlin and also at a number of other points in Germany has been collecting funds to assist, after the war, physicians who left their practice to serve with the forces. The Berlin committee has collected to date 511,002 marks, which with the interest amounts now to a total of 524,189 marks, over $131,000, which is now at the disposal of the Kuratorium.

Raising Medical Fees

Corresponding to the general increase in the cost of living, the physicians in Berlin have also raised their fees. For office consultation they now ask at least 3 marks; for a day visit at the house, at least 4 marks and 5 when the call is urgent or the summons is not made until after the close of office hours. For consultations and visits between 9 p. m. and 8 a. m. at least double the above. (A mark is about equivalent to our quarter.) For other measures called for in medical practice, there is a corresponding rise. Cash payments are required for night visits, death and other certificates. However, every physician is free to reduce these prices in exceptional cases and for the indigent.

PARIS LETTER

Paris, Nov. 16, 1916.

The War

WOMEN WORKERS AND THE MEDICAL SERVICE

Thanks to the initiative of Dr. Sieur, director of the medi- ! service of the military government of Paris, dispensaries r the assistance of women working in ammunition factories .ve been set up in eight industrial centers in and near the pital. An appropriation of 8,000 francs ($1,544) has been anted by the general council of the department of the ine for these dispensaries. They are open every evening, is being the most convenient time for the patients to absent emselves from their work. A thorough system of records rnishes valuable data as to the influence of the work on e physiology of the women. The medical staff of the dis- nsaries is also charged with the duty of inspecting the gienic condition of the work shops.

FOUNDATION OF A CENTRAL LIBRARY FOR THE MEDICAL SERVICE OF THE ARMY

To bring together all the documentary evidence likely to rve in the study of the various questions connected with e medical service of the army, the minister of war has cided to establish a library, to be known as the Central brary of the Medical Service. It will be attached to the iseum service of the army at Val-de-Grâce (The Journal, ne 17, 1916, p. 1935) and will contain the collections of the esent library at Val-de-Grâce, together with such other oks as can, without inconvenience, be transferred from the isting libraries of the different departments of the medical rvice, and especially from the library of the consultative mmission. This collection will be at the disposal (1) of e technical school of the medical service of the army, both r the teaching staff and for the pupils; (2) of all the officers the medical service of the army on the simple presentation their identity card; and (3), on permission accorded by e director, of all persons engaged in studies relating to the bject-matter of these collections.

IMPROVEMENTS IN THE SERVICE FOR DISCHARGE FROM THE ARMY FOR INJURY OR SICKNESS

A recent circular from the undersecretary of state of the edical service is calculated to speed up the procedure of scharge from the army, while surrounding it with guaran- s clearly necessary in the interests of the state and of the dividual. By this circular the depots for convalescents, iere the wounded used to remain while awaiting examina- n of the recommendation for discharge concerning them, e suppressed. These inquiries were always very long awn out, and the result was often far from satisfactory on count of the lack of specialists. These convalescent depots ll be replaced by special discharge centers, whose business will be to establish as rapidly as possible the medico- gal situation of convalescents. In future, the soldiers pro- sed for pension, discharge, auxiliary service, or for change arm, must be sent to one of these discharge centers. The ff of these new formations, which will have no other busi- ss but the inquiries mentioned, will consist of specialists mpetent to give a technical opinion, each of whom must ve passed some time at the medical consultative commis- n at Paris, in order to familiarize himself with the adminis- tive mechanism which deals with pensions, discharges and vards. At least one of these centers will be set up in each litary region, and more if necessary. In this way it is ped to obtain a unity of doctrine and practice in connec- n with discharge from the army. The same incapacity ll be given the same weight in all parts of the country. e contradictory decisions which at the commencement ised so much trouble to the wounded will finally disappear; the same time the decisions will be taken more rapidly.

SHRAPNEL BALL FREE IN LEFT VENTRICLE

Dr. Lobligeois communicated to the Académie de Médecine case in which a shrapnel ball was free in the left ventricle a wounded man who was, clinically speaking, completely ed and who did not appear to be in any way troubled by presence of the projectile. The patient, wounded several nths ago, was examined by roentgenoscopy after apparent e, with a view to a search for the projectile, which was ieved to have lodged in the left lung. Examination with screen revealed the bullet immediately. It exhibited a characteristic dancing movement with each heart beat. In such a case a roentgenogram might have given only vague information, while on the screen a distinct, sharp image was visible.

THE RED CROSS IN ROUMANIA

The Union des Femmes de France has sent to Roumania a Red Cross commission under the patronage of Admiral Fournier, formerly commander in chief of the French fleet. This commission has taken with it 316 cases containing hospital material to the value of 60,000 francs ($11,580).

LONDON LETTER

London, Nov. 22, 1916.

The Control of Venereal Diseases

The great naval base at Portsmouth is the first place at which the government scheme for the control and treatment of venereal diseases will be put in force. The following are the details: 1. The treatment will be carried out at the Royal Hospital under the direction of a specially trained medical officer. The clinic is to be open on three afternoons and evenings a week, female patients being seen from 3:30 to 5 and male patients from 6 to 7:30. Two beds will be provided for each sex. The treatment is to be free to every patient without distinction. 2. Laboratory facilities are to be provided at the Royal Hospital available for the medical officer in charge of the treatment center, for poor law and other medical officers and for physicians generally. 3. Salvarsan or its substitute is to be issued free to physicians by the medical officer of the treatment center and by the medical officer of health. 4. Apparatus for collecting material for examination from suspects is to be obtainable free of charge by physicians. 5. A committee is to be formed, including representatives from the various public bodies and voluntary agencies, to advise the council in regard to measures for disseminating information as to the scheme as well as for the control of venereal diseases. The strictest confidence will be observed in regard to persons attending the treatment center. Their names and addresses will be required by the medical officer solely for the purpose of communication with them in connection with their treatment and under no circumstances to be divulged to any third person.

Condemnation by British Medical Association of Compulsory Notification of Venereal Diseases

In a previous letter to The Journal it was stated that the question of the compulsory notification of venereal diseases is the subject of warm controversy. A committee of the British Medical Association, consisting of all the chairmen of standing committees, with the chairman of council in the chair, has issued the following statement: The Committee of Chairmen of the Standing Committee of the British Medical Association, after very careful consideration, has unanimously arrived at the conclusion that any system of compulsory notification of venereal diseases at the present time would entirely fail to obtain the results desired, for the following reasons: (1) It would lead to concealment, and (2) even if a public authority were notified that any particular person was suffering from one of these diseases, no effective measures could, in the large majority of cases, be taken for treatment. The committee considers that the time for any such procedure has not yet arrived, and that before considering how it might be carried into effect it will be necessary to provide facilities for free treatment, in accordance with the scheme set out in the circular issued by the Local Government Board, and also to prevent afflicted persons, while in an infectious state, from resorting to unqualified and incompetent persons for treatment, by rendering any such treatment, or the advertisement or sale of quack remedies, an offense against the law.

Purchase of the Sanatogen Company

As stated before, the English assets of Wulfing, including all stocks of sanatogen, formamint, albulactin and cystopurin, have been, like other German-owned undertakings in this country, sold by order of the government. They have been purchased by Lord Rhondda, a business magnate, in conjunction with others. In the future, therefore, the business will be entirely British and free from enemy capital or influence. The new proprietors announce that "the business will be conducted on those thorough scientific lines which have in the past given the Germans almost a monopoly in the production of skilful organic compounds. Taking the present preparations as a foundation for the business, we intend, with the encouragement of the medical profession, to offer ample funds and facilities for experimental research work in synthetic chemistry, in the hope that English investigators may devise new products of no less value to the physician." Physicians are therefore asked at once "to resume prescribing the sanatogen group of products, which most physicians have only abandoned on patriotic grounds, and the unique efficacy of which has often been demonstrated by clinical and laboratory tests. During the time that this business was under the control of the government supervisor, many physicians informed us that they were disappointed with the therapeutic effects of the numerous imitations of sanatogen, etc., and would gladly utilize the original products as soon as these had been acquired by a British firm." The gullibility of the public and unfortunately of many physicians with regard to these preparations appears to be inexhaustible.

Dislike of New Australian Law by Nostrum Proprietors

The "Owners of Proprietary Articles" Section of the London Chamber of Commerce has issued a protest against the provisions of the recent commerce act, on the ground that it will have a far-reaching and disastrous effect on a "very important Australian trade." The act requires that all medicines or medical preparations or appliances for internal or external use shall be registered before they can be imported into Australia, and with the application for registration the owner shall deliver a description of the appliance or an exact and complete statement of the ingredients. One of the signatories of the letter is the late Sir Thomas Beecham. Among the proprietary preparations that are cited as being affected by the measure are Beecham's Pills, Woodward's Gripe Water, Powell's Balsam of Aniseed, Collis Browne's Chlorodyne, Guy's Tonic, Clarke's Blood Mixture, Phosferine, Steedman's Powders and Holloway's Pills and Ointment. These articles are stated to have a large sale in Australia, and are claimed to "have a well deserved reputation as being good and efficient household remedies."

Food Problem: Drastic Government Proposals

The problem of food supply has become a difficult though not a serious one. The causes are shortage of shipping for the carrying of food—due partly to the use of a large proportion of our ships for war purposes, and in less degree to destruction of allied as well as neutral shipping by submarines—and the shortage of agricultural labor, due to enlistment in the army. The government has at last resolved to take drastic action. One source of trouble is that not even high prices, more than double those existing before the war, have had much effect in limiting consumption, because wages have increased even more than this. The government is determined to limit the luxurious consumption of sugar in the form of sweets and confectionery. The potato crop is poor and a shortage is threatened of this imported food, of which the average consumption is one-half pound a day per head of the population. Everything is being done to encourage the importation and cultivation of potatoes. The appointment of one man to control the food supply of the country is foreshadowed. Waste of food in any manner will be made penal. Thus the destruction of food because the owner is not satisfied with the price offered will not be allowed. The manner in which food is to be used will be prescribed. Thus, as there is a shortage of milk, the government will not allow whole milk to be used to feed pigs. In spite of a recent crusade in the press against the use of white flour, from which many of the nutritious ingredients of wheat have been separated, this is still the main article from which bread is made. The government will prohibit the milling of this flour in future. Wheat now furnishes only 70 per cent. of this flour. In future the minimum yield must be 8.5 per cent. more (producing what is called "straight bread flour"). This will have the double advantage of furnishing a more nutritious flour and also of increasing the food supply of the country. It is estimated that the result will be 360,000,000 more quartern loaves than before. Food tickets are mentioned as a possibility; the government is asking for powers to issue them. They will insure that people cannot consume unnecessary food because they have the money to buy it. Cornering of the market will be prohibited. Maximum prices will be fixed for foods which are controlled by the government. Care will be taken not to check by this the importation of foods into the country.

Marriages

LUDWIG FREDERICK GULDNER, M.D., Davenport, Iowa, t Miss Bertha Harriett Rogers of Port Byron, Ill., at Daven port, November 25.

JOHN JAY HARRINGTON, M.D., Osawatomie, Kan., to Mis Elizabeth Waterman of St. George, Staten Island, N. Y November 20.

NATHANIEL ISADOUR BASKIND, M.D., Chicago, to Mis Marian Propp of Des Moines, Iowa, in Chicago, November 2.

JOHN TAGGERT LEMMEL, M.D., Albany, Wis., to Miss Min nie Katherine McCartney of Belvidere, Ill., November 29.

MAURICE ALVIN SHILLINGTON, M.D., Glendive, Mont., t Miss Elizabeth Wieland of Brainerd, Minn., October 24.

ARTHUR CHESTER STROUT, M.D., Garland, Me., to Mis Mabel Phoebe Ridley of Sanford, Me., November 30.

ARTHUR IRVING ARNESON, M.D., Emmons, Minn., to Mis Karina Emmons, both of Emmons, November 25.

WILLIAM GUSTAVUS SACHSE, M.D., Morris, Ill., to Mis Edith Janet Naden of Newark, Ill., November 30.

MICHAEL JAMES SCOTT, M.D., to Miss Agnes Harringto both of Butte, Mont., in Chicago, November 24.

PAUL GREEN POPE, M.D., Bay St. Louis, Miss., to Mis Virginia Borum of Jackson, Miss., October 14.

ALPHONSE HERMAN MEYER, M.D., to Miss Eulalie Ashne both of Memphis, Tenn., December 6.

ALBERT P. MUELLER, M.D., Louisville, Ky., to Miss Len Clifford of Cincinnati, November 18.

FREDERICK ELMER LEAVITT, M.D., to Miss Jessie Margare Row, both of St. Paul, November 28.

Deaths

John Halsey Benjamin, M.D., Riverhead, N. Y.; Bellevu Hospital Medical College, 1876; aged 61; a Fellow of th American Medical Association; for several terms presiden of the Suffolk County Medical Society; one of the larges stockholders in the Suffolk County Trust Company; wh underwent an operation for hip joint disease at Dr. Pilcher' private hospital in Brooklyn; died at his home, November 2

William Overholt Baker, M.D., Louisville, Ohio; Universit of Wooster, Cleveland, 1873; aged 88; a practitioner o Stark County since 1856; for twenty years pastor of th Church of Christ, Valley Chapel, formerly a member of th Ohio State Medical Association; died in Ingleside Hospita Canton, Ohio, November 26, from bronchopneumonia.

Thomas Gregor Brodie, M.D., Toronto; M. R. C. S. Eng land, 1890; aged 50; professor of physiology in the Universit of Toronto; who joined the staff of Canadian General Hos pital, No. 4, in 1916, and was engaged in special researc work in London, when the organization left for Saloniki; die suddenly in London, August 20, from angina pectoris.

Albius Mortimer Crittenden, M.D., Ferguson, Ky.; Vander bilt University, Nashville, Tenn., 1894; aged 58; formerly Fellow of the American Medical Association; a member o the Kentucky State Medical Association and once presiden of the Logan County Medical Society; died at his hom November 15, from carcinoma of the stomach.

Charles Young Hogsett, M.D., Fort Worth, Texas; Univer sity of Virginia, Charlottesville, 1895; aged 44; a Fellow o the American Medical Association and American Academy o Ophthalmology and Oto-Laryngology; a specialist in disease of the eye, ear, nose and throat; died in a sanatorium i Saratoga Springs, N. Y., November 25.

Harry Malcolm Wasley, M.D., Shenandoah, Pa.; Medico Chirurgical College, Philadelphia, 1900; aged 43; a Fello of the American Medical Association; president of the Schuyl kill County Medical Society; was found dead from hea disease on a mountain road near the Kehley Run collier November 28.

Harriett Douglass Whetten Showers, M.D., Meridia Miss.; Cornell University, New York, 1900; aged 48; fo eight years physician to the Meridian Women's College, an later superintendent and resident physician of Trinity Hos pital, East New York; died in Long Island State Hospita November 29.

Claude Bernard Foreman, M.D., Kane, Ill.; St. Louis College of Physicians and Surgeons, 1897; aged 41; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died in a hospital in Springfield, November 27, a week after an operation for appendicitis.

George Douglas Ramsey, M.D., Newport, R. I.; Tulane University, New Orleans, 1896; aged 47; a Fellow of the American Medical Association; major surgeon of volunteers during the Spanish-American War and first lieutenant, Medical Reserve Corps, U. S. Army; died at his home, November 27.

Robert Abner Brundage, M.D., Pittsburgh; Jefferson Medical College, 1906; aged 35; a Fellow of the American Medical Association; died in the Homeopathic Hospital, Pittsburgh, November 30, from the effects of injuries sustained when he was struck by an automobile a few hours before.

Edwin R. Montgomery, M.D., Louisville, Ky.; University of Louisville, Ky., 1867; aged 69; for two terms health officer of Louisville; supervising medical examiner for Kentucky for the Royal Arcanum for many years; died at the home of his daughter, in North Birmingham, Ala., November 27.

Stanley Arthur Walker, M.D., Toronto, Ont.; University of Toronto, Ont., 1915; aged 26; who resigned as house surgeon of the Toronto General Hospital to serve with the Canadian forces on the Somme front in France; was instantly killed in action by the explosion of a shell, October 15.

Lieut.-Col. G. M. Giles, Canadian Army Medical Corps, Kingston, Ont., F. R. C. S. England; formerly in the Indian Medical Service; aged 64; who went to England with the overseas force from Canada; died in Plymouth, England, in October, from a malignant growth.

William Lee Smith, M.D., Riderwood, Md.; College of Physicians and Surgeons, Baltimore, 1887; aged 54; a member of the Medical and Chirurgical Faculty of Maryland and once president of the Baltimore County Medical Association; died at his home, November 28.

Nora Johnson Ross, M.D., Chicago; Chicago College of Medicine and Surgery, 1911; aged 47; a Fellow of the American Medical Association and a member of the staff of the Mary Thompson Hospital; died at her home, December 1, from septicemia.

Jacob Brill Peters, M.D., Walden, N. Y.; New York University, New York, 1885; aged 63; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died at his home, November 23.

Albert Andrew Dougherty, M.D., Richland Center, Wis.; Starling Medical College, Columbus, Ohio, 1896; aged 51; at one time president of the Richland County Medical Society; died at his home, November 23, from angina pectoris.

S. Irick, Lamasco, Texas (registration, Second Texas Judicial District Board, 1893); aged 86; a veteran of the Civil War; for forty years a practitioner of Fannin County, Texas; died in Wetumka, Okla., November 22.

Matthias L. Lord, M.D., Rochester, N. Y.; New York University, New York, 1862; aged 77; a veteran of the Civil War; from 1868 to 1885 superintendent of the Monroe County Insane Hospital; died at his home, November 28.

William Fielding McQuitty, M.D., Correctionville, Iowa; University of Missouri, Columbia, 1879; aged 64; formerly a member of the Iowa State Medical Society; died at his home, about November 22, from cerebral hemorrhage.

George Kempton Reed, M.D., Philadelphia; Jefferson Medical College, 1874; aged 68; who retired from practice two years later and entered business with his father; died at his home, November 29, from pneumonia.

Edgar Harold McVicker, M.D., Toronto, Ont.; University of Toronto, Ont., 1915; aged 23; while on duty with the allied forces in France, in September, was struck by an exploding shell and instantly killed.

William G. Gombel, M.D., Baltimore; College of Physicians and Surgeons, Baltimore, 1877; aged 62; a Fellow of the American Medical Association; died at his home, November 29, from carcinoma of the throat.

James Kilbourne Young, M.D., Johnstown, N. Y.; Albany (N. Y.) Medical College, 1874; a member of the Medical Society of the State of New York; died at his home, November 26, from heart disease.

Robert Woolsey Odell, M.D., Detroit; University of Michigan, Detroit, 1866; aged 75; a Fellow of the American Medical Association; a veteran of the Civil War; died at his home, November 27.

George Franklin Munsey, M.D., Suncook, N. H.; Dartmouth Medical School, Hanover, N. H., 1879; aged 61; a member of the New Hampshire Medical Society; died at his home, November 26.

Frederick Robert Chapman, M.D., Saskatoon, Sask.; University of Toronto, 1908; aged 38; died at his home, August 16, from empyema, following perforation after accidental poisoning by lysol.

Edgar Cook Malin, M.D., Livermore, Iowa; State University of Iowa, Iowa City, 1890; aged 63; a Fellow of the American Medical Association; died at his home, October 23, from pneumonia.

Charles Louis Beil, M.D., New York; Bellevue Hospital Medical College, 1898; aged 40; a Fellow of the American Medical Association; died in Memorial Hospital, New York, November 30.

John Haughton Gimby, M.D., Sault Ste. Marie, Ont.; University of the Victoria College, Coburg, Ont., 1890; aged 61; died at his home, September 27, from carcinoma of the prostate.

Hosea J. E. Garrett, M.D., Hope, Ark.; Missouri Medical College, St. Louis, 1886; aged 55; a member of the Arkansas Medical Society; mayor of Hope; died at his home, November 17.

William Francis Scott, M.D., Port Washington, Wis.; Rush Medical College, 1887; aged 64; died in Mount Sinai Hospital, Milwaukee, November 28, from pernicious anemia.

Andrew Jackson Shore, Sailor Springs, Ill. (license, years of practice, Illinois, 1878); aged 81; a veteran of the Civil War; died at his home, November 20, from pneumonia.

Ryan T. Van Pelt, M.D., Anita, Iowa; Rush Medical College, 1877; aged 63; died at the home of his sister in South Bend, Ind., August 30, from carcinoma of the bladder.

William Calvin James, M.D., Lawson, Mo.; Vanderbilt University, Nashville, Tenn., 1880; aged 75; a practitioner for fifty-four years; died at his home; November 12.

Henrietta Hansine N. Brown, M.D., San Francisco; Minnesota Hospital College, Minneapolis, 1886; aged 67; died at her home, November 19, from bronchopneumonia.

L. Norman Monroe, M.D., Millerstown, Ohio; Medical College of Ohio, Cincinnati, 1881; aged 60; died at the home of his niece in St. Paris, Ohio, November 23.

Heward Sovereign Yorke, M.D., Waterford, Ont.; McGill University, Montreal, 1914; aged 28; died at his home, October 22, from acute dilatation of the heart.

John Clinton McPherson, M.D., Millington, N. J.; Hahnemann Medical College, Philadelphia, 1873; formerly of Chicago; died at his home, November 23.

John Bell Stagg, M.D., Pratt City, Ala.; Vanderbilt University, Nashville, Tenn., 1885; aged 56; died at his home, November 23, from cerebral hemorrhage.

William P. Pariseau, M.D., Ware, Mass.; Laval University, Quebec, 1904; aged 37; died in Hampden Hospital, Springfield, Mass., September 1, from diabetes.

Ira Sidney Hooker, M.D., Winner, S. D.; State University of Iowa, Iowa City, 1903; aged 40; died, October 25, at the South Dakota State Hospital, Yankton.

John E. Parrish, M.D., Memphis, Mo.; Washington University, St. Louis, 1869; aged 76; died at his home, November 20, from chronic catarrhal gastritis.

Herman Anscher, M.D., Chicago; Bennett Medical College, Chicago, 1890; aged 53; died at his home, November 24, from cerebral hemorrhage.

John Charles Crowell, M.D., Paw Paw, Ill.; Rush Medical College, 1891; aged 58; died at his home, November 17, from cerebral hemorrhage.

William H. Maghee, M.D., Lander, Wyo.; Jefferson Medical College, 1881; formerly of Evansville, Ind.; died at his home, November 21.

Moses Simmons Brundage, M.D., Rockford, Ill.; Rush Medical College, 1883; aged 58; died at his office, November 19, from heart disease.

James K. Pardee, Wichita, Kan. (license, years of practice, Kansas); aged 46; died at his home, November 9.

Robert Hughs, M.D., Denver; Jefferson Medical College, 1869; aged 74; died at his home, November 17.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

WALKER'S SULFO-SELENE CANCER REMEDY

Pertinent Comments by the New York Tribune

The most careful newspaper may sometimes err in handling topics of medical interest. Such errors mean that many newspaper readers are seriously misled, resulting in detriment not only to their purses but possibly to their health. There is, probably, no paper more careful of what it publishes than the New York *Tribune*. It was with some surprise, therefore, that admirers of this publication recently came across an article describing an alleged cancer treatment with a selenium preparation, the "treatment" being sponsored by one Dr. Charles H. Walker. The matter that follows is reprinted from the New York *Tribune*, Nov. 14, 1916, and shows that the *Tribune* stands ready to correct any errors into which it may be inadvertently led. The material reprinted consists of a letter protesting against the article in question, addressed to the *Tribune* and that paper's comment thereon:

> "I have noticed with much regret the appearance on the front page of a recent issue of the *Tribune* of a method for the treatment of cancer with selenium preparations. My disappointment at this was the greater because the *Tribune* has stood for something better, notably in the articles by Mr. Samuel Hopkins Adams. Publication of 'cancer cures' by the newspapers is to be regretted for three reasons: 1. The information is incorrect, for none of these 'cancer cures' will cure cancer. 2. Not realizing this, many patients in the last stages of the disease are induced to part with an amount of money which often represents the savings of a lifetime, in the attempt to obtain a cure. I have known of instances in which wives or children were left in penury after the father's death from cancer because of the heavy charges for the use of an alleged cure. 3. Every such publication leads persons suffering from early cancer, which alone can be cured by operation, to refuse this, the only certain means of cure at present, in the hope that some medical treatment will be of value. Too often it happens that, by the time the patient finds the medical treatment is of no use, the cancer has grown to such an extent that it is inoperable. May I ask why the *Tribune* publishes articles of high value attacking unsubstantiated claims in advertising, and then, in a conspicuous place, publishes equally unsubstantiated claims in regard to the cure of cancer?
>
> Medicus."

"The explanation is simple, but painful. The *Tribune* was 'caught' by a clever and ingenious exploitation of a semi-secret proprietary remedy. At the time of publication Dr. Charles H. Walker's 'Sulfo-Selene' was not known to belong in this category, or the article would never have been published. While there is no single statement in the interview, self-sought by Dr. Walker, which is provably false, the impression sought to be conveyed, that Sulfo-Selene will cure cancer, rests on no such foundation of evidence as to justify a reputable and responsible physician in setting it forth in the public prints.

"Dr. Walker's preparation had already failed of that recognition which would have given it a scientific status, at the hands of the recognized medical authorities. In 1914 it was presented before the American Medical Association's Council on Pharmacy and Chemistry, with a request that it be included in the list of recognized remedies. According to the information submitted, Sulfo-Selene is a 'mixture containing a selenium compound of undetermined composition, mixed with bile salts and diluents.' Although it was not then proposed as a cure for cancer, but merely as an alleviant to pain, the Council refused it recognition owing to lack of evidence. Further investigation early in the present year indicated that no curative claims were made for the composition. Since the assertion that it alleviates pain is hard to prove or disprove, the Council postponed publication of its findings.

"Then came Dr. Walker's successful attempt through the *Tribune* to inspire laymen with the belief that this selenium mixture, which had failed of scientific authorization, even as an alleviant, was actually a cure for the most dreaded of all diseases. It is a fair assumption that, in view of Sulfo-Selene's previous failure of recognition as a minor influence in cancer, any medical journal would have been chary of approving its major curative claims. There remained the lay press. Dr. Walker selected the *Tribune*, and, unfortunately for us, however defensible his own motive of publication may be, caught this paper napping.

"The reasons why such publication is a public injury are cogently set forth by 'Medicus,' whose actual name is of international note in cancer research. It remains for the *Tribune* only to acknowledge and regret its error; and by way of repairing it, in so far as possible, to make this statement:

"Dr. C. H. Walker's claims or implications for Sulfo-Selene as a cure for cancer, as set forth in the *Tribune* of October 16, are in no manner indorsed or shared by the *Tribune*, and should be estimated on no other basis than as the unsubstantiated assumption of a person interested in the sale of a semi-secret proprietary medicine."

AS CALIFORNIA SEES IT

What follows is taken from the *California State Journal of Medicine*. It reflects the attitude of the medical profession of the Golden State toward the work of the Council on Pharmacy and Chemistry:

"Both medicine and legitimate pharmacy would be greatly benefited if the medical profession took a keener interest in the work of the Council on Pharmacy and Chemistry of the American Medical Association.

"Thousands upon thousands of medicinal agents are upon the market which have little to commend them but the extravagant claims of mercenary manufacturers and the glib talk of wily detail men. Your journal can be ever so vigilant in the censorship of advertising. It avails little so long as the rank and file of the medical profession so liberally encourages these itinerant and questionable enterprises. Is medicine on so truly unstable a footing that the old and tried remedies must constantly give way to the new and unknown. Is it perhaps the relic of our former homage to magic and mysticism?

"The work of the Council has shown over and over again how the bulk of these 'new' agents are old-time and widely known remedies clothed in new form; with a new fanciful or catchy title, or disguised by 'aromatics,' or paraded as a new and wonderful chemical with marvelous properties. These myriad fakes emanate from the lowliest proprietary medicine vendor up to the largest producers of pharmaceuticals in the world.

"It is no longer very remunerative for manufacturers to confine themselves to high class chemicals and pharmaceuticals because of the keen competition in this field and the great falling off in the employment of drugs. Practically all of the big manufacturers devote their energies and advertising to the boosting of *specialties*—products in which they have proprietary interest or trade-mark rights. For these products fancy prices can be obtained and if physicians can be induced to prescribe them, pharmacists are obliged to stock them. You can upon a few moments' thought recall scores of such remedies. The physician is manifestly unable to protect himself against these impostions and to do this work for him the Council on Pharmacy and Chemistry was established."—*California State Journal of Medicine*.

MORE MISBRANDED NOSTRUMS

MRS. WINSLOW'S SOOTHING SYRUP

Information was filed against the makers of "Mrs. Winslow's Soothing Syrup," the Anglo-American Drug Company, on June 12, 1915, charging that the product was misbranded. The label declared the presence of 5 per cent. alcohol and one-tenth grain of morphin sulphate to each fluidounce together with oil of aniseed, carraway, coriander, jalap, senna and sugar syrup. The circular around the bottle contained among other statements the following:

> "Mrs. Winslow's Soothing Syrup for children teething . . . is sure to regulate the bowels. Depend upon it, mothers, it will give . . . health to your infants. We have put up and sold this article for many years, and can say, in confidence, and truth . . . never has it failed in a single instance to effect a cure when used in time . . . This valuable preparation . . . has been used with never failing success in thousands of cases . . . It . . . invigorates the stomach and bowels . . . and gives tone and energy to the whole system."

These claims the federal authorities declared "false and fraudulent" and made "knowingly and in reckless and wanton disregard of their truth or falsity." The company, which first entered a plea of not guilty, finally pleaded guilty and was fined $100.—[*Notice of Judgment No. 4110.*]

[NOTE.—"Mrs. Winslow's Soothing Syrup" no longer contains opiates. The company has, apparently, made up its mind that its old methods of doing business are out of joint with the times. The product now on the market is, apparently, a mixture of carminatives and laxatives.]

JOHNSON'S IODIZED EXTRACT OF SARSAPARILLA

The Michigan Drug Company, Detroit, sold a preparation called "Johnson's Iodized Extract of Sarsaparilla." The chemists who analyzed it reported that it was: "A simple vegetable preparation with only an appreciable amount of potassium iodid; alcohol and water used as a solvent." Misbranding was alleged because of the following statements regarding the therapeutic or curative effects of the preparation:

> ". . . a remedy for the following diseases Scrofula, . . . Erysipelas . . . Asthma. . . ."
>
> ". . . an excellent remedy for Rheumatism, Scrofula . . . and all Skin Diseases. . . ."
>
> "A positive and permanent cure for Rheumatism"
>
> ". . . is an infallible cure for neuralgia, nervous exhaustion, nervous prostration. . . ."
>
> ". . . a radical and permanent cure for asthma. . . ."
>
> "Painful and Suppressed Menses, . . . Leucorrhoea, Whites, Sterility, Ulceration of the Uterus, . . . all find relief, help, benefit and cure in Johnston's Sarsaparilla."

These claims the government declared to be false and fraudulent and applied knowingly and in wanton and reckless disregard of their truth or falsity. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4120.*]

MATUSOW'S NULFEY

Harry Matusow of Philadelphia shipped in interstate commerce a quantity of Matusow's Nulfey which the federal authorities declared misbranded. The preparation was analyzed by the Bureau of Chemistry, which reported the following results:

Sodium salicylate, 51.8 per cent.
Alkaloid (probably berberin), present.
Colchicin, quinin, strychnin, morphin, arsenic, absent.
Emodin, present.

The government officials declared that the therapeutic claims made for the product were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. These claims were made so as to create in the minds of purchasers the impression and belief that Matusow's Nulfey was effective as a remedy for paralysis, gout, and liver, kidney, bowel, bladder and stomach troubles, and effective as a blood purifier. Furthermore, that it was effective as a cure for locomotor ataxia, Bright's disease, diabetes, dropsy, hydrocele, stone in the kidney, all stomach troubles, gallstones, appendicitis and all skin diseases.

The case came on for trial before the court and a jury. After the submission of evidence and argument by counsel, Judge Thompson, before whom the case was heard, delivered a charge to the jury. In this he impressed on them that before they could bring in a charge of guilty it would be necessary for them to determine whether the therapeutic and curative claims were false, and if they were false that they would have to go still further and be satisfied beyond a reasonable doubt that the defendant in making them *knew* them to be false and intended to deceive and defraud. The jury retired and after due deliberation brought in a verdict of guilty. The defendant thereupon entered a motion for a new trial, but a few days later this was withdrawn and the court imposed a fine of $200 and costs.—[*Notice of Judgment No. 4190.*]

A Continuous Menace.—Some diseases are seasonal; some soon tire in their work, and retire to some other field; not so with consumption. The world is its field, it knows no time, all is opportunity. It feels no fear, but that of man who, it knows, could stay its ravages—if he could thoroughly realize his power and use it.—*Bulletin;* Newark (N. J.) Department of Health.

Correspondence

A National Leprosarium

To the Editor:—A bill (S 4086) providing for the national control of leprosy and the care of lepers is now pending before the United States Senate. This is the history of the bill. The Public Health Service and others interested in leprosy, particularly dermatologists, for years have realized that the incidence of this disease was gradually increasing in this country, and that it was therefore a menace. Whenever a case of leprosy is diagnosed in the community a great hue and cry results and there is ample opportunity for hysterical journalism. Although we realize that leprosy is not one of the most infectious of diseases, yet we do not know the exact manner of its transmission from one person to another. The cycle of the organism and the conditions of infection with it are not known. However, history and past experience demonstrate its infectious nature. Lepers moving from place to place in interstate traffic are, without doubt, a menace to other persons. Experience has shown that the only method of control of this disease is through isolation and segregation. This has been illustrated recently by government control of leprosy in the Hawaiian Islands and in the Philippine Islands.

In 1914 a concerted effort was made to persuade the United States government to provide governmental care and treatment for these cases. In June of that year resolutions were adopted by the Section on Dermatology of the American Medical Association recommending "the passage by Congress of a law for the comprehensive care and control of leprosy by the federal government." These resolutions were referred to the House of Delegates, and passed June 26, 1914. Similar resolutions were adopted by the American Dermatological Association at its meeting that year. The various state associations and medical societies throughout the country have recognized the need of a national leprosarium, and have officially urged the passage of a law providing for one.

At the beginning of the Sixty-Fourth Congress bills were introduced in both the House and the Senate by Mr. Adamson and Senator Ransdall, proposing the establishment of a national home for lepers. The House bill was reported favorably by the Committee on Interstate and Foreign Commerce, and passed unanimously. The Senate Committee on Public Health and National Quarantine held elaborate hearings on this bill in March, 1916, and reported it favorably. It was reached on the calendar during April, 1916, but Senator Thomas of Colorado objected to its unanimous passage, and it was left to be taken up in its regular order. This bill should be supported by the medical profession of the United States. Every physician knows the menace of leprosy. Others interested in the passage of this bill should communicate, by personal letter or telegram or indirectly through influential friends, with their Congressmen or Senators urging the latter to interest themselves, not only in the passage of the bill, but in securing for it as early a consideration as possible.

M. F. ENGMAN, M.D., St. Louis.

Relations of the Body and the Spirit

To the Editor:—Of perennial and universal interest is the point of fusion between the body and the spirit, the psyche—the soul, *élan vital,* cosmic urge, or whatever words are adequate to convey the idea of the immaterial essence. Being in correspondence with Prof. James H. Hyslop of the American Society for Psychical Research, I begged him to put in writing briefly what he and those he represents (mundane and extramundane) are prepared to aver of this blending of soul and body. I enclose his letter.

J. MADISON TAYLOR, M.D., Philadelphia.

My dear Dr. Taylor:—The reminder that somatic influences are now regarded as playing an important part in "mental queernesses" is fully appreciated, and I take the occasion to explain just what my position is in regard to the nature and interest of psychic phenomena.

Most of the medical public, most of the psychologists, and perhaps all laymen assume that, in contending for the supernormal, we disregard somatic and internal influences connected with such facts. But I myself would concede to all medical men, psychologists and laymen any amount of somatic and internal influences which they might either assume or prove. What I contend for is that in a great many cases the etiology of the phenomena includes extra-organic stimuli, which may be modified in any way you please or imagine by somatic agencies.

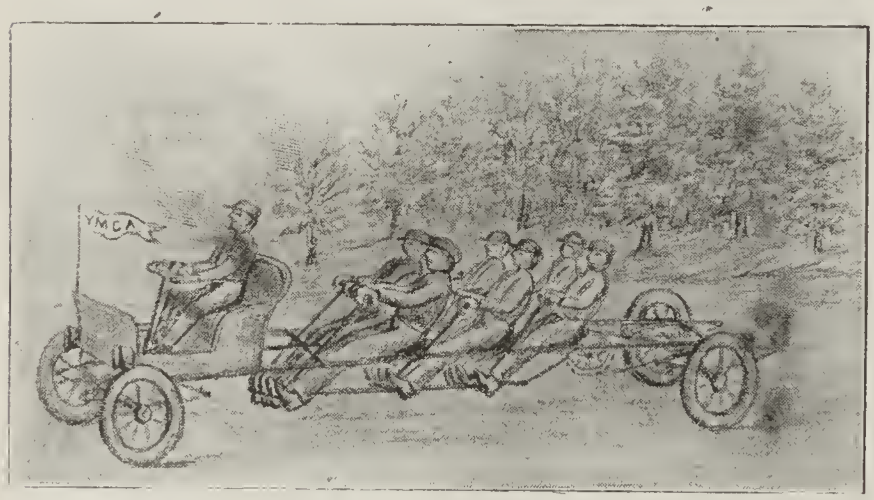
We assume that the subconscious of all psychics or automatists will do much to determine the form of the phenomena as they are observed and recorded. For instance, the language and manner of delivering so-called messages will partake of the habits, forms of expression and manners of the psychic. The question with us is whether their occurrence has been initiated within the organism or without it.

Hence, instead of setting up somatic influences as antagonistic to the existence of the supernormal, it may mean that some sort of telepathic or spiritistic influences are superposed on the somatic and internal causes, often completely interfused with them. If we could get the scientific world to recognize that we are not antagonizing their point of view. but merely adding to the knowledge of the complexities of the phenomena, we might get a more ready hearing. I wish to be understood merely as ready to conform my theories to any and all facts that may be established in physics, chemistry, physiology, biology and psychology. The primary question is whether somatic influences will account for all the phenomena. If they do not, we are entitled to appeal to extra-organic stimuli and then determine whether they are physical or mental; and, if mental, whether they are telepathic or spiritistic.

James H. Hyslop.

Good Medicine

To the Editor:—Having devised an apparatus for outdoor exercise and not knowing what to do with it, I have concluded to submit it to The Journal for your consideration. The device is not patented, and I doubt if it is patentable; anyhow, I hold no claims on the suggestion. The enclosed drawing, while poorly executed, is sufficiently intelligible to show about what the device is and how it is to be used. It is, in fact, an outdoor gymnasium. It supplies outdoor air, deep breathing, companionship, motion, changing scenery, and rhythmical exercise to all the muscles of the body without strain or violence to any one part. Schools, sanatoriums, clubs, societies, etc., might use such a contrivance to advantage. At health resorts and other like places such an apparatus might be kept for hire at so much an hour. There are a vast number of people, old and young, male and female, who need just such exercise as this contrivance would afford but get nothing in that line whatever.



Apparatus for outdoor exercise.

If I have taken up your time with something wholly outside your domain and possibly not worthy of your attention, please pardon me. I have felt that this was one thing that would receive the endorsement of all physicians.

The design, as illustrated, is provided with six hand and foot levers arranged in pairs.

W. R. Heylmun, M.D., Iola, Kan.

The Ventilation of Operating Rooms

To the Editor:—I was rather surprised to note in The Journal, Dec. 2, 1916, p. 1688, the statement made by Dr. E. P. S. Miller of Chicago in commenting on the lack of ventilation in operating rooms:

> "When you consider the amount of fresh air that is necessary to keep the carbon dioxid below the safety limit, it is strange that more patients do not succumb."

This is not in line with modern ideas relative to ventilation. It is quite possible that proper attention is not given to the ventilation of operating rooms, but Dr. Miller does not cover the chief argument against present conditions.

H. M. Bracken, M.D., St. Paul.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ZAMBESI ULCER—WHITE POCKS

To the Editor:—Can you give me a concise description of, and the infecting organisms in, Zambesi ulcer and white pocks?

R. F. Edwards, M.D., Newark, N. J.

Answer.—1. The main points connected with Zambesi ulcer, according to Bruce, are: (a) it is found, with rare exceptions, in one part of the body—below the knee; (b) it is usually single, seldom double, and more rarely in the form of two, or perhaps three, small ulcers on the same leg; (c) it does not spread, but exhibits immediate sloughing of the area attacked, remains a week or more and then heals by granulation; (d) it produces no constitutional disturbances nor enlargement of the lymphatic glands; (e) it is invariably associated with the presence of a spirillum and a large fusiform bacillus.

It is said that one attack gives considerable protection but not immunity, as years later the same person may develop mild small ulcers. It is said also to be met with only in the flat grass lands, such as the Zambesi delta, but this statement is not reliable. (The Journal A. M. A., Feb. 11, 1911, p 461, abstracted from an article by Bruce, W. J., in *Jour. Trop. Med.*, 1911, p. 1.) Since this description no other seems to have appeared. There seems to be another disease known by the name of Zambesi ulcer, which is attributed to the burrowing into the tissues of the larva of a dipterous fly.

The most recent description of the varicella-like disease occurring in Brazil and known as "white pocks," appears to be contained in the article by Rudolph (*München. med. Wchnschr.*, Feb. 7, 1911). He describes this disease as a pustular exanthematous fever closely resembling smallpox in its mode of onset, in the early fall of temperature, in the presence of characteristic bodies, presently to be described, in the exudate, and in the absolute immunity it confers against smallpox. The disease differs from smallpox by the fact that the immunity which it confers against vaccination lasts only for six months, by its benign character (the mortality being only from 2 to 2.5 per cent.), in the greater range of the early fall of temperature, in the histologic and external appearance of the pustule, which is situated in the horny layer of the epidermis and not in the rete malpighii and, finally, in the character of the scar, which is umbilicate and has a tendency to be elliptical and for the most part to disappear with time. Mense (Handbuch der Tropenkrankheiten, second edition, Vol. III, pp. 632-633) gives a description of this and of a number of other varioloid affections, and discusses their etiology and relations. Rudolph's description of the organism seen by him in the pustules is: a sharply defined, small, round, coccoid organism staining with Giemsa and basic stains, not stained by Gram, nonmotile, and not yielding any growth on the ordinary culture mediums. It will be seen that this description is identical with that of the bodies found in variola and vaccinia.

ELECTIVE SERVICE OF FIRST LIEUTENANT, MEDICAL RESERVE CORPS

To the Editor:—In your Current Comment (The Journal, Oct. 28, 1916) on the Medical Reserve Corps, you say that a first lieutenant of the Officers' Reserve Corps can be called on during peace. May I ask if this might not be a mistake, as I understand that no officer can be called out during peace? If they could, those of us who are in our prime, who now belong to the Reserve Corps, who are prompted by patriotic motives and who would drop everything, practice, friends, etc., should we become involved in actual war, would be subject to call to some barracks to examine recruits, and I would not want any one to call me a "hyphen" should I not desire to serve my country in such a capacity. If the new act of June, 1916, establishing an Officers'

Reserve Corps contains a provision such as you print in that issue, unless there are more specific details as to what service during peace we would be called to render, I do not feel that a great number of the present Medical Reserve Corps would enlist in the Officers' Reserve Corps.

Fred H. Bloomhardt, M.D., Altoona, Pa.

Answer.—First lieutenants of the Medical Section, Officers' Reserve Corps, may be called into active duty in time of peace under the following conditions:

"That the Secretary of War may in time of peace order first lieutenants of the Medical Section of the Officers' Reserve Corps, with their consent, to active duty in the service of the United States in such numbers as the public interest may require . . . and may relieve them when their services are no longer necessary."

The phrase "with their consent" makes it voluntary on the part of such officers whether or not they shall respond to call in time of peace.

THE RECTAL TUBE AND HIGH INJECTIONS

To the Editor:—Permit me to correct an error in your very conclusive reply to Dr. Bogardus' query regarding the rectal tube and high injections (The Journal, Dec. 2, 1916, p. 1688).

Referring to my article, you say, "G. S. Hanes of Louisville in 1909 claimed that it could be done, but failed to demonstrate it by roentgenograms, some of his own pictures showing the tube coiled in the rectum." As a matter of fact, my contention was that rectal tubes, when supposed to have entered the colon, would be coiled in the rectum or sigmoid. This I demonstrated by a series of roentgenograms in which every conceivable effort was made to pass the tube into the colon. All the pictures in the article to which you refer, except one, show the tubes coiled or bent on themselves in such a manner as prevented their entering the colon. The exception shown in Figure 5 is a Wales bougie passed well into the sigmoid through a proctoscope introduced with the patient in the inverted posture. I stated that I had another roentgenogram which showed a bougie introduced with the patient in the lateral position, in which instance the bougie was bent on itself with the distal end returning almost to the anal opening. Again I said that I had succeeded in passing a rectal tube around to the cecum, believing that I had accomplished more than could ordinarily be done. It was stated n my article to which you refer that it was a preliminary report, and hat the investigations were of a nature which had never before been undertaken or, at least, made public.

After further studies on the living subject and also the cadaver, I was convinced that I had misinterpreted the case in which the tube was supposed to have been passed into the cecum and had mistaken a very long sigmoid for the colon. I stated the same in an article published in the *Transactions of the American Proctologic Society*, 1911, p. 95, and also in an article in the *Louisville Monthly Journal of Medicine and Surgery*, February, 1912, p. 262. In the discussion of he paper of Yates of Detroit, to which you refer, Drs. Frank and Sherrill of Louisville, who are familiar with my work, said my conclusions were that long tubes seldom, if ever, were passed into the olon. In Dr. Sherrill's discussion he made reference to further experiments which I had made on the cadaver proving that a rectal ube could not be introduced into a normal colon.

In an article published in the *Kentucky Medical Journal*, Jan. 1, 1910, nd also in the *Transactions of the American Proctologic Society*, 1913, he subject of the introduction of colon tubes is discussed.

Granville S. Hanes, M.D., Louisville, Ky.

PSORIASIS CAPITIS—USE OF CHRYSAROBIN

To the Editor:—1. Will you kindly suggest the latest treatment for soriasis capitis?

2. How can chrysarobin be prepared so that it will not stain the lothes?

Thank you, and please omit my name. M. M. K.

Answer.—1. There is no new treatment for psoriasis of the calp worthy of recommendation. An ointment containing alicylic acid, 30 grains, and ammoniated mercury, 1 dram to an ounce of petrolatum, is a good one for such cases. All of he books on skin diseases describe the present accepted methods for treating psoriasis of the scalp.

2. Chrysarobin cannot be prepared so that it will not stain lothes. It can be applied to the skin in solution of gutta ercha, N. F., or flexible collodion, and this prevents it from coming in contact with the clothing, but this is not a very ffective way of using chrysarobin.

ACID OF GRAPEFRUIT

To the Editor:—What is the acid of grapefruit?

E. H. King, M.D., Muscatine, Iowa.

Answer.—Citric acid. Grapefruit (*citrus decumana*) belongs o the citrus family, which is represented also by the orange nd lemon. The total acidity of the juice of the grapefruit orresponds to 2.7 per cent. citric acid; this is stated as being reater than that of orange juice, and less than that of lemon uice.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 3. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 2. Sec., John Wix Thomas, 306 Goodrich Bldg., Phoenix.

California: Sacramento, Jan. 9. Sec., Dr. C. B. Pinkham, Forum Bldg., Sacramento.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Illinois: Chicago, Jan. 24-26. Sec., Dr. C. St. Clair Drake, Capitol Bldg., Springfield.

Indiana: Indianapolis, Jan. 9-11. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

Minnesota: Minneapolis, Jan. 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

New Hampshire: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

New Mexico: Santa Fe, Jan. 8. Sec., Dr. W. E. Kaser, East Las Vegas.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Oregon: Portland, Jan. 2, Sec., Dr. Herbert S. Nichols, 802 Corbett Bldg., Portland.

Pennsylvania: Philadelphia, Jan. 9-11. Sec., Nathan C. Schaeffer, Capitol Bldg., Harrisburg.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. G. T. Swarts, State House, Providence.

South Dakota: Pierre, Jan. 10. Sec., Dr. P. B. Jenkins, Waubay.

Washington: Spokane, Jan. 2. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. 2nd St., Ashland.

CLINICAL CLERKSHIPS IN THE FIRST SURGICAL (CORNELL) DIVISION AT NEW YORK HOSPITAL

BURTON JAMES LEE, M.D.
Associate Professor of Clinical Surgery, Cornell University Medical College
New York

During the past three years, a plan of instruction has been developed for the teaching of student clerks in the wards of New York Hospital in the service of Dr. Charles L. Gibson. The course arranged has received the enthusiastic approval of the student body. It may be profitable, therefore, to give a brief summary of the general scheme followed.

Clinical clerkships are provided for both fourth and third year men in the second and third college terms, respectively. Sections of eight at a time, for a period of five weeks, devote their entire time to the surgical wards in the hospital, with the exception of two afternoons a week, when work at the college is concentrated.

When the student first comes to the hospital, there is an informal talk with the instructors, the work to be done being briefly outlined. His obligations to the hospital and the patient are clearly stated, and he is made to understand that success as a clinical clerk depends largely on the tact and courtesy which he exercises in his dealings with patients and nurses. Each student is made to feel at the outset that he is an intrinsic, useful part of the surgical working force, and not an outsider. Responsibilities are thrown on him immediately, with certain definite assignments, so that he knows at the very beginning just what is expected of him.

Three of the students are on duty in the operating room each day, serving in the capacity of anesthetist, assistant at the wound, or family physician. The remaining five are occupied with history taking, physical examinations, general and special work in the laboratory, or attending special operations.

That responsibility may properly be placed on student as well as on teacher, the students are divided into groups of two, each group being assigned to a separate instructor. The attending surgeon, each associate surgeon, and the assistant surgeon are, therefore, each in charge of one group. Histories, physical examinations and descriptions of operations must have the written approval of the particular instructor assigned to the group in charge of a case, and questions of diagnosis are discussed with him. This assignment of students in pairs gives each man an intimate knowledge of double the number of cases which he would otherwise have, and the two students in each group cooperate, one doing ward or laboratory work while the other is engaged in the operating room.

One of the hospital wards is chosen as a general headquarters for information. There is a bulletin board in this ward, on which are placed an outline of the students' duties, under the head of general instructions, assignments of cases, the order of rotation for operating room service, as assistant and anesthetist, and various special notices.

GENERAL INSTRUCTIONS TO CLINICAL CLERKS IN SURGERY AT THE NEW YORK HOSPITAL

1. *New Patients.*—Consult the file for new cases and proceed as soon as possible with any new cases assigned to you as follows:

A. Clinical history.

B. Physical examination. While examining any patient in the female ward, request the presence of a nurse during such examination. No pelvic examination to be made save by direction of the attending surgeon, associate attending surgeon or house surgeon and in the presence of one of these surgeons.

C. Blood examinations—routine.

D. Urine analysis—routine.

E. Special examinations.

F. Write plainly your tentative diagnosis after the physical examination of each case and sign your name.

2. *Old Patients.*—A. Visit each old patient, making such examination as seems necessary, and add a note on the chart.

B. Attend the surgical dressings on your patients by the house surgeon whenever it is possible. "Most of the dressings are done between 7:30 and 9 a. m."

C. Consult the file "special examinations" and proceed with such work as is there assigned to you.

3. *Operations.*—Inspect list of operations for the day, and arrange to be present in the operating room when your patients are being operated on. Each group of two is expected to have a representative in the operating room when any patient under the care of this group is being operated on, the man thus serving being technically the family physician. Consult the schedule for operating-room services. Those on duty as assistant in the operating room must be scrubbed up at 8:30 a. m. It is essential that this time schedule be rigidly adhered to that the routine work of the hospital may not be interfered with. Violation of this rule forfeits the privilege for the day. At the termination of the operation, the man acting as assistant surgeon dictates in the presence of the surgeon the operative procedure, the family physician taking down the dictation, placing the operation on record at the earliest possible moment.

4. *Rounds.*—A. Field rounds are held on Monday at 3 p. m. by the surgeon and entire staff.

B. Further daily rounds are made by the associate and assistant attending surgeons.

5. Special bedside clinics are held with demonstrations in diseases of bones and joints at intervals during the course.

6. *Surgical and Gynecologic Pathology.*—These exercises are held in the pathologic laboratory, Wednesday, Thursday and Saturday afternoons at 3:30 o'clock. An attempt is made to present fully interesting cases occurring in the service illustrating important points in surgical and gynecologic pathology, endeavoring to correlate the clinical findings with the pathologic. The abundant surgical and gynecologic material of the hospital is freely made use of.

7. *Clinical Pathology.*—Individual attention is given to the students by the assistant in clinical pathology, who aids them in the performance and interpretation of various tasks. Students are requested to confer with the instructor freely in connection with this work.

8. *Instructions in Anesthesia.*—A talk on anesthesia is given to the students by the anesthetist in the service. Students must observe their assignment for instruction in anesthesia in the operating room. Students on duty for the day must be in the operating room ready for work at 8:30 a. m. Violation of this rule forfeits the privilege for the day.

9. *Gynecologic Diagnosis.*—In the outpatient department: Interesting cases for gynecologic diagnosis are studied, and ample opportunities are afforded students for making pelvic examinations under proper supervision. This is one of the most instructive exercises of the course.

10. *Necropsies* (by the pathologist and staff).—Students are expected to attend every necropsy occurring in connection with both the surgical and medical services. This is one of the valuable features of clinical clerkship, and students are earnestly requested to be on hand for every postmortem examination. A bell gives notice of the beginning of every necropsy.

11. *Emergency Operations.*—After 6 p. m., immediate notice of a proposed operation will be telephoned to such members of the class as may desire it. Attendance at these operations is purely voluntary, but very desirable, as cases of emergency character are numerous and interesting.

12. *Collateral Reading.*—It will be necessary for the students to supplement their work throughout the service at the hospital with collateral reading. The library in the record room is available for the use of students from 9 a. m. to 5 p. m.

As the plan works out, practically each group comes in personal contact with a large number of cases. The opportunities which such a course offers to the ambitious student are tremendous. Surgery, as it is, is spread out before him, and he is an integral and important part of it. He comes to realize that a careful history is essential if an accurate diagnosis is to be reached. A physical examination, to be of any value, cannot be perfunctory, and the value of minute observation is emphasized. His knowledge of his own cases embraces every angle from which they may be studied, from the ward work before and after operation, to operative technic, laboratory work, and finally the intimate personal contact which is so essential to the successful practice of surgery.

With rare exceptions, the students gain the confidence of the patient to a remarkable degree. Their enthusiasm for surgical knowledge has made the course pleasurable and profitable to student and instructor, for they have proved themselves willing, teachable assistants, looking for the truth.

128 East Seventy-Third Street.

Tennessee June Report

Dr. A. B. De Loach, secretary of the Tennessee State Board of Medical Examiners, reports the written examination held at Knoxville, Memphis and Nashville, June 16-17, 1916. The total number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 148, of whom 128 passed and 20 failed. Fourteen candidates were licensed through reciprocity and 5 were granted reregistration certificates. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Birmingham Medical College	(1915)	75.9
College of Physicians and Surgeons, Little Rock	(1911)	87.4
Southern College of Medicine and Surgery	(1914)	75.2
College of Medicine and Surgery (Physiomedical)	(1911)	80*
Kentucky University	(1902)	77.6
Tulane University of Louisiana	(1907)	84.1
Tufts College	(1913)	85.7
National Univ. of Art and Sciences.....(1915) 80.1;	(1916)	85.1
Columbia University	(1912)	90
Jefferson Medical College of Philadelphia	(1913)	85.1
Medico-Chirurgical College of Philadelphia	(1912)	79.2
Lincoln Memorial University (1914) 75.5; (1916) 81, 82.2, 82.9, 83.9, 84.2, 84.5, 85, 85.5, 86.2.		
Meharry Medical College (1912) 78.5; (1916) 75, 75.1, 75.2, 75.2, 75.5, 75.6, 76.7, 76.9, 76.9, 77.1, 77.9, 78.1, 78.4, 78.7, 78.9, 78.9, 80.6, 80.7, 81.1, 82, 83.2, 83.9, 84.4, 84.4, 84.5, 88, 89.		
Memphis Hospital Medical College	(1912)	75
University of the South	(1902)	84.1
University of Tennessee (1913) 80.5; (1914) 81.4; (1915) 81.4; (1916) 78, 79.7, 80.5, 81.6, 83.4, 84, 84.2, 85, 85.2, 86.2, 87, 87.5, 89.4.		
University of West Tennessee (1914) 88; (1915) 75.2; (1916) 75, 77.5, 79.9.		
Vanderbilt University (1915) 82.4; (1916) 79.2, 80.2, 80.2, 80.2, 80.6, 80.7, 80.9, 81.2, 81.4, 81.4, 81.7, 81.9, 82.1, 82.1, 82.5, 82.7, 82.9, 83, 83.4, 83.7, 83.7, 83.9, 84.2, 84.4, 84.5, 84.6, 85.1, 85.1, 85.2, 85.4, 85.4, 85.5, 85.6, 85.9, 86.4, 86.5, 86.7, 86.7, 87, 87.4, 87.6, 87.9, 88.6, 89, 89, 89.1, 89.7, 90.4, 92.1, 94.4, 96.1, 98.1, 98.2.		
Queen's University	(1911)	81.4

FAILED

Meharry Medical College (1912) 44.7; (1914) 59.7, 70.6; (1915) 53; (1916), 47, 53, 54, 58, 70.4, 71.6, 72.

University of West Tennessee (1909) 60.5; (1914) 68.5; (1915) 54.5, 58.6, 63.6, 64, 70.1; (1916) 71.4, 73.4.

* Graduation not verified.

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas	(1902)	Arkansas
Rush Medical College	(1910)	Utah
Indiana University	(1909)	Indiana
Missouri Medical College	(1885)	Arkansas
Starling Medical College	(1897)	Missouri
University of Pennsylvania	(1907)	Penna.
Med. Coll. of the State of South Carolina	(1914)	N. Carolina
Meharry Medical College	(1911)	Arkansas
Memphis Hosp. Med. Coll......(1898) Oklahoma;	(1903)	Arkansas
University of Nashville	(1901)	Arkansas
University of the South	(1907)	Georgia
Medical College of Virginia	(1895) (1906)	Virginia

Connecticut Eclectic July Report

Dr. T. S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports that one candidate, a graduate of the Georgia College of Eclectic Medicine and Surgery, in 1912, was licensed, July 11, 1916, through reciprocity with Georgia.

Social Medicine, Medical Economics and Miscellany

HEALTH INSURANCE CONFERENCE

The American Association for Labor Legislation will hold its tenth annual meeting at Columbus, Ohio, Wednesday, Thursday and Friday, December 27-29. The convention will open with an evening session in the form of a joint meeting of the American Economic Association, the American Sociological Society, the American Statistical Association and the American Association for Labor Legislation. Addresses will be given by the presidents of the four associations—Prof. Thomas N. Carver, Dr. George E. Vincent, Mr. Charles P. Neill and Prof. Irving Fisher. The subject for the evening meeting will be: "The Need for Health Insurance." On Thursday, morning and afternoon sessions will be held at Rankin Hall. At the morning session, Max Senior of Cincinnati, chairman of the Social Insurance Committee of the National Conference of Charities and Correction, will preside. Miss Julia Lathrop, chief of the federal Children's Bureau, will speak on the "Public Protection of Maternity," and Dr. Alexander Lambert of New York, chairman of the Judicial Council and of the Social Insurance Committee of the American Medical Association, will discuss "Medical Organization under Health Insurance." At the afternoon session, Hon. Rufus M. Potts of Springfield, Ill., state commissioner of insurance for Illinois and chairman of the Social Insurance Committee of the National Convention of Insurance Commissioners, will preside. Addresses will be given by Dr. I. M. Rubinow, secretary of the Social Insurance Committee of the American Medical Association, on "Health Insurance through Local Mutual Funds"; by Hon. John J. Lentz, president of the American Insurance Union of Columbus, Ohio, on "Fraternal Societies under Universal Health Insurance"; by Dr. Harry E. Mock of Chicago, medical director of Sears, Roebuck & Co., and secretary of the National Association of Industrial Physicians and Surgeons, on "Establishment Funds under Universal Health Insurance"; and by Mr. Thomas J. Duffy of the Ohio Industrial Commission, on "Trade Union Sick Funds and Universal Health Insurance." On Friday morning, a session on working hours in continuous industries will be held at the Ohio State University. Mr. John A. Voll, president of the Ohio State Federation of Labor, will preside. The discussion on "One Day of Rest in Seven by State and Federal Legislation" will be led by Mr. John A. Fitch, editor of the industrial department of the *Survey*. "Eight Hour Shifts by Federal Legislation" will be discussed by Prof. John R. Commons, professor of political economy of the University of Wisconsin. "Practical Aspect of the Weekly Day of Rest and the Eight Hour Shift in Continuous Industries" will be discussed by Mr. William B. Dickson, second vice president of the Midvale Steel and Ordnance Company. In the afternoon, the annual business meeting of the American Association for Labor Legislation will be held, at which the reports of various officers and committees will be presented and the legislative program for the coming year discussed. An evening session will be held at the Athletic Club, the subject being "American Economic Problems after the European War." Mr. Roger W. Babson of Wellesley Hills will consider the question with respect to the gold supply; Mr. W. Jett Lauck of Washington, D. C., with respect to immigration; Prof. T. S. Adams of Yale University, with respect to the attitude of governments toward industry; Mrs. Haviland H. Lund, with respect to the redistribution of labor now employed in producing war supplies, and Mr. John R. Wildman of New York University, with respect to accounting and industrial preparedness.

Saturday noon a joint session of the American Association for Labor Legislation and the American Political Science Association will be held at the Hotel Sinton, Cincinnati, under the auspices of the City Club, Cincinnati. Prof. Gerrit S. Sykes, president of the City Club of Cincinnati, will preside. Mr. Miles M. Dawson of New York will speak on the "Principles of Health Insurance."

Book Notices

Principles of Diagnosis and Treatment in Heart Affections. By Sir James Mackenzie, M.D., F.R.S. Cloth. Price, $2.50. Pp. 264. New York: Oxford University Press, 1916.

This is a series of lectures prepared for postgraduate students who are assumed to know something of heart disease from clinical experience. The book cannot, therefore, be justly criticized for omissions, for overemphasis placed on certain features, and for a slighting of others which might seem important, nor can we take the author to task for employing a colloquial style and for injecting into his lectures a certain personal element which might be in questionable taste under other circumstances. The local conditions under which these talks were to be given explain and excuse their somewhat discursive fragmentary and familiar character. This familiarity, by the way, is one of the charms of the work. We seem to be listening to the fireside talk of a practitioner of thirty-five or forty years of rich experience, who has been a keen observer of facts, a seeker after new light, one who thinks independently and has the courage to formulate for himself his views, even though his conclusions may not agree with those of the profession at large. What Mackenzie believes, he believes strongly; what he does not believe, he renounces and denounces in no uncertain manner; what he does not understand, he admits frankly. He is not bound by tradition, has little respect for authority, has a healthy skepticism, and is interestingly, sometimes invitingly, dogmatic.

The book is one to make the practitioner stop and think, to take account of stock, to see into how many foolish errors he has fallen, how he may best readjust himself to the new knowledge, and how he, plain practitioner as he is, may follow the example of the distinguished author and be a real investigator, though he may lack the supposed advantages of the laboratory or the ward of the hospital. Mackenzie, in fact, tries to stimulate the general practitioner to research by insisting that the practitioner, not the laboratory or hospital worker, has the opportunity of pursuing the clinical study of a disease of the heart from its slight beginning through to the end. Only the family doctor can keep in close touch with the patient during the many years of his life.

The text of Mackenzie's lectures—we had almost said sermon—is "heart failure." Heart failure is "that condition in which the heart is unable to maintain an efficient circulation during the efforts necessary for the daily life of the individual." The essence of heart failure is the condition of the muscle. All through the book, whether discussing valvular lesions, hypertrophy or irregularitis, Mackenzie reminds us that the important fact after all is not the murmur, not the size of the heart, not its rhythm, not any single symptom or sign, but the power of the heart muscle to respond to the ordinary demands of daily life. That this lesson will bear repeating and emphasizing must be admitted. But we contend that there is an element of unfairness in practically assuming that not only general practitioners but nearly all writers, teachers, "distinguished physicians" and hospital physicians are still paying attention to the murmur, still absorbed in taking the blood pressure or the polygraphic tracing, and forgetting to ask the question, Is the heart failing or in danger of doing so? We recall that about twenty years ago numerous papers, at least here in America, appeared emphasizing the importance of the heart muscle and the value of other signs and symptoms than murmur; we recall that Grebe has written with clear vision as to the value of the myocardium, and that Martius has dwelt on the reserve power of the heart muscle. In Romberg's textbook one will find many pages devoted to a consideration of chronic insufficiency of the heart muscle; and Jürgensen, twenty years ago, printed in large type, almost at the beginning of his article in Nothnagel's system, "Pancarditis is the diagnosis of the future." In some of the English textbooks on medicine and disease of the heart, written with not quite such a provincial or insular view as Mackenzie's, plain and forceful consideration is given to cardiac muscular insufficiency. What we feel like protesting against is not the view, nor its promulgation, but the assumption that it is the position of very few. We wonder if Mackenzie is in touch with the younger men of Great Britain and other countries. Furthermore, if physicians have been trying by various tests to estimate the efficiency of the heart muscle, whether those tests be instrumental or by an interpretation of symptoms, whether the tests are trustworthy or not—and we agree with Mackenzie that they have had little value—is it not clear that this effort to find out the heart's efficiency implies a recognition of the importance of muscular function, no matter whether the lack of such function be viewed as due primarily to a valvular defect, to the result of back pressure, to a break of compensation, or whether it be said to be due to heart failure?

We feel life resenting the imputation that the great mass of clinicians and students do not understand even the elementary facts concerning prognosis or treatment of heart disease, and that they cannot, even when they are shown and told about it, appreciate the significance of presystolic and diastolic murmurs in mitral stenosis (p. 166). The personality of the speaker, if he were addressing a group of practitioners, might strip his words of their seeming offense against good taste; but in cold type they seem, every once in a while, to obtrude a self-assured superiority which, to speak mildly, is irritating rather than stimulating. This is unfortunate, for the book is so full of excellent things that it is a pity to have the total effect anything but good. It is profitable occasionally to have an iconoclast like Mackenzie come along and ruthlessly tear down our cherished idols. It is good to have the truth fearlessly spoken, though we may blush at our previous ignorance. We are glad to hear the Nauheim treatment condemned as essentially quackish. It is refreshing to hear his voice call us back to our senses in the matter of blood pressure and to the extravagance of many of the views regarding its dangers, amenability to treatment, etc. His references to the importance of symptoms, as contrasted with the findings of instrumental and physical examinations, are timely. His remarks on the taking of the history of the patient and the making of a prognosis, with its element of the unknown and the mysterious, could be written only by one who has had the experience of the general practitioner, and who has learned by this experience how to handle people, how to elicit from them the telltale symptoms of disease. His short discussion of treatment is full of more common sense as to diet, baths, use of digitalis, sedatives, etc., than many other articles of more pages than he has paragraphs. His discussion of cardiac irregularities is clear and authoritative, as one would expect from the physician whose pioneer work in this field did so much to clear the way for later investigators. One must agree with him as to the practical clinical importance of recognizing auricular fibrillation early because of its bearing on proper treatment; yet one feels that the last word concerning prognosis of extrasystole has not been uttered, and that there is still much that seems confusing as to auricular flutter and its relation to auricular fibrillation and paroxysmal tachycardia.

We might quibble with the author over his protest against the use of the term "pseudo-angina." We might contend that his statement that it is doubtful whether mitral incompetence itself ever constitutes a serious embarrassment to the heart (p. 104) is open to argument; we might still insist that the mechanical back pressure theory of cardiac pathology, with its compensation and decompensation, is a theory which will take more than Mackenzie's denial of its truth to destroy; we might show that even Mackenzie comes dangerously near to speaking in terms of back pressure once or twice, and that, after all, his "heart failure" and another man's "decompensation" or "muscular insufficiency" are essentially not very different; we might term his short description of septic endocarditis surprisingly incomplete and as seemingly missing the essential feature of the disease, that is, the sepsis, and mistakenly emphasizing the "profound depression of the heart muscle which is often the grave element," whereas the myocardial weakness in most cases is a feature well in the background; we might express the opinion that when he says that "only an infinitesimal number of those who suffer can ever hope to have the benefit of laboratory methods" he is overstating the fact and not taking into account that municipal, hospital and reliable private commercial laboratories are now quite numerous, and that not a few young graduates are progressive enough to have private laboratories of their own, or are acting as laboratory assistants to older general practitioners.

These, however, are minor matters. The book is excellent, though of an entirely different character from Mackenzie's larger work on "Diseases of the Heart," less sober, less dignified, less complete. But its purpose is different; it aims to stir up physicians to think about the principles underlying the recognition and treatment of heart disease, to speak plainly and forcibly about some of the notions wrongly fixed in the professional mind. It cannot help doing good. It is illuminating and stimulating in its simple, honest, rugged way of saying things.

Roentgenographic Diagnosis of Dental Infection in Systemic Diseases. By Sinclair Tousey, A.M., M.D., Consulting Surgeon, St. Bartholomew's Clinic, New York. Cloth. Price, $1.00. Pp. 75, with 38 illustrations. New York: Paul B. Hoeber, 1916.

The illustrations in this little book are all reproductions of roentgenograms, most of them from films held inside the mouth at the time of exposure. A few are good; most of them do not show with sufficient definiteness to be convincing. There are no descriptions of the illustrations, except as they are mentioned in the text. The author gets far afield from his title in his endeavor to give the treatment of dental lesions, with the pathology of which he is apparently not very familiar. From the dental point of view, the nomenclature is of nearly a century ago. Several interesting case histories are given, accompanied by roentgenograms of the maxillary bones. These serve to emphasize the need of roentgenographic examinations of the mouth in all cases in which a focal infection might be causal. The book would have been of greater value had the author confined himself to his title and given accurate descriptions of the various illustrations, with complete histories of a larger number of cases.

Medicolegal

A Scheme and a Conspiracy to Defraud

(*Hughes et al. vs. United States (U. S.), 231 Fed. R. 50*)

The United States Circuit Court of Appeals, Fifth Circuit, affirms as to six, and reverses as to two of the defendants a conviction of conspiring to violate Section 215 of the penal code of the United States, which prohibits the use of the mails in the furtherance of schemes to defraud, and of violating that section, for which they were sentenced to terms of varying length in the penitentiary. The court says that it was contended by the demurring defendants that the counts of the indictment failed to show the devising of a scheme or artifice to defraud or for obtaining money or property by means of false or fraudulent representations or promises, in that it was not charged that the defendants were not qualified to administer the treatment they promised to administer, or that they did not, in fact, intend to administer such treatment, when paid therefor. It was true the indictment did not aver that the defendants were not so qualified, or that they promised with the then intention of not furnishing any treatment, though paid for so doing. The scheme relied on by the government was a different one. The fraud was alleged to have consisted in soliciting and receiving money from patients, intending to furnish medicine or treatment therefor, without regard to the needs of the patient for that or any treatment, without making any diagnosis such as would inform them as to the need of the patient for any or for what treatment, and with the intent to receive the money, though they knew that the patient paying it had no need of any treatment, or of the treatment to be furnished in consideration of it, or had purposely refrained from informing themselves of his needs in those respects. In other words, the indictment charged the defendants with having devised a scheme to solicit money from patients for promised eatment, not intending to furnish treatment in good faith, ut only as a pretext for securing the patient's money. Vhether the treatment or medicine furnished was of little r much value intrinsically, in this view of the scheme, was f no consequence. The court thinks the scheme alleged to ave been devised by the defendants was one included within nd prohibited by Section 215. Five of the defendants were iown by the government's evidence to have been physicians nd principals in the business that was being conducted at ie two locations mentioned as the seats of the conspiracy, nd the jury was authorized to infer from the evidence that iese defendants were responsible during the period covered y the years 1912 and 1913 for whatever was being done on ie premises at each location, and that they shared or were share in the profits of the transactions, knowing their ctual character. It was also open to the jury to infer from ie evidence that the purpose of the business that was being onducted during the period mentioned, at those places, was ot the bona fide treatment of disease, but a scheme to ecure money from patients, with no purpose to treat them in ood faith as promised, but merely as a pretext for taking ie money solicited. The correspondence between the inspecrs and the defendants, introduced in evidence, was of a haracter which justified the jury in drawing the inference f bad faith and fraud, if they saw fit. The fact that only ctitious transactions, based on decoy letters written by ispectors, were in evidence, and that no money was shown have been received by the defendants, did not prevent the iry from inferring the existence of the conspiracy charged the first count or the fraudulent scheme charged in the emaining three. As to another defendant, being himself physician, the jury was authorized to infer that he could ot have been associated with the principal defendants in the onduct of the enterprise, as shown by the record, without aving become acquainted with its illegitimate character. If e participated in it in any way with knowledge of its haracter, he would be guilty of the offenses charged. The istinction between the other two defendants and these was iat the other two were not shown to have acted in their own iterest and for their own benefit, but as agents of the other efendants, and were not shown to have had the medical nowledge that would have authorized the jury to infer that hat they did as agents they did with that consciousness of rongdoing which would be essential to make them co-conpirators with the other defendants.

Time for Which Seaman May Charge for Cure

(The Bouker No. 2 (U. S.), 231 Fed. R. 254)

The United States District Court, Southern District of lew York, says that the question whether a seaman who alls sick or is injured while on his voyage may charge for is cure only till the end of the voyage or whether his cure overs a reasonable period thereafter is not settled by any uthoritative decisions. Mr. Justice Story, however, held iat the cure extended beyond the voyage (*Reed* vs. *'anfield*, 1 Sumner, 195, Fed. Cas. No. 11,641), and his is a igh authority in matters maritime. Judge Addison Brown, kewise a high authority in such cases, ruled the same way The W. L. White (D. C.) 25 Fed. 503), and this has been ollowed in *Wilson* vs. *Manhattan Canning Co.* (D. C.) 205 'ed. 996, by Judge Cushman, and in The Lizzie Frank (D. C.) l Fed. 477, by Judge Toulmin. Judge Ward, in The Bunker Iill (D. C.) 198 Fed. 587, obiter, seems to have approved he rule, as did also Judge Hoffman in *Raymond* vs. *The Illa S. Thayer* (D. C.) 40 Fed. 902. Judge Henry B. Brown's ecision in The J. F. Card (D. C.) 43 Fed. 92, proceeded ather on the fear of danger to shipping than on a conideration of the authorities. Judge Betts appears twice have ruled against the right to cure after termination of he voyage (*Nevitt* vs. *Clarke,* Fed. Cas. No. 10,138, and 'he Atlantic, Fed. Cas. No. 620), but those were each earlier ases than the W. L. White, cited above. Similarly Judge Ross ruled for the ship in The Tamerlane (D. C.) 47 Fed. 22, and Judge Miller in The Ben Flint, Fed. Cas. No. 1,299. n this district it seems clear that the later cases are in ccord with the libelant's position. Moreover, the cases to the contrary were all decided at a time when general notions of what was just in such matters favored the libelant much less than at present. Certainly this court should not have the right to change a well settled rule because it did not answer present convictions, but when the matter is open and inclines toward such convictions, it would be wrong to twist it back again. The libelant may recover the expenses of his cure and maintenance as proved, $1,091.90. No costs.

Rat-Proofing Ordinance Upheld

(City of New Orleans vs. Beck (La.), 71 So. R. 883)

The Supreme Court of Louisiana holds Ordinance 2512, commission council series, of the city of New Orleans, providing for the rat-proofing of all buildings and structures, etc., in said city, for the purpose of better preventing the introduction and spread of bubonic plague, to be a constitutional and valid exercise of the police power of the state in the interest of the health of the people. The court says that this is a new ordinance, adopted after the decision in Sanford's Case (137 La. 628, 69 So. R. 35, and briefly reported in THE JOURNAL, May 20, 1916, p. 1653), and intended to conform to the views expressed in the opinion in that case. If a board of health has the power to order the vacation or demolition of any building, when necessary for the protection of the public health, it surely possesses the lesser power to order any building to be put in such a condition as to prevent its becoming a focus of plague infection. The law makes the board of health the judge of the necessity for the protection of the public health, and of the means to be adopted for that purpose. That the bubonic plague prevailed in this city during the summer and fall of the year 1914 cannot be disputed.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New York, Dec. 27-29.
American Physiological Society, New York, Dec. 28-30.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
Western Surgical Association, St. Paul, Dec. 15-16.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held November 8, 1916

The President, DR. JOHN D. MCLEAN, in the Chair

The Recent Epidemic of Poliomyelitis in Philadelphia and Vicinity

DR. C. K. MILLS: I believe the occurrence of so-called abortive cases has been both overestimated and underestimated by writers contending for particular theories; they represent, possibly, a number equal to about 20 per cent. of the paralytic cases. Multiple cases of the disease occurring in the same family within a few days of each other argue in favor of simultaneous infection rather than contagion. Our studies indicate that the primary hosts and carriers of the disease are animals other than man. Some minute parasite like the mite may be the primary host of the protozoan of poliomyelitis. It is my conviction that the disease is humanly contagious in a comparatively mild or moderate degree. Most of the arguments adduced in favor of the theory of human contagion may be used in defense of the insectile theory of causation. During the present epidemic I have not been able to find any evidence of transmission of the disease to a healthy child or adult by a nurse, attendant or doctor in contact with cases of poliomyelitis. The occasional occurrence of epidemics of the disease in northern latitudes in the winter is probably the strongest argument against the insectile theory of causation. Most important arguments in favor of the entomologic origin of the disease are its vastly greater incidence in summer than at other seasons; its occurrence in houses and neighborhoods which are insanitary and insectile, and the manner in which the disease tends to crop up in isolated rural localities. Notwithstanding the arguments against human contagion I do not exclude the necessity of quarantine properly conducted. I am inclined to take issue with Flexner that "The measures which we seek to put into effect against the introduction and spread of epidemic poliomyelitis should be based on the conception of the personal factor as paramount, and not on the notion of insect carriage." I believe that that which is most necessary is the cleaning up of the localities in which the disease occurs or is likely to occur. Poliomyelitis will sooner or later recur and perhaps with greater virulence unless strong measures are taken to improve housing and sanitation.

Special Clinical Studies of the Epidemic

Dr. Theodore H. Weisenburg: In our investigation of infantile paralysis we found a marked uniformity in the initial symptoms. The paralysis, as a rule, appeared about the third day. Its severity was very great. Mostly either two or three limbs were involved and in many cases the chest and abdomen. The paralysis usually reached its height in a few hours. The mildest cases often developed the severest infection while a very sick child might have only limited paralysis. In the return of power to the limbs the distal portions recovered first. There were a number of cases with difficulty in talking and swallowing in conjunction with paralysis of the limbs or neck. There were an unusual number with paralysis of one side of the body. The most fatal cases were the so-called ascending and descending or the Landry types. There were an unusual number of adults in whom the paralysis was much more marked and recovery much slower than in children. Not many colored children had the disease, and in those affected recovery of power was much slower than in the whites. There was only one case in which a second attack occurred, thirteen years after the first. With the exception of a few instances multiple and abortive types occurred either at the same time or nearly so, pointing rather to a similar than contagious origin. Lumbar puncture performed early and repeated gives the best results in treatment. In every instance there was an increased amount of cerebrospinal fluid. Almost without exception marked relief from pain in head, neck and limbs followed this treatment. In some cases in which lumbar puncture was done before the appearance of the paralysis there was subsequently absence of headache and rigidity and pain of the limbs. None of the chemical forms of treatment have been of value, nor have I observed benefit from the use of the serum treatment.

A Summary of Laboratory Studies in Acute Anterior Poliomyelitis

Dr. John A. Kolmer: The causative microparasite appears to locate first in the pia mater, producing a form of meningitis, from which the infection spreads into the substance of the spinal cord with involvement and destruction of motor cells and possibly of those cells controlling respiration and action of the heart. It also has a tendency to locate in lymphoid tissues of the body. The changes produced in the intestine are similar to those found early in typhoid and other infectious diseases. An increase of the number of cells in the cerebrospinal fluid was found more constant in this disease than any other change and this finding has proved of more value in the diagnosis than any other laboratory examination. A perfectly clear fluid which flows under increased pressure and shows an increase of cells with or without a slight reaction for protein indicates anterior poliomyelitis. No unusual or peculiar types of cell were found. Very early in our investigations we found micro-organisms in the cerebrospinal fluids, brains and spinal cords of cases of poliomyelitis similar to those recently reported by physicians in Chicago and New York as the cause of the disease. Several investigators reported finding these bacteria in poliomyelitis as far back as 1905 but did not regard them as the cause of the disease. Our researches leave no doubt that these bacteria are to be found in the organs and possibly in the cerebrospinal fluid of persons suffering with poliomyelitis. They do not, however, produce the disease in the lower animals and are of secondary importance. We are engaged at present in efforts to grow the germ of poliomyelitis in rabbits, and with hopeful results, with the purpose of carrying out experiments bearing on the treatment of the disease with specific drugs and chemicals. I believe that the evidence indicates that acute epidemic poliomyelitis is a bacterial infection. Arsenobenzol, which is of proven value as a destroyer of protozoa, has no influence on this disease.

The Possible Etiologic Relations of Certain Insects to the Spread of Infantile Paralysis

Mr. Joseph H. Bodine: A study of previous epidemics and the present one of poliomyelitis point to possible insect transmission of the disease. This is evidenced in the sporadic occurrence of the disease, its biennial recurrence, rural nature; the fact that only one or two people in the same household in actual contact contract the disease, the occurrence of most cases where the number of animals relative to the number of people is largest, and the fact that cases show a seasonable distribution to a greater degree than might be expected in contact infection. Experiments prove that the virus of poliomyelitis can be carried externally and internally in an active state by many varieties of insects. In thirty-eight or more diseases insects are known to play important rôles as disseminators, intermediate hosts and transmittors of disease. The chief reason for considering the tick in the study of poliomyelitis is the biennial occurrence of the disease—the tick requiring two years to mature. The possible connection of the mosquito with poliomyelitis is suggested by its presence in every locality thus far studied in the present investigation; the seasonal distribution of the disease, and the small percentage of mosquitoes infected in such diseases as malaria, thus accounting for the sporadic occurrence of the disease. The stable fly, resembling in blood-sucking habits the African species, was found in almost every neighborhood visited in the present investigation. The reasons for regarding the stable fly as a possible transmittor of poliomyelitis, as suggested by Rosenau, were the blood-sucking habits of the adult fly, the seasonal abundance of the fly closely correlating the incidence of the disease, the geographic distribution of the fly, which is wide or at least coextensive with poliomyelitis, its abundance under rural as well as urban conditions, that flies followed horses along lines of travel and that in many instances children were infected who had frequented places where the stable fly was found.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY •

Seventh Annual Meeting, Held in Milwaukee, Oct. 19-21, 1916

(Concluded from page 1787)

After-Care of Victims of Infantile Paralysis

Dr. Henry L. Coit, Newark, N. J.: The Newark plan for the after-care of victims of infantile paralysis grew out of private initiative and the voluntary gift of $200 by a citizen. The interest of a local newspaper was enlisted, and it at once opened a campaign for a fund which increased rapidly, and which now approaches the $25,000 asked for. The mayor followed with the appointment of a "Citizens' Infantile Paralysis Relief Committee" which worked with the department of health. The committee also had the cooperation of various philanthropic organizations. The committee began its work with each case as soon as quarantine was lifted. The plan included the investigation of the home conditions of each case reported, with follow-up work by trained nurses under the direction of the committee. A pamphlet on the prevention and after-care of the disease was prepared, and 100,000 copies, printed in five languages, were issued. One or more after-care clinics were held by the health department daily, and provision for the after-care of patients who could not be treated at home was made by the local hospitals.

DISCUSSION

DR. HENRY M. BRACKEN, St. Paul: In Minnesota we folowed every reported case, not taking the diagnosis of the hysician or the person reporting, but determining for ourelves whether or not we considered the case a positive one, and so far we have not found a single case that has been raceable to infection from New York City. A quarantine of he entire family is sometimes required. Minnesota required he isolation of the patient and the attendant, and the proection of the room from flies by screening. The problem vith which we are confronted is not simply that of preventing thers from coming in contact with the infection, but also of ecognizing the nonparalyzed cases as well as the paralyzed. Ve accepted the isolation period of six weeks, and also the wo weeks' requirements for supervision or observation of ersons who had been closely associated with patients. We ave not turned the patients off when they have recovered rom the acute symptoms, but arranged that one of the orthoedists of the state and his assistants should follow up every aralyzed case in the state, and we have records of all of hem. We expect the parents or guardians of those who are aralyzed to be instructed as to what treatment should be iven, if they are able to provide it themselves. If they are ot, we expect the child to be turned over to the state hosital for crippled children, where it will be given ideal care. Ve look on that as part of the public health work. We do not elieve that the obligation of the state board of health stops vith the release of a patient from quarantine, but that it is ur duty to put the individual back in the community in as ood condition as possible.

DR. A. J. MCLAUGHLIN, Boston: There is an infantile aralysis commission at Harvard, which we have made our gents without pay. They are doing research work, and have harge of the after-care of the crippled children.

DR. C. A. HARPER, Madison, Wis.: The noticeable condition t the present time is that the area affected in 1909 has been ractically free from the disease this year. We are endeavorng to get into communication with every case that occurs; ll cases are recorded and reported to the central office by elephone or telegram. We have not yet adopted any plan or taking care of those crippled as a result of the disease; ut we have in conjunction with one of our state institutions n institution in which cripples belonging to the state may go nd receive state aid.

DR. WILMER R. BATT, Harrisburg, Pa.: Poliomyelitis was nade reportable in Pennsylvania in 1910. The alarming conitions reported from New York this year prompted the ommissioner of health and the advisory board to make the isease quarantinable. The quarantine implied absolute isoation, with guards, if necessary, and disinfection, as in the raver communicable diseases. A border quarantine was stablished. There were 119 quarantine points covered by 18 guards. In addition the health officers were advised to e on the alert for indication of any case. We are using the ame methods of after-care as are being followed elsewhere, rying to reduce the effects by securing orthopedic treatment or the children.

DR. JOHN S. FULTON, Baltimore: I think all we need in lieu f all this expensive board of quarantine is notification. Our xperience in Baltimore shows that we can and did get notication which enabled us to take the precautions we thought e had a right to take and ought to be expected to take. Ve must assume on the part of each state, that contacts re taken care of and that the cases are properly isolated. Vhy, then, should we concern ourselves so tremendously with e remaining part of the population? I do not think we need do so. A notification of the movements of children under 6 ought to be satisfactory. If there had been such notificaon from every infected area it would have been satisfactory us instead of the numerous manifestations in the way of estrictive quarantine.

DR. S. JOSEPHINE BAKER, New York: Is it not possible that t least some of this high death rate from infantile paralysis is ue to the fact that we have practiced an extreme hospitalizaon in this disease? In New York City for the first nine onths of the year there were 1,022 fewer deaths under 1 year of age than last year. This reduction has been most interesting, because during the year we have encountered every condition which we have been avoiding and fighting for ten years—mothers of babies all staying in town, fresh air agencies closed down, mothers keeping babies in almost hermetically sealed houses, disinclination on the part of the mothers to take their babies to the infant welfare stations or to take them out at all; but we have had one thing we have never had before—an almost universally receptive state of mind on the part of the mothers as to the teaching of infant care. They have come to us almost begging for instruction, and the result has been such that the general health of babies has been infinitely better than for many years, and this year we shall probably have the lowest death rate in years.

DR. WILBUR A. SAWYER, Sacramento, Calif.: We found it a disadvantage to have the cards sent out, as they were originally, directly to the health department, instead of to the local health officers. We felt that the local health officer should be notified as early as possible that the patient was arriving in his city. There was another disadvantage in the fact that the recommendations drawn up in Washington had a sixteen year limit. All the evidence inclines to show that the adult is at least equally responsible with the child. Therefore, in our own regulations we have ignored that 16 year old requirement, and required notification from all people entering California from any infected territory.

DR. J. H. MASON KNOX, Baltimore: The only way to combat a disease that is epidemic in character and that may be spread through interstate travel is through federal control. If, instead of giving opportunity to all this interstate rivalry, one state doing one thing and another doing something else, the control of the epidemic had been put up to the United States government, we should have had some uniformity in the method. I hope that later on, as in the case of yellow fever, for instance, we shall come to see the absurdity of such a situation as we have had this year, and place the matter entirely in the hands of the United States Public Health Service.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

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1 Some Important Public Health Problems. J. F. Anderson, New Brunswick, N. J.—p. 1139.
2 Occurrence of Living Tubercle Bacilli in River Water Contaminated by Sewage from Health Resort. L. Brown, S. A. Petroff and F. H. Heise, Saranac Lake, N. Y.—p. 1148.
3 Standards of Mechanical Filtration Plant Performance. A. Wolman, Baltimore.—p. 1153.
4 Tuberculosis Among Prostitutes: Report of an Investigation in Connection with Study of Disease in Cincinnati, Ohio. D. E. Robinson and J. G. Wilson, Washington, D. C.—p. 1164.
5 Study of Prevalence of Bacillus Coli in Some Tropical Surface Waters, with Special Reference to Surface Waters of Panama and Some Waters of Mexico. J. T. B. Bowles, New York.—p. 1173.
6 Relation of Housing to Public Health Movement. L. Veiller, New York.—p. 1179.
7 Rural Sewage Problem. E. G. Williams, Richmond, Va.—p. 1184.
8 Proposed Bureau of Industrial Safety, Sanitation and Hygiene, to Be Maintained on Mutual Plan. C. D. Selby, Toledo, Ohio.—p. 1187.
9 Use of Life Tables in Public Health Work. M. M. Dawson, New York.—p. 1190.
10 Value of Isolation Hospitals for Small Cities. C. S. Caverly, Rutland, Vt.—p. 1196.
11 Public Health Work Through Press in North Carolina. W. H. Booker.—p. 1201.
12 Urban and Rural Control of Fly Problem. L. M. McCormick, Asheville, N. C.—p. 1206.
13 Sewage Digestion Tanks for Small Towns and Cities. G. E. Hill, New York.—p. 1212.
14 Activated Sludge. W. T. Carpenter and M. P. Horowitz, Brooklyn.—p. 1218.
15 Some Results of Treatment of Baltimore Drinking Water by Calcium Hypochlorite. W. R. Stokes, and F. W. Hachtel, Baltimore.—p. 1224.

California State Journal of Medicine, San Francisco

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16 Cooperative Medicine in Relation to Social Insurance. J. L. Whitney, San Francisco.—p. 432.
17 Should Medical Profession Plead in Favor of Proposed Health Insurance Bill? J. H. Graves, San Francisco.—p. 439.
18 Proposed Social Health Insurance Act. D. M. Gedge, San Francisco.—p. 446.
19 Abortion, and Some Suggestions How to Lessen Criminal Abortions. O. H. Beckman, Fort Bragg.—p. 447.
20 Serodiagnosis of Gonorrhea. M. Krotoszyner, San Francisco.—p. 451.
21 Septic Teeth. J. S. Marshall, U. S. Army.—p. 454.

Canadian Medical Association Journal, Toronto

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22 Epidemic Cerebrospinal Meningitis. A. G. Nicholls, Halifax, N. S.—p. 969.
23 Clinical Pathology of Cerebrospinal Fluid. W. Boyd, Winnipeg.—p. 984.
24 Cases of Syphilis of Eye Following Treatment by Salvarsan. S. H. McKee and H. D. Courtenay.—p. 996.
25 Mode of Origin of Homologous Twin Pregnancy and Its Bearing on Cell Theory. J. Cameron, Halifax.—p. 998.
26 Diagnosis and Surgical Treatment of Gastric and Duodenal Ulcer. J. K. McGregor, Hamilton.—p. 1003.
27 Cases of Primary and Secondary Syphilis. A. W. Bagnall.—p. 1008.

Colorado Medicine, Denver

November, XIII, No. 11

28 Congenital Pyloric Stenosis. J. G. Binnie, Kansas City, Mo.—p. 330.
29 Postural Prophylaxis in Relation to Deformity. A. J. Hosmer, Salt Lake City.—p. 335.
30 *Surgical Observations of Chronic Frontal Sinusitis and Its Complications. D. A. Vanderhoof, Colorado Springs.—p. 340.
31 Public School Medical Inspection in Small Cities. W. S. Duboff, Greeley.—p. 345.

30. **Surgical Observations of Chronic Frontal Sinusitis.**—Vanderhoof says that transillumination has proved of very little value in connection with diseases of the frontal sinus. The Roentgen ray, though it does not always demonstrate a diseased sinus, does show the shape and size, and no frontal sinus operation should be attempted without first having roentgenograms made. Acute suppurative conditions of the nose should be looked after early, as this would do away with many chronic infections of the frontal sinuses, but when they do occur and it is necessary to resort to operative procedure, first be sure that all diseased ethmoid cells are removed before attempting any work on the frontal.

Indiana State Medical Association Journal, Fort Wayne

October, IX, No. 10

32 Contribution of Animal Experimentation to Internal Medicine. H. A. Christian, Boston.—p. 407.
33 Suppression and Control of Degeneracy. T. H. Davis, Richmond.—p. 412.
34 Dermatitis Induced by Druggist. M. L. Heidingsfeld, Cincinnati.—p. 414.

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35 Medical Activities in Indiana. G. F. Keiper, Lafayette.—p. 439.
36 *Military Surgery. J. R. Eastman, Vienna, Austria.—p. 445.
37 Physician as Community Asset. L. B. Nusbaum, Richmond.—p. 447.
38 Family Spastic Paraplegia. E. M. Auer, Indianapolis.—p. 450.

36. **Military Surgery.**—The *Zincleimverband* (zinc glue dressing), a modification of the Unna paint boot, Eastman says, is useful in ambulant cases of fresh wounds with granulating surfaces of the leg. It combines the antiseptic wound treatment with an elastic support. It is made of phenol 2 parts; zinc oxid; gelatin; glycerin and water each 300 parts. The leg is encased in a gauze bandage impregnated with this zinc glue.

Journal of Experimental Medicine, Baltimore

December, XXIV, No. 6

39 *Interrelation of Surviving Heart and Pancreas of Dog in Sugar Metabolism. A. H. Clark, Baltimore.—p. 621.
40 *Epidemiology of Lobar Pneumonia. E. G. Stillman, New York.—p. 651.
41 *Various Factors in Respiration in Persons with Pneumothorax. J. H. Means and G. M. Balboni, Boston.—p. 671.
42 *Comparative Resistance of Bacteria and Human Tissue Cells to Certain Common Antiseptics. R. A. Lambert, New York.—p. 683.
43 Changes in Pigment Epithelium Cells and Iris Pigment Cells of Rana Pipiens Induced by Changes in Environmental Conditions. E. Uhlenhuth, New York.—p. 689.
44 *Separation of Serum into Coagulative and Noncoagulative Fractions. A. F. Hess, New York.—p. 701.
45 Influence of Certain Factors, Especially Emotional Disturbances, on Epinephrin Content of Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 709.
46 *Study of Experimental Nonhemolytic Streptococcus Lesions in Vitally Stained Rabbits. R. L. Cecil, New York.—p. 739.

39. **Heart and Pancreas in Sugar Metabolism.**—The experiments made by Clark indicate that the pancreas, when perfused aseptically with Locke's solution containing physiologic concentrations of dextrose, does not alter the reducing properties of the perfused solution. The pancreas, however, seems to supply something to the Locke's solution circulating through its arteries which in some way brings about a utilization of sugar by the living heart to an extent that does not occur with the heart alone. This pancreatic substance possesses some of the characteristics of an enzyme. It is inactivated by boiling; it is unstable, rapidly becoming inactive on standing; it acts in small amounts; it causes a great acceleration in the rate of a reaction which otherwise proceeds slowly, and the rate of reaction diminishes as the reaction proceeds. Thus this substance has more of the characteristics of an enzyme than of a stable internal secretion like that of the suprarenal glands. The disappearance of sugar was dependent on the presence of living heart tissue, and it ceased as soon as the perfusate was removed from the heart pancreas circulation and did not occur at all when a pancreatic perfusate was passed through a nonbeating heart. This result indicates that the reaction is not similar to that obtained when muscle and pancreas extracts act on more concentrated solutions of dextrose.

40. **Epidemiology of Lobar Pneumonia.**—During the past four years a careful study has been carried on by Stillman of the types of pneumococci isolated from cases of lobar pneumonia admitted to the wards of the hospital of the Rockefeller Institute. These organisms have been isolated from the sputum, blood, or lung directly, and in many instances from more than one of these sources, and classified according to the biologic groups previously described. It was found that pneumococci of Type 1 and Type 2 are responsible for the majority of the cases of lobar pneumonia. Among the pneumococci found in the mouths of healthy individuals, Type 4 predominates, Type 3 is fairly frequent, and atypical organisms of Type 2 are occasionally encountered. Organisms of these types give rise to a minority of cases of lobar pneumonia. Healthy persons intimately associated with cases of lobar pneumonia may harbor in their mouth secretions the highly parasitic pneumococci of Types 1 and 2. Occasionally a carrier of Type 1 and Type 2 pneumococcus is encountered in whom it is impossible to trace any contact with an infected patient. Convalescents from lobar pneumonia may carry for a considerable period of time the type of pneumococcus with which they were infected.

41. **Factors of Respiration in Pneumothorax.**—The only difference between normal persons and persons with a collapsed lung according to Means and Balboni is that the latter when called on to increase their ventilation reach their limit a little sooner than the former. There will be no dyspnea except after moderate exertion. This deduction is borne out by the histories of patients. In other words, in the lungs, as in other organs, there is a large factor of safety, one lung being as efficient as two, except when the work done calls for more than a threefold increase in the normal ventilation.

42. **Resistance of Bacteria and Human Cells to Antiseptics.**—In the case of the majority of chemicals used by Lambert (potassium cyanid, phenol, tricresol, hydrogen dioxid and alcohol) tissue cells were definitely more easily killed than were bacteria. With certain other disinfectants the difference was not so striking. In several experiments with mercuric chlorid it was noted that in a few preparations there was a slight growth of connective tissue cells after exposure for one hour to a dilution of 1 : 20,000 or 1 : 40,000, a strength sufficient to kill or markedly inhibit the growth of staphylococci under similar conditions. It was observed, however,

at the cells grew out from the centers of the tissue frag-ents, not appearing until after four to five days of incuba-on. It was concluded that growth in these cases was due mply to the low penetrating power of mercuric chlorid, for ultures in 1:80,000 never showed an active outgrowth of eripheral cells. Alcohol in the strengths used (5, 10, 20 and per cent.) was found to be bactericidal in only the highest trength. On the other hand, it is noteworthy that human ells show no ill effects from exposure to 5 or 10 per cent. lcohol for one hour. Iodin stands out as the one chemical ested to which cells were found to be more resistant than ere staphylococci. A good growth of cells was seen after xposure to a 1:2,000 solution of iodin for one hour, a trength sufficient to sterilize the tissue completely in most stances.

These experiments afford further experimental evidence of e value of iodin as an antiseptic, and indicate that, at least weak aqueous solution, it should not, as is often stated, jure or irritate the tissues. It was observed, however, that din has the power of rapidly dissolving fibrin, a property, hich, theoretically, should not be conducive to wound heal-g. A similar action by hypochlorites (Dakin's solution) as also noted. Although the wound cleansing property of e latter, which evidently depends on this fibrin-dissolving nction, is favorably emphasized by Dakin, it would seem at the plastering together of wound surfaces by fibrin, hich is thought to facilitate healing, would be prevented by e use on wounds of either iodin or the hypochlorites.

44. **Separation of Serum into Fractions.**—The method fol-wed by Hess consists of diluting the serum with one half f its volume of water, and then precipitating the euglobulin ith a 30 per cent. ammonium sulphate solution; a small mount of pseudoglobulin comes down in the course of the rocess. The ammonium salt is then added up to 54 per ent. to carry down the pseudoglobulin, after which enough added to the filtrate to precipitate all the albumin. The ddition of 1 or 2 drops of euglobulin hastened coagulation, hereas the same amount of the other proteins failed to ring about this result. This was the usual course of all xperiments of this kind, although in some instances the ifferences did not stand out so sharply. In a case of ereditary hemophilia the euglobulin caused a marked short-ning of the coagulation time, whereas the other fractions roduced this effect to a less degree. When it was not desired obtain the three protein fractions separately but only to recipitate the euglobulin from the serum, sodium chlorid as employed instead of ammonium sulphate. The method ursued was as follows: The serum was saturated in the ld with chemically pure crystals of sodium chlorid. It was en filtered, and a small amount of chloroform added to the recipitate, which was dialyzed for about a week. The ialysate was then taken up with Ringer's solution, and 0.3 er cent. of tricresol added. This was then filtered through a erkefeld filter and bottled in 20 c.c. vials.

When a certain maximum is reached the addition of a rge amount of euglobulin ceases to have any further effect; at, for example, the coagulation time may remain the same hether one adds a drop of a 1.25 per cent. solution or of a per cent. solution of euglobulin to 5 drops of plasma. uglobulin is able to hasten the clotting of plasma in purpura, nother type of hemorrhagic disease. The fact that the agulative principle is closely associated with the euglobulin action of the blood is of clinical as well as of theoretical terest. It enables one to prepare a hemostatic containing out 2 per cent. of protein which is more potent than the hole serum containing 6 to 7 per cent. of protein. When travenous injections are resorted to, euglobulin seems to preferable to serum which contains fully three times the antity of protein. It also seems to be absorbed more ickly from the subcutaneous tissues.

46. **Nonhemolytic Streptococcus Lesions in Rabbits.**—epeated injections into rabbits of nonhemolytic streptococci olated from human cases of infectious endocarditis or eumatic fever, Cecil says, will produce an acute arthritis in e rabbit similar in most respects to the arthritis of acute eumatism. Microscopic sections of the joints show a gradual transition from an acute exudative inflammation to advanced organization. Endocarditis and pericarditis occur in a small percentage of cases, and focal lesions in the myocardium consisting of necrosis and the infiltration of cells are frequent. These focal lesions differ considerably from Aschoff's submiliary nodules. Lesions in the kidneys and liver occur but are not characteristic. By means of the vital stain it has been shown that the large endothelioid cells which play a prominent part in the joint and myocardial lesions belong to the group of so-called macrophages or wandering cells and probably develop from the vascular endothelium.

Journal of Infectious Diseases, Chicago

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47 *Effect of Toluene on Production of Antibodies. L. Hektoen, Chicago.—p. 737.
48 *Anaphylactic Shock in Dogs. J. P. Simonds, Chicago.—p. 746.
49 *Necessity of Standard Blood Agar Plate for Determination of Hemolysis by Streptococci. W. C. Becker, Chicago.—p. 754.
50 *Agglutination and Cultural Relationship of Members of So-Called Streptococcus Viridans Group. C. Krumwiede, Jr., and E. L. Valentine, New York.—p. 760.
51 Streptothrix in Bronchopneumonia of Rats Similar to That in Rat-Bite Fever. R. Tunnicliff, Chicago.—p. 767.
52 Acid Production and Other Characters of Bacillus Coli-Like Bacteria from Feces and Sewage. M. Levine, Ames, Iowa.—p. 773.
53 Relationship Between Serum Reactions. H. Wehrbein, Ames, Iowa.—p. 806.
54 *Etiology of Typhus Exanthematicus in Mexico (Tabardillo). P. K. Olitsky, B. S. Denzer and C. E. Husk, New York.—p. 811.
55 Relation of Specific Precipitation to Other Immunity Reactions. H. A. Bulger, Columbus.—p. 832.

47. **Toluene and Production of Antibodies.**—The results of Hektoen's experiments indicate that in rabbits the effect of toluene in repeated doses of about 1 c.c. per kilogram of weight is to diminish the output of antibody in the earlier periods of antibody production, and, under certain conditions, to cause prolonged persistence of antibody in the blood, with, in at least some cases, marked fluctuations in the concentration. Increased persistence of antibody in the blood may follow smaller doses of toluene also. There is no immediate change as to number and proportion of leukocytes in the blood of rabbits treated with toluene as here described, nor is there any change in the phagocytic activity of the leukocytes in vitro. In rabbits receiving the larger doses of toluene there occurs a transitory myeloid hyperplasia in the bone marrow, but later no marked changes in the marrow or other organs appear. On this account there is at present no basis for concluding whether the fluctuation and persistence of antibodies in the blood is better explained as resulting from increased and prolonged production of antibodies, or as resulting from interferences with the passage of antibodies out of the blood.

48. **Anaphylactic Shock in Dogs.**—Anaphylactic shock in the dog, Simonds states, is associated with a fall in blood pressure. During the period of low pressure the reaction to injections of epinephrin is either absent or greatly diminished, while the response to nicotin may be augmented. It is believed that the mechanism of the latter is chiefly dependent on its effect on respiration, and only to a very limited extent or not at all on direct stimulation of the vasomotor center or the sympathetic ganglia. There is evidence for the belief that there is present a condition of decreased irritability of the sympathetic ganglia and possibly of the vasomotor center. The prompt rise in arterial pressure after injections of nicotin associated with dyspnea is evidence that in anaphylactic shock in the dog there is no constriction of the vessels of the lungs.

49. **Standard Blood Agar Plate to Determine Streptococcic Hemolysis.**—The following technic for the preparation of a standard blood agar is suggested by Becker: Standard agar used in water analysis is placed in quantities of from 40 to 100 c.c. in flasks. These are heated until the agar is melted, and then cooled to 45-50 C. One cubic centimeter of defibrinated human blood is added for each 6 c.c. of the agar base and the whole thoroughly mixed. Approximately 7 c.c. are used for each plate. Surface streaks are made and results noted after twenty-four hours' incubation at 37 C. On such

plates, strains of streptococci, pneumococci and gonococci can usually be readily grown and distinguished.

50. **Streptococcus Viridans Group.**—Streptococci of the "viridans" type isolated by Krumwiede and Valentine from pathologic conditions apparently constitute a heterogeneous group. Saprophytic types may show some relationship one to the other, but practically none to the pathogenic type. Therapy, serum or vaccine, to elicit specific results is therefore possible only with autogenous strains.

54. **Etiology of Mexican Typhus (Tabardillo).**—The data presented by the authors as bearing on the etiologic relationship between this organism and Mexican typhus may be summarized as follows: Of eleven cases cultured, nine were positive. Of these eleven, three were cultured in 0.5 per cent. glucose serum agar; one was positive. Eight of the eleven were cultured in 2 per cent. glucose serum agar; all these were positive. At the same time and by the same methods, blood cultures taken on control cases were negative. The bacteria were more numerous in the early stages of the infection and in the more severe cases. The organism obtained is identical in all its features, especially in carbohydrate fermentation and in its serum reactions, with the typhus bacillus isolated in New York from cases of endemic and epidemic forms of the disease. The blood so cultured was true typhus virus; the authors were able to infect guinea-pigs with typhus by the injection of such blood. In animal experiments with infected lice, they have been able to produce the disease in guinea-pigs when a sufficient number of lice were injected. From the spleen of one of these animals numerous colonies of the same bacillus were obtained.

Kansas Medical Society Journal, Topeka

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56 Differentiation in Mental Cases. C. B. Burr, Flint, Mich.—p. 311.
57 Chemistry as Essential of Medicine. P. S. Mitchell, Iola.—p. 318.
58 Sexual Neurasthenia.—G. C. Mahaffy, Ottawa.—p. 323.
59 Human Actinomycosis; Report of Case. M. T. Sudler, Rosedale.—p. 326.
60 Fat Content of Bottom Milk as Affected by Temperature and Period of Pasteurization. H. C. Berger, Kansas City.—p. 329.

Laryngoscope, St. Louis

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61 Sudden Death During Bronchoscopy; Physiologic Study. C. J. Imperatori, New York.—p. 1257.
62 *Relation of Air Pressure in Nose to Ear Disease. J. W. Durkee, Brooklyn.—p. 1268.
63 Conduction Aphasia in Case of Brain Abscess. E. Amberg, Detroit.—p. 1275.
64 Double Cavernous Sinus Thrombophlebitis Secondary to Middle Ear Infection without Involvement of Mastoid or Other Venous Sinuses. C. G. Crane, Brooklyn.—p. 1283.
65 Double Cavernous Sinus Thrombosis Following Obscure Mastoiditis. W. T. Patton, New Orleans.—p. 1296.
66 Extensive Cholesteatoma Following Luc-Caldwell and Killian Operations Simulating Sarcoma. V. Dabney, Washington, D. C.—p. 1302.

62. **Air Pressure and Ear Disease.**—From his investigations, Durkee concludes that, in cases in which there is nasal obstruction, the negative air pressure in the nose and nasopharynx during inspiration, with the mouth closed or open, or during the act of swallowing, is not to be considered a cause of ear disease.

Maine Medical Association Journal, Portland

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67 Relation of Ophthalmology to General Medicine. J. E. Weeks, New York.—p. 105.
68 County Secretaries. J. A. Spalding, Portland.—p. 121.
69 Case of Spasmodic Stricture of Esophagus. Cardiospasm. R. F. Chase, Portland.—p. 127.

Medical Record, New York

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70 Latin and Ancient Greek for Modern Physicians. A. Jacobi, New York.—p. 927.
71 Diagnosis of Abdominal Distention in Children. L. Fischer, New York.—p. 932.
72 Management of Recent Epidemic of Poliomyelitis in New York City from Neurologist's Viewpoint. W. M. Leszynsky.—p. 934.
73 Theory as to Causation of Poliomyelitis. Negation of Glandular Efficiency. D. W. Wynkoop, Babylon.—p. 936.
74 Medicine in New York City in the Sixties. A. L. Sweet, Geneva.—p. 938.
75 An Improved Instrument for Maintaining Oral Air-Way During General Anesthesia. J. E. Lumbard, New York.—p. 941.
76 Report of Committee on Industrial Hygiene of Retail Dry Goods Association. M. H. Kahn, New York.—p. 943.
77 Tetanus, Report of Successfully Treated Case. L. Sexton, New Orleans.—p. 945.
78 Gastric Aspirator. W. G. Morgan, Washington, D. C.—p. 947.

Military Surgeon, Washington, D. C.

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79 Hygiene and Sanitation on Ocean Vessels. V. G. Heiser, Washington, D. C.—p. 455.
80 Smoke and Powder Gases in Naval Warfare. D. N. Carpenter, U. S. Navy.—p. 461.
81 Typhus. H. C. Hall, U. S. Army.—p. 474.
82 Paratyphoid Infections. J. D. Whitham, U. S. Army.—p. 491.
83 Rôle of Orthopedic Surgery in Early Treatment of Injured and Wounded. E. W. Fiske, U. S. Army.—p. 497.
84 Prosthetic Appliances in War-Time. F. H. Garrison, U. S. Army.—p. 507.
85 Wing Support for Fractured Humerus. G. Gassette, Paris.—p. 510.
86 Fractures of Maxillaries. W. C. Speakman, Neuilly, France.—p. 514.
87 Extracts from Report on Observations and Experiments with Soldier's Foot at Plattsburg Camp for Business Men. H. D. Corbusier, New York.—p. 518.
88 Pitching and Striking Field Hospital in Record Time. W. W. Reno, U. S. Army.—p. 527.
89 Record March by Sanitary Troops. C. M. O'Connor, Jr., U. S. Army.—p. 531.

New Mexico Medical Journal, Las Cruces

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90 Suggestions to Life Insurance Examiners. C. A. Frank, Albuquerque.—p. 37.
91 Social Responsibility Arising from Medical Progress. W. G. Hope, Albuquerque.—p. 43.
92 Neglected Prostate; Report of Cases. E. L. Ward, Santa Fe.—p. 53.

New Orleans Medical and Surgical Journal

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93 Insect Transmission of Disease in Orient with Especial Reference to Experimental Conveyance of Trypanosoma Evansi. M. B. Mitzmain, Washington, D. C.—p. 416.
94 Tetanus; Report of Successfully Treated Case. L. Sexton, New Orleans.—p. 424.
95 *Unilateral Edema. S. C. Jamison, New Orleans.—p. 432.
96 *Blood Transfusion Simplified; Deductions from Nineteen Cases, Eleven Human and Eight on Dog. J. T. Nix, Jr., New Orleans.—p. 435.
97 Hysterectomy for Double Pyosalpingitis. L. Levy, New Orleans.—p. 443.
98 Conservative Treatment of Thrombo-Angeitis Obliterans. Foreign Body in Esophagus. U. Maes, New Orleans.—p. 449.
99 Unusually Large Cystic Appendix Vermiformis and Dermoid Cyst of Ovary, P. Michinard, New Orleans.—p. 454.
100 Recent Experience with Ipecac and Its Alkaloids in Treatment of Amebiasis. S. K. Simon, New Orleans.—p. 457.

95. **Unilateral Edema.**—Jamison calls attention to the fact that edema of one leg is certainly a common condition in his locality, while edema of one arm is rather rare. Jamison believes that edema of the arm is usually easily explained while edema of one leg is not. In his opinion edema of one leg is perhaps more frequent from obstruction to the lymphatics following infection of the genitals than from any other cause.

96. **Blood Transfusion Simplified.**—The method of A. O. Singleton is endorsed by Nix. Use is made of Kimpton Brown tubes, paraffin coated, and by means of wash bottles half filled with water established positive or negative pressure, during injection into recipient or aspiration from donor respectively. The first five human transfusions were by this method, 500 c.c. of blood being transfused in each case. The first two were on the same patient for splenic anemia, at one week's interval, the blood count being raised from 1,200,000 to 2,500,000. The patient's general condition improved wonderfully and the spleen was removed June 6, 1916. She has continued to improve and at present is in better condition than she has been for two years. In one instance the donor was a son and in the other a daughter; preliminary agglutination tests were negative. The next two transfusions were administered to a boy, 18 years old, suffering from a virulent type of bacteremia with infectious polyarthritis, following a suppurative mastoiditis. Within one week fever left entirely

nd the patient was out of danger. The fifth case was one of uerperal septicemia of one month's duration, the temperature eing septic and high. Five hundred cubic centimeters of iood were transfused from a younger sister and the patient iade a rapid recovery.

The sixth and seventh cases were septic and 500 c.c. of lood were transfused in each instance. One patient was oribund at the time and died twenty-four hours after the ansfusion; the other immediately responded to treatment nd made a good recovery. Nix made special tips by drawing ut small size drinking tubes, by heating in the flame of an lcohol lamp. There was a small swell near the small end of ie tube over which the vein could be drawn and safely tied. o the other end was attached a small piece of rubber tubing. hese tips could be easily inserted, filled with citrate, the ıbber connection clamped with a nonserrated artery forceps, nd the tip allowed to remain inserted as long as necessary. ix has now devised a special instrument, consisting of two ringes, which is described fully.

New York Medical Journal

November 25, CIV, No. 22

1 After-Treatment of Infantile Paralysis. R. H. Sayre, New York. —p. 1029.
2 Epileptogenous Zones in Organic Epilepsy. A. Gordon, Philadelphia.—p. 1033.
3 Injuries to Spinal Cord Produced by Modern Warfare. C. B. Craig, New York.—p. 1035.
4 Treatment of Infantile Paralysis. H. W. Frauenthal, New York.—p. 1042.
5 Id. F. E. Peckham, Providence, R. I.—p. 1045.
6 Speedy Cure of Tuberculosis. J. D. Gibson, Denver.—p. 1047.
7 Health Insurance from Viewpoint of Physician. I. S. Wile, New York.—p. 1050.

New York State Journal of Medicine

November, XVI, No. 11

8 *Eczema in Infants and Young Children. C. G. Kerley, New York. —p. 523.
9 Intracranial Surgery and Its Relations to Ophthalmology. C. A. Elsberg, New York.—p. 526.
0 *Diagnosis and Clinical Characteristics of Gout. J. H. Pratt, Boston.—p. 531.
1 *Treatment of Gout. A. F. Chace, New York.—p. 537.
2 *Metabolism in Gout. N. B. Foster, Ann Arbor, Mich.—p. 539.
3 Determination of Uric Acid in Blood. M. S. Fine, New York. —p. 541.
4 Accidental Hemorrhage and Its Treatmeint. J. K. Quigley, Rochester.—p. 544.
5 Treatment of Procidentia Uteri. G. Chandler, Kingston.—p. 551.
6 *Renal Tuberculosis. H. D. Furniss, New York.—p. 553.
7 *Choice of Tuberculins. B. White, Otisville.—p. 556.
8 Recent Advances in Cancer Research. W. H. Woglom, New York. —p. 558.
9 Roentgenography of Sellaturcica and Pituitary Body. G. C. Johnston, Pittsburgh.—p. 559.

108. **Eczema in Infants and Children.**—In children past the ottle age, Kerley says: Skimmed milk, puddings made from immed milk, all the breadstuffs, all cereals but oatmeal, l vegetables, usually twice a day, chicken and butcher meat rely should be given. Everything given is largely sugarree. If there is constipation, a daily evacuation of the owels is produced by magnesia or cascara. Among the ugs for internal administration, potassium citrate sufficient neutralize the urine is most valuable. Kerley is in accord ith any theory relating to a special constitutional state such the exudative diathesis as necessary for eczema, for the llowing reasons: A combination of high butter fat, high gar, orange juice and beef juice will produce an eczema many children who never show the condition when norally fed. Further, eczema may be produced by many foods widely varying types. How dissimilar are orange juice, w's milk fat and beef juice and sugar? Not every child, wever, will react to all of these foods. The one may spond to beef juice but will tolerate milk. Another will act to cane sugar, but show no response to orange juice. ne so-called exudate diathesis or exudative condition with udative symptoms may be produced at will by the administation of certain food substances in a great majority of ildren. One reason for the frequency of eczema in children because the child is unable to adjust itself to the many rieties of food and food elements which are given him, ether natural or artificial.

110. **Diagnosis of Gout.**—The term chronic gout is restricted by Pratt to those cases in which the attacks are frequent and deformity or rigidity of the joints occurs. The signs of acute inflammation are less than in the acute disease, but the duration of symptoms is longer. In fact, suffering and disability may be constant. In chronic gout chalk stones are apt to form. They are not found in any other disease. Although the most common site is the helix of the ear, they are often observed on the fingers and toes. A microscopic examination of material from nodules thought to be tophi should always be made. The beautiful acicular crystals of sodium urate are easily demonstrated. The frequency with which sodium urate is deposited in the olecranon and prepatellar bursae is not generally recognized. Inflammation of these bursae is almost pathognomonic of gout. In many cases the olecranon bursa on each elbow becomes converted into a hard rounded mass several centimeters in size. The sweetbread meal has proved of aid in diagnosis. The patient is placed on a purin-free diet, and the daily output of uric acid in the urine determined. After having been on this diet for at least four days the blood is analyzed for uric acid and 150 to 300 gm. of sweetbread (weighed raw) are fed. The purin-free diet is then resumed. The blood of a gouty subject forty-eight to seventy-two hours after the sweetbread meal has shown, in the few cases examined, an abnormally high amount of uric acid, while in control subjects this was not found. The prompt relief from pain produced by colchicum in gout is so striking that many have asserted that this drug is a specific in gout. It is certainly an aid in diagnosis, as colchicum does not relieve the pain in acute rheumatism or in other conditions which may be confounded with gout. Salicylates rarely have any marked effect in controlling the pain of acute gout. The relief of the severe pain of gout by atophan is even more striking than that produced by colchicum. Its value in diagnosis is probably less, as it often is of considerable aid in checking the pains of nongouty arthritis.

111 and 112. Abstracted in THE JOURNAL, June 17, 1916, p. 2037.

116. Abstracted in THE JOURNAL, June 24, 1916, p. 2125.

117. **Choice of Tuberculins.**—Until knowledge of the immunity mechanism in tuberculosis is extended and defined, White says, it would seem reasonable that the choice of tuberculins for the treatment of tuberculous infections be restricted to those preparations concerning the use of which we have the fullest information. Based on these considerations the choice would include old tuberculin ("O. T."), bouillon filtrate ("B. F.") and bazillen emulsion ("B. E."). These three meet present theoretical requirements, their selection is justified by experience, and by advocating their use to the exclusion of other preparations the perplexity of the practitioner in planning a program for the treatment of his tuberculous patients would be greatly lessened.

Pennsylvania Medical Journal, Athens

November, XX, No. 2

120 *State Care of Indigent Insane. C. W. Burr, Philadelphia.—p. 79.
121 Workmen's Compensation Law. W. L. Estes, South Bethlehem. —p. 87.
122 Epidemiology and Clinical Features of Infantile Paralysis. C. A. Fife, Philadelphia.—p. 91.
123 Some Phases of Drug Habit Problem, Especially in Relation to Harrison Act. J. H. W. Rhein, Philadelphia.—p. 97.
124 Significance of Specialism with Reference Especially to Genito-Urinary Surgery. B. A. Thomas, Philadelphia.—p. 101.
125 Pathologic Conditions of Mouth of Interest to Physician and Dentist. W. M. Wright, Wilkes-Barre.—p. 105.

120. Abstracted in THE JOURNAL, Oct. 14, 1916, p. 1180.

Washington Medical Annals, D. C.

November, XV, No. 6

126 Roentgenization in Deep-Seated, Benign and Malignant Diseases; Report of Three Cases. C. A. Pfender, Washington.—p. 323.
127 Psychanalysis in Its Relation to Psychiatry. D. P. Hickling, Washington.—p. 336.
128 Dilatation of Left Side of Right Ventricle without Dilatation of Whole Ventricle; Causes and Symptoms. P. S. Roy, Washington.—p. 343.
129 Management of Confusional States with Special Reference to Pathogenesis. T. A. Williams, Washington.—p. 345.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October, XIII, No. 154

1 *Extensive Fibrosis of Left Ventricle in Child. F. P. Weber.—p. 289.
2 *Treatment of Rickets, Based on New Theory as to Pathogenesis. E. Pritchard.—p. 295.
3 Case of Congenital Urticaria Pigmentosa. G. Pernet.—p. 301.

1. **Extensive Fibrosis of Left Ventricle.**—Weber's patient, a boy, aged 10 years, had melena and considerable enlargement of the heart. In the hospital he frequently had more or less melena, and occasionally there was a little fever. Sometimes he complained of headache. The urine was free from albumin and sugar. There was a history of his having had an illness, accompanied by the passage of blood per rectum, two years previously. Apart from the loss of blood per rectum, the patient had sometimes had, since the illness of two years ago, and during the first part of the present illness, slight hematemesis and slight hemoptysis. Three months later the boy complained of a feeling of painful "stiffness" in the legs and abdomen. There was sometimes slight fever. The urine at first contained albumin, but was afterward reported free from albumin and sugar; no blood could be detected in the feces. At the end of a week he complained of violent pains in the abdomen and lower extremities, chiefly in the right foot and leg. The right foot was at that time very pale and cooler to the touch than the left leg, which showed a "livedo-like" mottling. In seven hours the pallor of the right foot had extended up the leg almost to the groin. Embolism was thought of, but owing to the patient's collapsed condition the pulse test could not be employed, as no pulse could be felt in either lower extremity or at either wrist. Death occurred in half an hour.

The heart weighed 12½ ounces and was both hypertrophied and dilated. The myocardium of much of the outer wall of the left ventricle had been converted into scarlike tissue. There was no valvular disease. The great trunks of the coronary arteries were not stenosed. The abdominal aorta showed great thickening and atheromatous changes in the inner coat (intima), together with some small cell infiltration about the vasa vasorum of the muscular elastic coat (tunica media) and the outer coat (adventitia). At one spot, in which there was an atheromatous deposit, the muscular elastic coat was thin, and bulging outward, to form a kind of miliary aneurysm. Microscopic sections of the fibrotic wall of the left ventricle gave a very striking picture. The small arteries were extremely affected by endarteritis proliferans (obliterans), so that their channels were greatly obstructed, but not altogether obliterated. The fibrous tissue which constituted the greater portion of this part of the cardiac wall contained numerous dilated thin-walled blood vessels (capillaries). There was very little small-cell infiltration to point to any (recent) inflammatory activity. The right common iliac artery was occluded at its bifurcation by recent embolism. Nothing was found in the stomach and intestines to account for the attacks of melena, etc., and no embolism of the mesenteric arteries was detected.

2. **Treatment of Rickets.**—Pritchard suggests that the symptoms usually ascribed to the condition may be regarded as representing the results of the calling into play by the victims of the disease of certain protective mechanisms. The troubles from which they protect the organism in the case of rickets are those which arise in connection with the disposal of an excess of nutritive material. Such disposal may be made as follows: to store up the excess in the form of a food reserve—for instance, as glycogen or fat; combustion or oxidation to the normal end-products carbonic acid gas, urea and water; short circuiting of the oxidation processes. This method has the advantage of saving oxygen and of limiting heat production, but the disadvantage of flooding the blood with acid bodies of large molecular size, such as lactic, oxalic uric, glycuronic, diacetic, beta-oxybutyric and certain other organic acids. Such acid bodies are not allowed to remain in the blood without neutralization, for acid reactions are fatal to cell activities; hence they are neutralized almost before they are formed, at the expense of alkalies or basic elements derived from the floating reserves or from the tissue themselves. After neutralization they are removed from the system by the ordinary processes of elimination. In this way the reserves of carbonates in the blood are drawn on, ammonia is extracted from protein sources, while calcium, sodium, magnesium and iron are withdrawn or withheld from various important organic combinations.

In any particular case of rickets, Pritchard states, it is impossible to predict what precise method or combination of methods will be adopted to dispose of the excess, and herein lies the protean character of the symptoms of the disease. But, in the final issue, the metabolic processes will follow the rule of physiologic expediency, obey the laws of the conservation of energy and conform to the economic necessities of supply and demand. Pritchard treats these cases by creating a demand for food by massage, resistance exercises, cold douches and by open-air treatment. The acidosis is treated by the administration of large doses of alkalies: anemia, by carbonate of iron and phosphorated cod liver oil (1 in 10,000). The diet is milk restricted in quantity.

British Journal of Tuberculosis, London

October, X, No. 4

4 *Leukocyte Count in Pulmonary Tuberculosis. J. B. McDougall.—p. 159.
5 Treatment of Tuberculosis in County of Cornwall. C. Roper.—p. 178.
6 Trudeau School of Tuberculosis. E. R. Baldwin.—p. 182.
7 *Classification of Cases of Pulmonary Tuberculosis. H. C. Wingfield.—p. 187.

4. **Leukocyte Count in Tuberculosis.**—One point is definitely established by McDougall, namely, that a distinct "leukocyte swing" is a characteristic feature of certain cases of pulmonary tuberculosis, and that the swing bears a certain relation to the morbid processes going on in the system. McDougall has found the polymorphonuclears to amount to as much as 90 per cent. of the total leukocyte count in certain cases of pulmonary tuberculosis. In early cases the neutrophil leukocytes are frequently decreased in number at the cost of an increase in the number of lymphocytes. There is a remarkable tendency for the leukocyte count to vary enormously in certain cases of tuberculosis of the lung. The absence of leukocytosis excludes cases with cavity formation. The leukocytosis in some cases is certainly associated with the presence of other organisms. It appears as if the leukocyte count bears a definite relationship to the acuteness of the process, and the acuteness of the process, in turn, has a more or less intimate connection with the presence of organisms other than the tubercle bacillus. The low counts represent the stage of hypoleukocytosis, and the high ones the stage of hyperleukocytosis. Whether this phenomenon is anaphylactic or not matters very little; the symptoms displayed by patients with low counts do not correspond to the symptoms shown by patients suffering from anaphylaxis. The patient's condition is absolutely no indication of the leukocyte count. One fact stands out in McDougall's studies and that is, that the polymorphonuclear leukocyte is a tissue cell which is definitely inimical to the great majority of the organisms which infect the respiratory passages secondarily, and to which we can attribute much of the damage done in the pulmonary and bronchial substance. The function of these white cells can be used as a guide to diagnosis, prognosis and treatment.

7. **Classification of Tuberculosis.**—The anatomic extent of the lesion is ignored by Wingfield in his proposed classification. The more important feature of the disease, namely, the constitutional or systemic disturbance, plays the chief part in the classification. This constitutional condition is accurately defined and measured by systematic record of the temperature and pulse rate. For the purpose of statistical records, Wingfield divides cases of pulmonary tuberculosis into four groups; namely, those patients who, during a given period, are (*a*) fit for work and remain so; (*b*) fit for work, but become unfit; (*c*) unfit for work, but become fit for work; (*d*) unfit for work and remain so. He suggests that a useful comparative classification would be to combine this classifica-

tion with an accurate measure of the constitutional condition as found in Inman's classification, and that it could be defined thus.

The condition of a patient suffering from pulmonary tuberculosis (that is, in whose sputum tubercle bacilli have been found) can be denoted at any given period during the course of the disease by one of the following combination of symbols: in_1 = resting febrile; in_2 = resting afebrile, ambulant febrile; in_3 = ambulant afebrile; A = fit for work and remaining so; B = fit for work, becoming unfit; C = unfit for work, becoming fit; D = unfit for work, remaining so.

The dividing line taken between febrile and afebrile is 99 F., the temperature being taken resting, not less than three quarters of an hour after work.

Journal of Tropical Medicine and Hygiene, London

November 1, XIX, No. 21

8 Preliminary Note on Case of Thrush-Like Disease Due to Monilia Rugosa Castellani, 1910. A. Pijper.—p. 249.
9 Treatment of Filariasis and Elephantoid Conditions by Intramuscular Injections of Salvarsan. J. G. McNaughton.—p. 249.

Medical Journal of Australia, Sydney

October 21, II, No. 17

10 Starvation and Diet in Diabetes. J. F. Wilkinson.—p. 335.
11 Systemic Results of Infections of Mouth, Nose and Accessory Sinuses. S. Pern.—p. 340.
12 Case of Recurrent Gallstones. G. A. Syme and S. O. Cowen. —p. 341.

Practitioner, London

November, XCVII, No. 5

13 Treatment of Diabetes by Alimentary Rest. O. Leyton.—p. 401.
14 Treatment of Diabetes Mellitus by Prolonged Fasting. P. J. Cammidge.—p. 414.
15 Treatment of Diabetes Mellitus by Alimentary Rest. J. Hume. —p. 430.
16 Recent Work in Anesthetics. J. Bloomfield.—p. 435.
17 Nitrous Oxid as Anesthetic. E. C. Bowden.—p. 441.
18 Significance of Abortive Cases in Classification of Pulmonary Tuberculosis. E. G. Glover.—p. 454.
19 Minor Displacements of Vertebrae and Ilia. E. F. Cyriax.— p. 464.
20 *Use of Large Quantities of Fruit Juice for Atrophic Infants. H. B. Gladstone.—p. 472.
21 Recent Work on Diseases of Lungs. A. J. Jex-Blake.—p. 479.
22 *Two Cases of Laminectomy for Gunshot Wounds of Spine. G. Simpson.—p. 489.
23 Sublingual Medication; An Endorsement. P. R. Cooper.—p. 493.
24 Obscure Case of Enteric Fever. I. D. Evans.—p. 494.

20. **Fruit Juice for Atrophic Infants.**—Fruit juice, Gladstone says, can be taken to the extent of a pint daily, with mmediate benefit to a dyspeptic atrophic infant under 1 or 2 ears of age. A carefully selected food, low in albumin and at and high in sugar, will then be both digested and absorbed and result in gain of weight. At first a loss of weight must be expected, but, by the end of the first week, this is usually regained. Unless the juice is followed by a diet scientifically adapted to a weak digestion, it does no permanent good whatever. The juice, no doubt, acts partly on account of its acid reaction, rendering the bowel unsuitable for germs growing in an alkaline medium. It has a tonic, cleansing effect on the mucous membrane of the digestive tract, and is a diuretic, diaphoretic and general alterative. It supplies an attractive drink, enjoyed by all babies, containing 10 per cent. of soluble carbohydrate food, removes the irritability and restlessness of the child, promotes quiet sleep, and renders he digestive organs able to digest and absorb a light diet. While oranges were available, the juice was made of two parts of orange juice to one of apple juice, diluted with one quarter the quantity of water; the apple juice was obtained by shredding apples on a vegetable grater, and expressing the uice by means of a fruit press. Melon and apple juice has been used with somewhat less good results. Strawberry, herry, raspberry and banana juices have been taken and njoyed by the babies and did not produce any bad effects, and it is probable that any fruit juice available would succeed, provided the acid fruits were not used in too large a proportion, and that when oranges are out of season it will be found advisable to add a small quantity of lemon juice to he sweeter fruit juices, to supply the necessary acidity.

22. **Laminectomy for Gunshot Wounds of Spine.**—In the irst case seen by Simpson a bullet which was pressing on the cervical cord was successfully removed with complete recovery. In the second, a soldier who had received a fragment of shell in the lumbar spine suddenly developed a purulent spinal meningitis three weeks after the injury; the piece of shell was not found, but the spinal theca was drained and the patient made a good recovery.

Bulletin de l'Académie de Médecine, Paris

October 24, LXXVI, No. 42, pp. 307-324

25 *General and Local Anesthesia for the Elderly. P. Bazy.—p. 312.
26 *Massive and Repeated Doses of Antitetanus Serum in Treatment of Established Tetanus. Bacri.—p. 316.
27 Reeducation with Traumatic Deafness by Training with the Vowel Siren. (12 mois de rééducation auditive dans l'armée. Résultats de 250 cas.) Marage.—p. 318.
28 Metal Splint for Fractured Limb Permitting Bending of Joints. (Présentation d'un appareil pour fractures de la cuisse et de la jambe.) V. Soubbotitch.—p. 321.

25. **Anesthesia for the Elderly.**—Bazy is convinced that the mode of anesthetization has comparatively little influence on the prognosis. He cites instances of elderly men being prepared for an operation who died suddenly before the anesthetic had been brought into the room, and he is confident that many of the fatalities under anesthesia are mere coincidences.

26. **Serotherapy of Established Tetanus.**—Bacri has given subcutaneously 50 or 60 c.c. of antitetanus serum, repeating this daily for about six days, and all his thirteen patients with tetanus well under way recovered. The modification of the symptoms under these large and repeated doses was remarkable. Only five of the thirteen had been given a preventive injection. No signs of anaphylaxis appeared in any instance.

Journal de Médecine de Bordeaux

October, LXXXVII, No. 12, pp. 229-248

29 Waller's Law and Trophism of Nerves. (La loi de Waller et la théorie du trophisme des nerfs.)— A. Pitres.—p. 231.
30 Paratyphoid Fever and Bacilluria. J. Carles and Marcland.— p. 238.
31 Jacksonian Epilepsy and Hemiparesis from Shell Wound of Skull. Prompt and Remarkable Improvement after Cartilage Implant to Close Gap in Skull. Drouin.—p. 241.
32 *Rhythmical Habit Movements; Two Cases. (Deux cas de rythmie.) Richaud.—p. 243.

32. **Habit Movements.**—The boy of 6 and his sister of 3 each developed at the age of about 17 months a peculiar habit of balancing themselves, a kind of tic. The boy when put to bed lies in a certain attitude and rolls his entire body to and fro, repeating the whole movement about fifty times a minute till he drops asleep. As he has grown older he lies down on the floor during the waking hours, and rolls in the same way for hours at a time, never wearying. The little girl has three separate habit tics of somewhat the same kind, but her tempo is a little faster. The grandmother is said to have had a similar balancing habit as a child. The father and mother are healthy. Both children seem well developed and healthy, except that the boy has a rather funnel-shaped sternum and the abdomen is prominent. At 2 he had an attack of enteritis.

Lyon Chirurgical, Lyons

September-October, XIII, No. 5, pp. 685-836

33 *Primary Suture of War Wounds. (De la suture primitive immédiate des plaies de guerre.) H. Gaudier and R. Montaz.—p. 685.
34 War Fractures of Long Bones. (Valeur de l'esquillectomie souspériostée primitive dans le traitement des fractures diaphysaires.) G. Cotte.—p. 698; (Traitement des fractures diaphysaires de la cuisse.) G. Cotte.—p. 719; (Observations sur les fractures diaphysaires des membres dans les plaies de guerre et de l'esquillectomie totale.) Eynard.—p. 750; (Traitement des fractures diaphysaires du fémur dans une ambulance de l'avant.) L. Sencert.—p. 771; (Traitement précoce des fractures de cuisse par blessures de guerre.) J. Bosquette.—p. 791.
35 Wounds of the Hip Joint; Five Cases. (Observations de traumatismes articulaires de la hanche par coup de feu.) P. Bonnet. p. 806.
36 *Shortening the Sound Leg to Match Crippled Leg. (Le raccourcissement du fémur sain dans certains cas de fracture de cuisse avec gros raccourcissement.) J. Ducuing and Uteau.—p. 814.
37 *Transplantation of Nerves. R. Ingebrigtsen (Christiania).—p. 828.

33. **Immediate Suture of Wounds.**—Gaudier and Montaz advocate immediate suture if the wound gets to the surgeon's

hands early, and can be cleared out completely of all damaged tissues, with perfect hemostasis, and the man can be kept under observation for the first few days. Unless all of these conditions can be realized, they do not attempt to suture at once, but in the more than a thousand cases in which it was possible, the outcome justified their confidence. The first six hours are the best, but they have extended the limit even to twenty-four hours, in some cases, when the aspect of the tissue and microscopic examination of the secretions permitted. The whole area of damaged tissues has to be cut out almost whole, as if it were a tumor.

36. **Treatment of Excessive Shortening of the Leg After Fracture of the Thigh.**—This can be remedied in various ways, of course, but when all else fails or for other reasons it is impossible to correct the crippling by other means, Ducuing and Uteau cure the man of lameness by shortening the sound leg to correspond. They give an illustrated description of the comparatively simple and harmless technic with which they cut out a strip of the lower third of the femur without any loss of its weight-bearing property. They saw each stump half way across and then lengthwise, thus cutting out a segment just the length the limb is to be shortened, and in width just half the diameter of the bone. This leaves the stumps cut in steps which fit solidly together and are held firm by wire passed around them in a "frame suture," *suture en cadre*. The article is illustrated, but no clinical experiences are related except mention of cases in which the war wound resulted in a shortening of the limb by 22 cm. Such crippling as this cannot be remedied by any operation on that leg, but by shortening the sound leg the man would be that much shorter, but his gait would be approximately normal.

37. **Transplantation of Nerves.**—Ingebrigtsen has been experimenting with the rabbit sciatic nerve completely severed from all its connections and implanted in the living rabbit or guinea-pig. He compares the outcome in his experiments with the thirty-two cases of transplanted nerves he has been able to find in the literature. Only two of the cases he has compiled date from the last ten years. The reports cannot be considered strictly scientific except in fourteen of the cases, including one of autoplastic transplanting, three of homoplastic and ten of heteroplastic operations, with one successful outcome in each category. The results in his fifteen autoplastic, twenty-nine homoplastic, and eight heteroplastic transplantations confirmed the assumption that an autoplastic or homoplastic implanted nerve is capable of repairing a loss of substance in a nerve. Fibers from the central stump enter it and it conducts them to the peripheral stump. In this the implant plays an entirely passive part. It seems to be merely a reliable conductor, realizing the best possible conditions both structural and biologic for the growth of the axis-cylinder. Alien grafts do not answer this purpose; they undergo necrosis, and the axis-cylinder cannot push into them. There is also a decided advantage with autoplastic over homoplastic grafts, as the latter show more infiltration and some of the nuclei (*noyaux de Schwann*) are paler and by the end of three weeks are inspissated. From his experience, Ingebrigtsen suggests that the patient's intercostal nerves would be the best to use for grafting. They are large, while not functionally important, compared to a nerve in a limb. The implant should be about the same size as the nerve it is replacing. The graft can be made to fit the required size by doubling or tripling the segment to be implanted. If the intercostal nerve selected does not afford enough material for this, it might be supplemented by homoplastic segments from another patient, an amputated limb or a fresh cadaver. In his research he kept isolated segments of nerves on ice in petrolatum or in Ringer's solution for five or six days without their undergoing appreciable histologic modification, so that they could then be ingrafted with success. His experiments with "distance sutures," with catgut or silk threads all failed, as also attempts to bridge the gap with a calf artery filled with the animal's own plasma. Five experiments of the latter kind three years ago showed no neoformation of nerve tissue inside the interposed artery tube. The only trace of regeneration was an insignificant formation of a few rolled up nerve fibers at the central stump. His experiences therefore all speak in favor of the advantages of transplanting a nerve segment in appropriate cases. The only method that can compete with it is to anastomose the peripheral stump into a sound nerve, and time will show which of the two methods is preferable.

Paris Médical

November 4, VI, No. 45, pp. 377-420

38 Recent Progress of Ophthalmology. F. Terrien.—p. 377.
39 *Diagnosis and Treatment of Inflammation of Capsule of Tenon. (Ténonites rhumatismales et goutteuses.) A. Terson.—p. 391.
40 Optometry for the Army. (Les centres d'optométrie.) E. Ginestous.—p. 393.
41 Insignificance for Vision of Spots on the Cornea. Rémy.—p. 396.
42 *Blindfold Tests of Functioning of Internal Ear. (Nouvelle méthode d'examen de l'appareil vestibulaire.) M. Grivot and P. Rigaud.—p. 398.
43 Technic for and Experiences with Intratracheal Anesthetization. (De l'anesthésie générale par l'intubation directe intratrachéale.) G. Guisez.—p. 404.
44 Operative Correction of Deformed Nose without Incising the Skin. (Nos corrections chirurgicales de nez disgracieux sans cicatrice. Les nez "de travers.") Bourguet.—p. 410.
45 Systematic Mobilization in Treatment of Constriction of the Jaws. P. Kouindjy.—p. 415.

39. **Inflammation of Capsule of Tenon.**—Terson explains that the fibrous sheath which supports the eye, the retro-ocular capsule of Tenon, is liable to share in the disturbance from rheumatism and gout. It reacts then like a synovial membrane; there is an inflammatory effusion back of the eyeball and movement of the eyeball is painful. In short, the trouble is analogous to the arthritis in acute articular rheumatism. Exacerbations at night suggest a gouty taint. Both eyes usually are affected, but he had one patient with arthritis of the knee who developed this "tenonitis" in one eye alone. Treatment requires some general analgesic to relieve the pain at once, followed by measures addressed to the underlying cause, the rheumatism or gout. Heat is often useful especially in the form of a very hot flax-seed poultice. No constricting bandages and no dressing in the intervals between the poultices, merely automobile goggles for protection. Few affections respond so promptly and effectually to nonspecialist treatment as this to the salicylates. It is differentiated by the absence of fever, the non-impairment of vision and the normal findings in the fundus. Even if there is slight congestion in the veins of the optic nerve and slight fever, the diagnosis is generally easy. There is no suppuration in this true tenonitis of rheumatismal or gouty origin, but in exceptional cases the exophthalmos may persist for months and suggest syphilitic hyperplasia, etc. With all other ocular affections which might be compared with it, there is more or less impairment of vision and usually much fever. Acute edema of the bulbar conjunctiva is not accompanied by pain as a rule. When this acute edema occurs inside the eyeball, we have the clinical picture of acute glaucoma.

42. **Testing Vestibular Functioning.**—Grivot and Rigaud report the results of study of the pathologic deviation to the right or left when the patient with disease of the internal ear and blindfolded walks 6 meters forward and then backward. His inability to do this on a straight line is increased by stimulation applied to the vestibule, as for inducing test nystagmus. The locomotor reaction to stimulus applied to the vestibule—as by pouring cold water into the ear—seems to be of the same nature as the nystagmus reactions. By the deviation to one side in five, six or ten of the forward and back movements, we have an index of vestibular functioning. For example, if there is a deviation to the right of 90 degrees in the course of five of the movements, they express this as "5 M deviates 90 plus"; if ten of the movements brings a deviation of 90 degrees to the left, they express this as "10 M deviates 90 minus." They explain the mechanism for this reaction to the cold stimulus applied to one vestibule, comparing the normal with the pathologic responses both in man and in frogs, with eight diagrams and some typical case reports. The locomotor reaction is the generalization of a reflex syndrome characterized, in its first phase, by the oculomotor, nystagmus reaction, but the locomotor reaction is an amplification easier to follow and record.

Presse Médicale, Paris

October 26, XXIV, No. 60, pp. 481-488

46 Devices for Continuous Elastic Tension to Correct Vicious Attitudes of the Limbs. (La tension élastique continue pour le redressement des attitudes vicieuses des membres.) F. Jayle, P. Bacquelin and T. Dubé.—p. 481.
47 Amebic Dysentery. A. Mauté.—p. 483.

November 2, No. 61, pp. 489-496

48 *Acute Nephritis in the Troops on Active Service. (Les néphrites aigues azotémiques des troupes en campagne.) P. Ameuille.—p. 489.
49 War Wounds of the Knee. (Sur le traitement des plaies de guerre du genou.) A. Moulonguet.)—p. 491.
50 *Treatment of Vincent's Angina and Stomatitis with Silver Nitrate and Methylene Blue. (Stomatites et angines fuso-spirillaires.) M. Favre and H. Dreyfouss.—p. 492.

48. **Soldiers' Acute Nephritis.**—Ameuille emphasizes that the acute nephritis encountered so often in the troops at the front may be of two types, nephritis with anasarca or nephritis with azotemia. "This latter type has not been described," he says, "as, outside of France, comparatively little attention is paid to the urea content of the blood in estimation of kidney disease, and even in France few have applied it to soldiers' nephritis." The uremic form is liable to come on with jaundice, meningeal symptoms, delirium and convulsions, with fever and more or less albuminuria but no edema. Or the disease may commence with infectious sore throat, acute enteritis or generalized ecthyma. The temperature runs up more rapidly than with typhoid, and the fluctuations are more pronounced. The case is generally labeled at first grippe or febrile stomach trouble. The urine is scanty, with much albumin, more or less blood and up to 2 gm. of urea or more. If the urea in the urine subsides as the content of the blood increases, a fatal outcome is inevitable. The disease runs its course in two weeks on an average, but the range is from death or recovery in a few days to a very protracted course. Considerable weakness afterward is the rule, but recovery seems to be complete at last. In two cases reported there was acute azotemia but no fever and no albuminuria. Delirium was the predominating symptom in the first case, and convulsions in the other. The azotemia is the predominating factor, and necropsy explains this by the changes found in the kidneys. They differ from the classic lesions of acute nephritis, as he describes. They seem to be nodular lesions from acute interstitial inflammation, scattered through a kidney with traces of old but very slight chronic changes. Recent inflammatory lesions of much less extent and severity are found at times in some of the other organs, testifying to a general infection acting on abnormally frail kidneys. Trench warfare seems to have a particularly injurious influence on the kidneys.

50. **Treatment of Vincent's Angina and Stomatitis.**—All manifestations of fusospirilla infection seem to yield most readily to thorough cleansing out of the ulcerations with 10 per cent. silver nitrate, following with a 1 per cent. methylene blue solution. At least this has been the outcome in the experiences related. The applications are repeated daily; the main point is the cleaning out to the bottom of each of the ulcerations.

Progrès Médical, Paris

October 20, XXXI, No. 20, pp. 193-202

51 Arthrotomy of the Knee for War Wounds. (Notes sur l'arthrotomie du genou.) Bérard.—p. 193.
52 Effects on Nervous System from Explosion Nearby. (Caractères essentiels de la commotion cérébro-spinale.) Bonhomme and Nordmann.—p. 194.
53 Cesarean Section by Fragment of Shell. (A propos d'une césarienne par éclat d'obus.) Saint, Goehlinger and Poiré.—p. 196.
54 Bridged Plaster Casts. (Les appareils plâtrés avec arceaux.) J. Regnault.—p. 198.
55 Reeducation of the Blinded Soldier. (La première éducation du soldat aveugle.) E. Ginestous and C. Dominique.—p. 199.

Revue Médicale de la Suisse Romande, Geneva

October, XXXVI, No. 10, pp. 625-676

56 *Epidemic of Scalp Disease. (Une épidémie de teigne à petites spores chez des écoliers.) E. de Reynier.—p. 625.
57 *Thyroid Grafts Do Not Require Nerve Connection. (La dénervation du greffon thyroidien en compromet-elle la sécrétion interne?) E. Kummer.—p. 636.
58 The Tuberculin Skin Test for Schoolchildren. (A propos du Pirquet dans les écoles de Lausanne.) L. Jeanneret.—p. 643.
59 *Skin "Typhine" Tests and Skin "Diphtherine" Tests for Typhoid and for Diphtheria in Young Children. (Du diagnostic de la fièvre typhoïde et de la diphthérie en médecine infantile.) L. Jeanneret.—p. 652.
60 Tuberculosis and the Tropical Sun. (Tuberculose et soleil tropical.) L. Steiner.—p. 653.

56. **Microsporon Scalp Disease.**—De Reynier relates that he found the microsporon in ninety-eight of the 144 children he examined; eleven had the trichophyton besides. He says that, untreated, this form of tinea tonsurans may keep up for years, but it subsides spontaneously at puberty. The cure is complete and permanent. The first signs of trouble were a gray patch in the hair and the falling out of the hair. As soon as the epidemic at Neuchâtel was noted, stringent measures were taken by the authorities to arrest the further spread. General practitioners were called on to assist the medical school inspector, and every child with any symptom of scalp disease was forbidden to attend school and was sent to a special polyclinic organized for the purpose. The city authorities notified all the shops selling hats of the prevalence of the tinea, and ordered that squares of tissue paper should be offered to customers so that a square could be laid over the head before trying on a hat, the paper to be burnt afterward. Strict prophylactic hygiene was enforced in the barber shops. The back of the chair had to be protected with a fresh paper or cloth napkin for each customer, and the scissors and metal combs singed in the flame after using on a customer, razors washed in 70 per cent. alcohol, brushes and other combs, etc., placed in a formaldehyd sterilizer for two hours. Besides this, all the combs and brushes had to be carefully washed once a day, at least, with a 2 per cent. solution of soda. The use of cakes of soap for the beard and alum pencils, of revolving brushes and of powder puffs was prohibited. The powder had to be blown on with a rubber bulb or applied with a wad of cotton, destroyed after each use. No wigs were allowed to be rented except with a fresh inner cap each time. These and the other regulations had to be posted in plain view in each barber shop and hair-dressing parlor.

The school authorities arranged for a special school for the tinea children and another school for their brothers and sisters. The diagnosis once made, the hair was cut close and the head washed with a 20 per cent. alcoholic solution of iodin. It was then covered with a hood of absorbent gauze and tarletan held in place by a strap under the chin. The children were then exposed to the Roentgen rays and after this returned twice a week to have the scalp rubbed vigorously with cotton dipped in the 5:95 alcoholic solution of iodin. After waiting a minute, the hood of gauze and tarletan is applied anew, arranged so that it cannot be taken off day or night. This is for the protection of others. The hairs fall out by the third week after the Roentgen exposure. Washing the head with soft soap hastens the depilation. This is the time to attack the spores in the follicles most vigorously with the iodin rubs, while the follicles are still empty, before the new hairs sprout. This treatment has to be kept up for two or three months. If microscopic examinations and cultures are still negative, the child is regarded as cured and can discard his hood. All his caps, etc., used during the course of treatment are burned, and the pillows and bedding sent to be sterilized. If the findings are still positive, a second Roentgen exposure is made and the whole course repeated. The children were of all classes of society, including some who had always had the best of hygienic care. The whole scalp was exposed to the Roentgen rays at a distance of 15 cm.; the dose 10 X or 5 H units at each of the five or six areas exposed, the whole sitting taking from forty minutes to an hour. No by-effects were ever observed, not even in the twenty-six cases requiring a second exposure. The epidemic was thus stamped out completely in the course of the year.

57. **Thyroid Grafting.**—Kummer removed the thyroid and parathyroids completely or partially and grafted one or two lobes at once in a pocket in the omentum or elsewhere. This was done on five dogs and three cats to determine whether

the lack of any innervation of the graft interfered with its functioning. The grafts healed in place and evidently provided the necessary internal secretion, keeping the animals well, although not connected with the nervous system.

59. **Skin Differential Test for Typhoid and Diphtheria.**—Jeanneret makes a "typhin," from typhoid bacilli, like the tuberculin from tubercle bacilli, and states that an intradermal injection elicits a specific local reaction like the Mantoux tuberculin test. He also uses in the same way a "diphtherin" made from a glycerin extract of cultures of diphtheria bacilli. In diagnosis in puzzling cases in children these might prove useful. He adds that the same principle might be applied in pneumonia, meningitis, etc.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 28, XLVI, No. 44, pp. 1473-1504

61 *Streptococcus Viridans Chronic Sepsis. (Ueber Sepsis lenta.) P. Deus.—p. 1473.
62 Ultraviolet Rays with Exceptionally Short Waves Produced by the Simpson Arc Lamp. (Les Rayons Simpson.) F. M. Messerli.—p. 1487. Briefly described in The Journal, Feb. 26, 1916, p. 537.

61. **Sepsis Lenta.**—Deus reports the clinical and necropsy findings in a typical case of chronic endocarditis for which the *Streptococcus viridans* was unmistakably responsible. It is evident from the history of this type of sepsis that special circumstances and general depression of the vitality from some cause are necessary before this germ is able to proliferate in the blood. Deus' patient was a healthy farmer free from pathologic antecedents until eighteen months before, while on military service, he noticed lassitude and considerable loss of weight. Six months later he developed pleurisy which recurred again and again, notwithstanding repeated punctures. Ascites developed later, and the man died from heart symptoms and dyspnea a year and a half after the first signs of trouble. The temperature and pulse were seldom and only briefly above normal. The spleen was much enlarged. The red count was normal, whites 12,000, with eosinophilia up to 65 per cent. The urine early indicated pathologic conditions in the kidneys. The necropsy findings were those typical of Schottmüllers sepsis lenta, except that the heart valves seemed to be intact while there were extensive fibrous adhesions and thrombosis in both ventricles.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 22, XXXVII, No. 85, pp. 1329-1344

63 *The Refractometric Index in Typhoid. (Osservazioni refrattometriche nella infezione tifoide.) C. B. Farmachidis.—p. 1332.

October 26, No. 86, pp. 1345-1360

64 Treatment of Frozen Feet. (La termo-foto-cromo terapia delle congelazioni di 3. grado nei soldati.) A. Secchieri.—p. 1349.

63. **Refractometric Index of Blood Serum in Typhoid.**—Farmachidis found in twenty cases of typhoid that the refractometer findings in the blood serum rose as the temperature declined in the medium and light cases. In the severe cases, however, the refractometer index fluctuated, displaying a tendency to drop as the general condition grew worse, irrespective of the temperature. It rose as the patient improved. He tabulates the findings in his twenty patients at two or three days' intervals throughout the course of the disease, recording simultaneously likewise the coagulating time of the blood, agglutination and temperature.

Policlinico, Rome

October 29, XXIII, No. 44, pp. 1271-1298

65 *Crippling Operations in Wartime. (Intorno alle mutilazioni in tempo di guerra.) G. Cavina.—p. 1271.
66 *Epidemic Cerebrospinal Meningitis. U. P. Gavelli.—p. 1276; (Meningite cerebro-spinale epidemica a inizio morbiliforme.) A. Bolaffi.—p. 1279.

October, Surgical Section No. 10, pp. 289-320

67 Catheterization of the Ureters. E. Pirondini.—p. 289. Continuation.
68 Tuberculous Processes in the Tongue. (La tubercolosi della lingua.) L. Durante.—p. 302.
69 Hard Duodenal Ulcer. (Ulcera duodenale callosa.) F. Saraceni.—p. 318.

65. **Crippling Operations in Wartime.**—One paragraph in this article reads literally: "Of the (*censored*) sick and wounded received at our field hospital from the beginning of the war to date, of whom (*censored*) were wounded and (*censored*) had frozen feet, only fifty-two amputations have been done including six partial amputations of the foot." The mortality in the amputation cases was 32 per cent. but 53 per cent. died of the twenty-six requiring amputation of the thigh. He ascribes this high mortality to the overlong expectant treatment. The amputation was decided on too late.

66. **Epidemic Meningitis.**—Gavelli relates that among the men sent to the hospital under the mistaken diagnosis of meningitis, were three with acute angiocholitis, one with acute nephritis and one with septic endocarditis. These men were totally unconscious when admitted, but lumbar puncture released limpid fluid although under high pressure. The fluid was always turbid in the meningitis cases, whether the meningococcus or other germs were responsible for it. The mortality was 75 per cent. in the meningitis cases in which less than 30 c.c. of antiserum had been injected at a dose, and only 28 per cent. when the doses had been higher than this. The serotherapy invariably mitigated the disease and relieved the symptoms. In contrast to what was observed in the serum-treated cases, he describes the tedious course of the disease in one man for whom it was impossible to provide serotherapy. His headache and other symptoms were terrible for five weeks, not yielding to any other measures.

Bolaffi reports a case in which meningococcus septicemia produced a syndrome deceptively like measles, including an eruption, cough and dyspnea. But the patient complained of severe pains in the limbs and headache, and the eruption did not appear on the back. Meningococci were cultivated from the blood and spinal fluid, and unmistakable symptoms of meningitis soon followed. He has had other patients whose first symptom from meningitis was sudden intense pain in one arm. In others, pains in the legs or joints were the primary symptoms.

Brazil-Medico, Rio de Janeiro

September 23, XXX, No. 39, pp. 305-312

70 *Direct Abdominal Pain in Women. (Semiologia da dor abdominal direita na mulher. III.) R. Vaz.—p. 305. Commenced in No. 37, p. 289.

October 7, No. 41, pp. 321-328

71 Intravenous Iodin and Salicylate Medication. A. A. da Matta.—p. 321. Concluded in No. 42.
72 Hyperemesis Determined by Trichocephalosis. R. da Silya.—p. 323.

70. **Pain in the Kidney Region.**—Vaz concludes his long study of direct abdominal pain in women with a discussion of the pain for which the kidney is responsible. This forms a large proportion of the cases of pain in the abdomen, at the front or back, and downward displacement or concretions in the kidney are the most frequent causes of direct pain in this region. The pain is liable to spread to the anterior abdominal wall, to the inguinal region, the labia majora, the upper part of the thigh, and even to the feet. Besides the local spontaneous pain and the radiating pains, there are tender points in the anterior, lateral and posterior portions of the abdomen. With ptosis, there may be paroxysms of pain besides, accompanied by nausea, vomiting and nervous and dyspeptic conditions, known as Dietl's crises. Renal colic may occur not only with kidney stones but when a fragment of necrotic tissue gets into the ureter or exudation occurs.

Revista de la Asociacion Medica Argentina, Buenos Aires

September, XXV, No. 142, pp. 231-340

73 *Goiter in Girl of Five. (Bocio nodular en una niña de 5 años.) J. M. Jorge.—p. 231.
74 *The Bile-Pancreatic Juice Reflux and Its Importance for the Diagnosis of Duodenal Ulcer. (El reflujo bilio-pancreatico.) C. B. Udaondo.—p. 245.
75 The Pathogenesis of Strabismus. R. Argañaraz.—p. 252.
76 Hemophilia in Girl of Sixteen. (Hemofilia femenina.) M. R. Castex.—p. 275.
77 Tuberculosis in Argentine Navy. (La tuberculosis en la armada.) J. G. del Castillo.—p. 285.
78 Present Status of the Cancer Problem. M. Beatti.—p. 328.

73. **Large Goiter in Small Girl.**—The goiter was successfully removed. It had developed in the course of ten months, and the microscope showed that there were two distinct histologic processes in the thyroid. One part of the thyroid tumor was of embryonal character, while the larger part was of the ordinary follicular goiter type in adults.

74. **Reflux of Bile and Pancreatic Juice with Duodenal Ulcer.**—Udaondo reports that this occurred spontaneously in 84.5 per cent. of his 13 cases of ulcer in the upper duodenum and in 44.4 per cent. of 8 in the second segment of the duodenum, while there was no spontaneous reflux in 88.8 per cent. of 27 cases of gastric ulcer on or near the pylorus, and in 87.5 per cent. of 32 cases of gastric ulcer remote from the pylorus. In another series of tests he induced by the Volhard method excessive secretion of duodenal juice, and tested the stomach content for trypsin by the Gross method. Under these conditions a reflux was found in 99.9 per cent. of 11 high duodenal ulcers and in 87.5 per cent. of 8 lower down. Also in 8.3 per cent. of 12 gastric ulcers on or near the pylorus, and in 33.3 per cent. of 12 remote from the pylorus. Udaondo noticed further that the proportion of trypsin was always abnormally low in the reflux when the duodenal ulcer was located in the second part of the duodenum. [The Volhard method was described in The Journal, 1915, lxv, 1390.]

Siglo Medico, Madrid

October 7, LXIII, No. 3278, pp. 641-656

79 *Treatment of Itching Affections. (Pruritos generalizados y localizados.) E. de Oyarzabal.—p. 642.

79. **Treatment of Pruritus.**—Oyarzabal discusses essential pruritus, the skin intact except from having been scratched. He gives a number of formulas for local treatment and says that the diet and bowels should be regulated whatever the cause of the pruritus. The clothing and room should be cool. The source of the toxins responsible for the pruritus should be sought, the functioning of the liver, kidneys and bowels should be examined. Menstrual disturbances or uterine lesions may be the cause or hypertrophy of the prostate, gout, diabetes, blood diseases, drug addiction, neurasthenia, hysteria, emotional stress or incipient general paresis or tabes. The mercury vapor quartz lamp or the Roentgen rays have frequently succeeded when all else failed, but local treatment of generalized pruritus, especially of the senile, offers little promise of success. When nothing else benefited, he has sometimes obtained good results from venesection followed by injection of saline, withdrawing from 150 to 300 c.c. of blood and injecting a pint or two or more of saline, utilizing the same cannula. Linser's method of treating the toxic dermatoses of pregnancy with normal serum can be applied to many itching skin affections and diffuse pruritus. For this he draws 50 c.c. of blood from a healthy donor, centrifugates for five minutes with glass beads and then centrifugates the serum anew and injects 10 or 30 c.c. subcutaneously, repeating this on three, four or five successive days and again after a few days' suspension.

Grèce Médicale, Athens

XVIII, No. 13-14, pp. 25-28. French Supplement to Iatrike Proodos

80 *Ischemic Contracture. (De la rétraction muscuiaire ischémique de Volkmann.) N. Alivisatos and S. N. Oeconomos.—p. 25. Commenced in No. 11, p. 21.

80. **Volkmann's Ischemic Retraction.**—Alivisatos and Oeconomos relate that, with an unpublished case of their own, they now have records of 144 cases of this affection. According to Berger only four cases in adults have been published; the majority of cases were in children of 3 or 4. But Denucé states that in fully 15 per cent. of the cases adults were involved. He adds that pressure from a plaster cast was responsible in 79 per cent. of the cases. In the others, a tourniquet or ligation of an artery or hematoma from contusion or a simple fracture was incriminated. The arm is usually affected, but the trouble may develop in the leg after freezing or embolism, or even a gunshot wound as in the personal case mentioned. The pathologic anatomy, pathogenesis and the medicolegal questions that may arise are discussed in turn, with several illustrations of their personally observed case. Always after applying a plaster dressing, it should be carefully examined an hour afterward and again twenty-four hours later. If there are spontaneous pains, or if the hand looks purplish or pale, or the fingers are numb or cannot be moved, the plaster should be removed and the arm held straight up in the air or kept in hot water or hot air, the fingers exercised passively and actively, and the arm massaged throughout. If direct surveillance is not possible, the family should be instructed to watch out for any of these symptoms. The correction of the deformity seems to be attained best by gradual elastic traction, according to Martin's principles, but a long list is given of measures that have been applied with more or less success.

Russkiy Vrach, Petrograd

XV, No. 39, pp. 913-936

81 E. E. Metchnikoff, 1845-1916. V. I. Nedrigailoff.—p. 913.
82 Arteriovenous Aneurysm. V. N. Savvin.—p. 915.
83 Impotence as Ground for Divorce. (Eshtshe o "nesposobnosti k brachnomu sozhitiu.") D. P. Kosorotoff.—p. 916.
84 Obliteration by Actual Cautery of Bleeding Varicose Vein in Bladder. (Varices venarum mochevogo puzirya kak prichina krovetecheniya iz nego.) G. I. Baradulin.—p. 919.
85 *Experimental Research on Heterogeneous Anaphylaxis. (K ucheniu o geterogennikh protivutielakh.) I. L. Krichevsky.—p. 920.
86 Sterilizers for Army Use. (Ob autoklavakh dlya armii.) A. A. Grube.—p. 923.
87 *Benzol in Treatment of Leukemia. (K liecheniu bielokroviya benzolom.) E. K. Krol.—p. 927.

85. **Heterogeneous Anaphylaxis.**—Krichevsky comments on the way in which the former conception of the specificity of antibodies has been rendered untenable by recent research. This has shown that hemolysins against sheep red blood corpuscles can be obtained by immunizing animals not only with the organs of animals far higher or lower in the animal kingdom, but also with their red blood corpuscles. He relates extensive experiments with rabbits immunized by means of sheep and hen corpuscles. He obtained, in this way not only hemolysins against the red corpuscles of the entire alien species—heterogeneous hemolysins as Friedberger calls them—but also heterogeneous anaphylactic antibodies. By immunizing rabbits with hen corpuscles, not only hemolysins against sheep red corpuscles were elaborated but also heterogeneous anaphylactic antibodies, as is shown in the tabulated details from twenty-three rabbits. Most of the rabbits were subjected to a twofold sensitization with hens' red blood corpuscles, rinsed from the blood serum. After a definite time the test for anaphylaxis was applied with sheep red corpuscles introduced into a vein in the ear. He also at the same time determined the titer of the hemolysins against sheep red corpuscles. Of the twenty-three rabbits sensitized with hen red corpuscles, twelve died from anaphylaxis or presented the typical syndrome of anaphylaxis such as is observed after the intravenous injection of sheep red corpuscles. Acute anaphylactic shock was observed in six of the animals. If the animal dies in a few hours after the anaphylactic test, then death occurs in increasing coma. Otherwise the rabbits seem to be apparently entirely well or else they exhibit extreme weakness and in the majority of the cases the extremities become paralyzed and the animal lies stretched out like a seal, with progressive prostration and reduction of temperature. Sometimes death is preceded by general convulsions, exactly like those of anaphylactic shock. Some think that the sensitization of the animal, as well as the anaphylactic shock, are dependent not on the red corpuscles but on the traces of the serum still clinging to the washed corpuscles. The tests reported here, however, confirm the possibility of anaphylaxis from cells as he describes. The heterogeneous anaphylaxis was observed always in the animals with heterogeneous hemolysins, and in the majority of cases the anaphylactic phenomena were directly proportionate to the hemolytic titer. Krichevsky discusses the various theories on anaphylaxis under different circumstances, but is inclined, himself, to regard the hemolysins and the anaphylaxis antibodies as identical. The hemolysins act in vitro and the others only in the living body.

Eleven of the rabbits did not develop anaphylaxis. These were the ones with low hemolysis titer. "From my point of view," he says, "the absence of anaphylaxis under the conditions of the tests with sheep red corpuscles was completely to be expected. The small quantity of antibodies was too insignificant to induce anaphylactic manifestations. That this explanation is correct is demonstrated by the results of some supplementary tests undertaken to confirm it." He describes the supplementary tests also in tabulated form, two of the four rabbits dying in three and in six minutes, the others recovering after a brief anaphylactic shock.

87. **Benzol in Leukemia.**—Krol reports the details of a case of leukemia in a little girl of 10 whom he treated with benzol, Roentgen exposures and subcutaneous injections of arsenic. Her sickness dated from two and a half years before, when her parents noticed that her abdomen was protruding. Under two months of the combined treatment mentioned the whites dropped from 325,000 to 77,000, the spleen became much reduced in size, and the child seemed immeasurably improved in every respect. A letter from the parents five months later related that all was well with the child. There had been no aggravation during this period.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

October 21, II, No. 17, pp. 1453-1532

88 *The Task of the Medical Teacher. VII. (Een en ander over hooger onderwijs in de geneeskunde. VII.) G. van Rijnberk.—p. 1453.
89 *Milk Diet in Chronic Nephritis. (Eenige mededeelingen over melkdieet bij slepende nierziekte.) D. G. C. Tervaert and E. H. B. van Lier.—p. 1457.
90 Research on the Tonicity of Muscles and the Innervation Therefor. (Onderzoekingen over spiertonus en spiertonusinnervatie. I.) G. van Rijnberk.—p. 1470.
91 Nodose Rheumatism; Two Cases. L. P. Daniels.—p. 1473.
92 Boerhaave's Pupils. (Boerhaaviana. I). E. C. van Leersum.—p. 1480.
93 Case of Spontaneous Healing of Ruptured Spleen. (Geval van spontaan genezen miltverscheuring.) A. Verhagen.—p. 1491.

88. **The Task of the Medical Teacher.**—Van Rijnberk remarks that every one knows that the university is an institution where a young man can buy knowledge. The professors are the persons who possess this knowledge and impart it to the young men. But how did the professors get their knowledge? By studying. But when one asks what is meant by this term "studying," then confusion begins. For the medical teacher, at least, it is plain that study of books is not all. He continues, "A well known physician told me once that he had learned much from his professors, more from other practitioners, but most of all from his assistants. Books and intercourse with others are valuable, but the highest form of studying a subject is to investigate Nature and test for oneself. Only insight obtained through one's own work can render teaching vital and fruitful. No criticisms nor self-criticism nor plastered-on knowledge can compare in effectualness to that obtained by personal research. Another reason for the latter is that scientific research is one of the few occupations that bring inward poise and satisfaction. The students should be offered the opportunity to enter this field, and this can scarcely be done unless the teacher leads the way. Besides this, the taking part in labors behind the screen at the clinics and laboratories affords opportunities for intimate intercourse with the better class of the students, giving them thus the finishing touch." . . . "This attracting of the more interested among the students into the inner circles of the laboratories and clinics has the further advantage that it aids in forming the medical teachers of the future." He says that in his country (Netherlands) there is great lack of minor lecturerships and other opportunities for self-support of research workers. Other countries have arrangements which are like a nursery of young trees growing up to take the place of the older ones. In his country it is a very difficult matter to find a suitable incumbent when a scientific chair becomes vacant. Where there is opportunity for research work, the workers mutually stimulate each other, giving, taking and emulating each other. Where the authorities are too economical or too conservative to foster scientific research there is none of this expansion. In conclusion he says, "And this is the most exalted part of the task of the medical teacher. To detect in the crowds of students passing before him the one capable of being inspired with the love of science, to foster this and give it opportunity to bud, to foster his loyalty to his school, to his family, to all the schools of the land, and beyond its borders to feel his connection with others all the world around who with zeal and sacrifice are working for scientific aims rather than for money and ease."

89. **Milk Diet in Chronic Kidney Disease.**—The experiments and the ten clinical experiences related have apparently demonstrated that the albumin in milk is just as injurious in kidney disease as albumin from any other source. Hence restriction to a milk diet in case of nephritis with retention of urea is decidedly harmful. Excessive retention of urea, as determined by Ambard's formula, indicates a grave prognosis. If the patient is put on a milk diet, it is rendered still graver. In two of the cases of mild uremia described, the symptoms of uremia subsided when milk was forbidden. In nephritis without edema—and these are mainly the cases with retention of nitrogen—milk should be allowed only very cautiously, if at all, unless retention of nitrogen can be positively excluded.

Ugeskrift for Læger, Copenhagen

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94 Irregular Pulse with Exophthalmic Goiter. (Om Pulsarytmi ved Morbus Basedowii.) L. S. Fridericia.—p. 1899.
95 *Case of Acute Hemorrhagic Pancreatitis. S. A. Gammeltoft.—p. 1908.

95. **Acute Pancreatitis.**—The patient was a healthy woman of 25 taken suddenly with severe pains in the abdomen, mostly in the right lumbar region, with some fever and vomiting. The presumptive diagnosis wavered between appendicitis and pyelitis until a bulging above the crest of the right ilium seemed to indicate an abscess. An incision revealed only an accumulation of old sterile blood, no clots. After a brief period of improvement, the symptoms returned in an aggravated form, but no cause for them or the hemorrhage could be discovered. Her temperature was high each afternoon, with morning remissions, the right kidney region more and more tender, but catheterization of both ureters showed only normal conditions. Thirty-two days after the first sign of trouble, the original incision was carried back into the right lumbar region and here large masses of necrotic fat tissue were found. They extended up to the kidney, but this organ seemed to be sound. As much as possible of the gangrenous and putrid fat tissue was removed, and the cavity drained. The patient began to recuperate at once and recovery was soon complete. The only complication was parotitis on the left side. The retrospective diagnosis was thus acute hemorrhagic pancreatitis with the extravasated blood and the necrotic fat tissue sliding down into the right iliac fossa. All the symptoms were restricted to the right side, which is most unusual with pancreas disease. Neither Körte nor Giordano mentioned such a case in their compilations for the third international surgical congress, although the latter mentioned one case in which the necrotic tissue was found in the left iliac fossa. In the personal case here described the patient felt sick and the tongue was parched but the mind kept clear and the pulse regular and strong. The mortality is high for operations during the first acute phase, and the case here reported seems to testify in favor of expectant treatment at first.

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96 Trichobezoar in the Stomach. G. von Holst.—p. 581.
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101 Biology and Statistics. G. Backman;—p. 609; (Några ord om användandet af siffervärden inom biologien.) P. Häggström.—p. 644.

98. **Cancer in the Appendix.**—A woman of 57 had the appendix removed for gangrenous perforation. Two years later, during an operation for hernia, a small tumor was found in the cecum in the appendix region. It proved to be of malignant character, and examination of the appendix which had been removed two years before showed cancer cells in it of the same type as in the cecum cancer. She has been in comparatively good health since its excision.

99. **Myomectomy During Pregnancy.**—The pregnancy was at the seventh month but it progressed to term, apparently not affected by removal of a myoma weighing 1.25 kg., growing on the fundus of the uterus.

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HEREDITARY SYPHILIS AS A CAUSE OF CHRONIC INVALIDISM

AND THE DIAGNOSIS BY INTENSIVE FAMILIAL STUDY*

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There is scarcely a symptom to which man is heir hat may not be caused by the *Spirochaeta pallida*.

With the development of delicate laboratory tests he field is ever widening, and the syphilitic yardstick ias been applied to practically every syndrome, with he result that we have been forced to change many of our ideas, and the end is not yet.

For many years certain clinicians have realized that syphilis is a disease of the family rather than of the ndividual; but it was not until the advent of the Wassermann test that it was appreciated how extensive prenatal infections are and that an apparently healthy hild may harbor the organism.

Time causes certain changes in the spirochete in itro; for example, the organism from a primary sore roduces a lesion in a rabbit's testicle in from two to hree weeks, while that obtained from general paresis equires three or four times as long to develop.

In like manner the symptoms occurring from twenty o thirty years after infection — especially prenatal nfection—are often insidious of onset, vague and ndefinite in their development, and quite frequently naccompanied by physical signs. To obscure the condition further, the Wassermann test, so valuable in arly syphilis, is only rarely positive in adults with ereditary syphilis.

For several years I have been interested in the study f syphilitic families; their symptoms have been analyzed, their physical signs tabulated whenever possible, nd Wassermann tests made on many. I have been reatly assisted in this work by Miss Barry of the Hartford Visiting Nurses Association and Miss Goldberg at the Hartford Dispensary.

As a result of a more or less complete study of pproximately 100 families, it has seemed to me that f one groups together all the symptoms and physical igns of all members of the family, certain syndromes vill often be found that are quite suggestive of hat might be termed familial syphilis.

The individual with tuberculosis usually presents a ombination of symptoms and physical signs that are nore or less typical of the disease. In "late" hereditary syphilis, however, the patient may present no sign of syphilis and but a single obscure symptom which may be so distressing that a more or less complete invalidism results. But suspicious symptoms and perhaps conclusive physical signs may be found in other members of the family, and in this way a wholly indefinite and meaningless symptom, like one piece of a picture puzzle, may become highly significant when fitted into its right place in the family syndrome.

I judge that the diagnosis of hereditary syphilis by intensive familial study is not generally practiced, as no mention was made of it in four symposiums which I recently attended in which many well known syphilologists discussed the various problems of syphilis.

Family histories as commonly taken are entirely worthless in deciding for or against the possibility of familial syphilis. It takes a good deal of time to elicit all the facts; but not infrequently the information thus gained furnishes the only means of clearing up an obscure case.

Within a few days I examined a man whose father was stated to have died as the result of an accident. Inquiry developed that the accident was a gunshot wound through the mouth from which he made a good recovery, living many years thereafter and leading an active business life. About ten years before he died he developed some spinal trouble, which was attributed to his previous injury. He lost the use of his legs and got about only in a wheel-chair. This suggests that he may have had tabes, which would explain the high narrow palate I observed in his son and quite possibly the cerebral endarteritis from which he was suffering.

Before attempting to work out various syndromes of familial syphilis, one must first appreciate what diseases in a parent are indicative or highly suggestive of syphilis. We are justified in assuming syphilis when a parent has had tabes or paresis; as probable syphilis a history of aneurysm or aortic disease, and death from apoplexy and sudden heart failure before 50; as possibly syphilitic, cardiovascular renal deaths up to 60 or perhaps beyond. I also believe we are justified in at least suspecting syphilis in the presence of severe chronic headaches not relieved by glasses. The parents may be living and said to be well; but a paralysis of the third or sixth nerves, insomnia, extreme nervousness or "rheumatism in the legs" should awaken our suspicions.

The second family cited illustrates the importance of minute inquiry as to the health of maternal aunts and uncles.

What is often referred to as the typical sequence of syphilitic pregnancies, namely, miscarriages, stillbirths, premature syphilitic children and finally healthy children, has in my experience been encountered only rarely. While syphilis is the most common cause of abortion, it should be realized that in certain syphilitic families all the pregnancies may result in living children. Syphilis is also a frequent cause of sterility; this seems especially liable to occur in the "weakling" group of heredosyphilitics. One should bear in mind that hereditary syphilis may have the same effect on the fetus that acquired syphilis has.

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* Read before the Section on Nervous and Mental Diseases at the ixty-Seventh Annual Session of the American Medical Association, etroit, June, 1916.

When pregnancy results in a syphilitic, one of several things may happen:

1. The fetus dies, and abortion or stillbirth results. This is usually attributed to a uterine malposition.
2. The fetus does not die, but is expelled prematurely.
3. The child may (*a*) present obvious evidence at birth or within a few weeks, or (*b*) appear healthy for several years and then develop some syphilitic manifestations, as interstitial keratitis or a bone lesion.
4. Occasionally a healthy child is born to syphilitic parents whose disease is in a latent condition.
5. The child may exhibit certain stigmata, the result of protoplasmic disturbances, even when no infection occurs. I have had as patients two men with acquired syphilis with high narrow palates who were the sons of syphilitics. These dystrophies or alterations of the normal development of the germ plasm may be accompanied by a real congenital syphilitic infection. The common dystrophies are the high narrow palate, hare lip, scaphoid scapulae, short arms, hypoplastic teeth, etc.

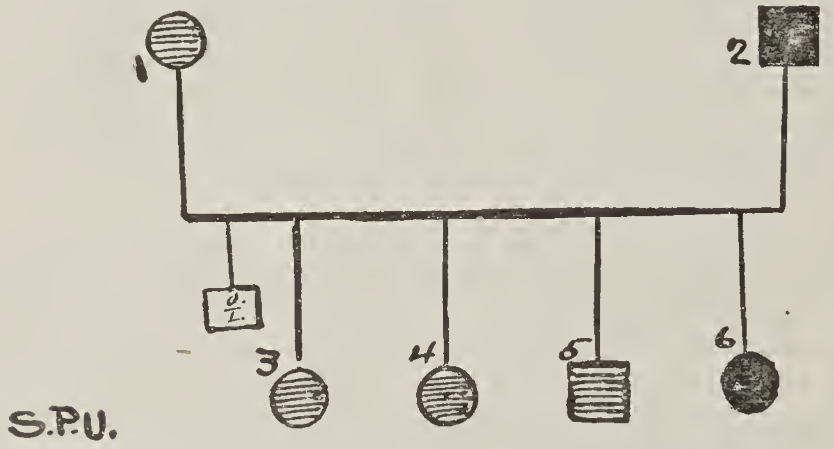

Chart 1.—Heredity chart, Family 1. In the charts, squares indicate male, and circles, female; all black, syphilis known to have been present (except Chart 5, where solid black indicates epilepsy); shaded, probable syphilis; triangle, miscarriage; double triangle, stillbirth; *d. I.*, died in infancy; *H*, headache; *TB*, tuberculosis; *A*, alcoholic; *N*, nervous; *S. P. U.*, sequence of pregnancies uncertain. In the legends, *a* indicates alive and *d*, dead. 1, .*a*, alcoholic; headaches; 2, *d*, tabes dorsalis; 3, *a*, nervous; 4, *a*, nervous; severe headaches; 5, *a*, very nervous; 6, *a*, chronic headache; spondylitis.

6. We should suspect the possibility of hereditary syphilis in individuals whose chief characteristic is a constitutional inferiority. As children they "took" everything and were always very ill. Even when not definitely sick they were ailing and "hard to raise," yet without definite reason. Usually nervous and irritable, frequently complaining of headache, they are prone to develop tuberculosis which is apt to be fatal. Often a very thorough examination will reveal a suspicious sign, though sometimes we will find only the telltale dystrophy or symptom in a brother or sister.

It would be a very grave mistake to assume that all delicate children are heredosyphilitic. Nevertheless I am sure that too little attention has been paid to this particular disease as a cause of "weaklings."

As illustrative cases I have purposely chosen several who were free from the usual stigmata of hereditary syphilis and who had negative Wassermanns. Most of my tests were made in our state laboratory at Middletown. A few, however, were made in reliable laboratories in New York and Philadelphia, and they too were negative.

The luetin test was positive in nearly all of the cases, but inasmuch as the specificity of this test has been seriously questioned in patients who have received potassium iodid, the results are not recorded, as nearly all had received this drug.

I personally feel that an intensive familial study of the supposedly nonspecific reactions will materially diminish their number.

REPORT OF CASES

Case 1.—An unmarried woman of 26 (No. 6, Chart 1) complained of severe headaches from which she had suffered since earliest childhood. She was referred to me by Dr. Paul P. Swett, to whom she had been referred because of pain and tenderness of the upper cervical vertebrae. Dr. Charles A. McKendree, under whose care the patient was for a time at Cromwell Hall, kindly allowed me to supplement my history with his notes. She had been very strong as a child, but her headaches dated from her earliest recollection. She had always been of an excitable temperament, quick and irritable. The headaches were so severe when the patient was 15 that she was forced to leave school, and consulted a number of eminent men in Europe after failing to obtain relief in this country. Each summer for the past thirteen years she had gone abroad, as the ocean trip helped her considerably. Two years ago a well known specialist in London did an extensive operation on the interior of the nose for the relief of the headaches, but without success. A roentgenogram revealed a tooth that had failed to erupt, and with the hope of obtaining relief it was removed, but no improvement followed.

The circumstances of the patient were such that she was able to consult many specialists of renown. Several Wassermann tests had been made, but all were negative. One neurologist had recently told her he was sorry her blood was negative, as otherwise he could have given her treatment. "I know you will be disgusted," he told her, "to have me say it is just 'nerves'." An interesting fact was elicited, however. Several years ago while in Germany a physician injected some medicine into her hip, and following this treatment her headaches were very much better for a time.

Recently she has complained of paresthesia of the postcervical region; her sleep has been interfered with by nervousness, and pains in her neck which required her to frequently change her position. In the morning she is not rested. Her mother states that her condition is the result of her being a "spoiled child and growing too rapidly." Her nervousness was supposed to have been an inheritance from her mother, and her mother's nervousness was induced by the worry and strain of her husband's long illness—a highly reasonable explanation. What were the grounds for suspecting syphilis? Out of a group of 100 people she would have been the last one suspected of having hereditary syphilis, as far as her appearance went. She was a strikingly handsome woman, very tall and mentally alert. Her unusual height — she was over 6 feet — recalls to mind that Fournier, who recognized the syphilitic origin of tabes and paresis many years ago, likewise stated that gigantism and dwarfism were commonly the result of hereditary syphilis.

Dr. Swett found considerable thickening and marked restriction of lateral movement of several cervical spines, which he diagnosed as a probable specific spondylitis; otherwise the physical examination was negative.

The patient was the fourth of five children. One died in infancy. Two married sisters and a bachelor brother are very nervous. One of the sisters is exceedingly so, and also suffers severely from headaches, spending a large part of her time in various institutions taking cures. The provisional diagnosis of hereditary syphilis would probably not have been made, however, except for the fact that her father (No. 2, Chart 1) had died at 47 from tabes, from which he had suffered for twelve years.

Her mother (No. 1, Chart 1), who is living, formerly suffered from headaches, and is addicted to alcohol.

Notwithstanding her negative Wassermanns and inconclusive luetin reactions, she was given injections of mercuric salicylate by Dr. McKendree and subsequently by her physician in New York, with marked relief of her symptoms.

Had the father died of some acute illness or an accident before tabes had been recognized, the chief key to the problem would have been lacking; yet the extreme nervousness in the brother and sister should suggest their careful examination for some dystrophy of hereditary syphilis.

Two years ago I reported a similar case; a man, aged 36, whose father had tabes, obtained complete relief from severe headaches and many neurasthenic symptoms following salvarsan and mercury, though his Wassermann was constantly negative. A third case has recently been seen. A middle aged woman whose father had died from tabes experienced great relief from headaches of years' duration following specific treatment. She also had a negative Wassermann.

Case 2.—A married woman of 37 (Chart 2, No. 15) complained of burning and pressure on the top of her head and of a burning at the tip of her tongue, which symptoms had been present for ten years. For many years her endurance had been poor, and often after the day's work she would have to let her hair down because the burning and pressure on the top of her head was so severe. Sometimes she would suffer from slight vertigo. Her discomfort was especially marked at the time of menstruation. For years she had been more or less disinclined to social activities because of general weakness and the above mentioned symptoms. She had been assured that they were due to "uric acid poisoning," and had been on a meat free diet for the past year. No relief, however, followed this abstinence from meat. Her only pregnancy had resulted in a miscarriage.

The patient was a large, fine looking woman presenting no stigmata whatsoever of hereditary syphilis. Physical examination was negative except that there was a slight hypertension—systolic blood pressure 140. The urine contained the smallest possible trace of albumin. The Wassermann was negative. The family history at first appeared to be entirely negative. Her mother died of cardiac dilatation following pneumonia, her father from a tumor of the throat. She has two living sisters, one in good health, the other a semi-invalid from "too much uric acid." Two brothers are living and well, and a brother died from heart disease. Certainly a negative family history. A different picture is obtained, however, when one makes an intensive study of the brothers and sisters and of the preceding generations. In the first place, the sister who suffered from "uric acid poisoning" (No. 14) had a systolic blood pressure of about 260. The other sister (No. 13), who appeared well, had a systolic pressure of about 170. Both had negative Wassermanns. The latter as a child had an ulcer of the rectum which healed slowly and left a stricture. One living brother (No. 17), who was not examined, is stated to suffer from a chronic "sore" near the anus and periodically the soles of his feet "peel off." A third brother (No. 18), is apparently in good health. The brother who died suddenly at 16 of heart disease (No. 16), had never suffered from "rheumatism," which is suggestive of syphilitic myocarditis. The mother had four unmarried sisters and one brother. One sister (No. 5) was found to have hypertension and had had several strokes of apoplexy. A second (No. 6), is apparently in good health; a third (No. 8), who was a seven months baby, was not examined, but is said to suffer a great deal from dyspnea, which is suggestive of cardiovascular disease. The fourth sister (No. 7) died at 38 of heart disease. She was unmarried and had not had rheumatism. A maternal brother (No. 4) died at the age of 17 of apoplexy. There were also one miscarriage and two stillbirths.

In the preceding generation, that is, the grandparents of the patient with the burning tongue, the grandmother (No. 1) died at 64 of apoplexy and the grandfather (No. 2), at the same age of "fatty" heart. It is extremely suggestive that the cardiovascular disease which was present in three generations was due to syphilis.

The patient with the burning tongue and pressure on the top of her head was put on injections of mercury and potassium iodid, and promptly and completely recovered from her symptoms, which have not recurred for a period of two and one half years. Since the treatment she has become the mother of twins.

Case 3.—An unusually alert, keen man of 30 (No. 11, Chart 3), became dazed while riding in the cars one day. On reaching home he vomited and had several severe convulsions, involving his whole body. For several days thereafter he was completely disoriented; then for a number of weeks he was listless and disinterested in his affairs, and from time to time he was exceedingly nervous. During the succeeding months he had many momentary lapses of consciousness. He would be talking with a man, and suddenly realize that this man had left and another had taken his place, but he had no recollection of the one leaving or the other coming in. Once at dinner when a plate of food was passed to him he asked "what is this for?" but instantly realized it was his dinner.

For a year prior to this illness he had been under a peculiarly severe nervous strain. Two or three times in previous years he had some sort of brief sickness apparently depending on constipation, from which he suffered. He was a slender, enteroptotic type of individual presenting no signs of hereditary syphilis. (The scapulae were not noted.) He gave a negative Wassermann at two different laboratories, and his spinal fluid was reported as negative. The Lange test was not done. Nevertheless, from an intensive study of the family history, I felt that the underlying cause of his attacks of petit mal was probably hereditary syphilis, and advised specific treatment.

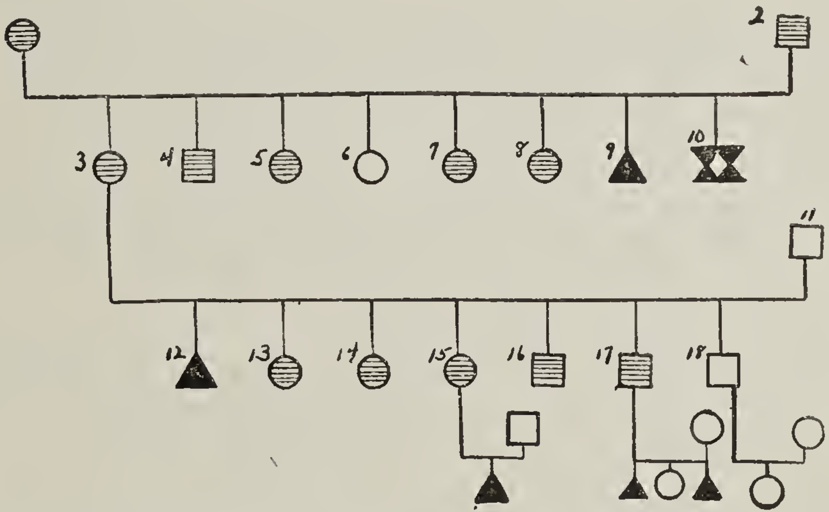

Chart 2.—Heredity chart, Family 2: 15, neurasthenic, aged 39, Wassermann reaction negative; 13, *a*, 39; hypertension; stricture of rectum as girl; Wassermann reaction negative; 14, *a*, 43; hypertension; Wassermann reaction negative; 16, died at 16 of "heart disease"; no rheumatism; 17, *a*, 37; not examined; a "sore" near anus; periodically "sheds" skin of soles; 18, *a*, 36; apparently well; Wassermann reaction negative; 3, *d*, 50, mother of preceding; cardiac dilatation following pneumonia; 4, mother's brother; died of "apoplexy" at 17; 5, sister, died at 38 of "heart disease"; no rheumatism; 6, *a*, 63; hypertension; several strokes of apoplexy; Wassermann reaction negative; 7, *a*, 60; apparently well; Wassermann reaction negative; 8, *a*, 58; was a seven months' baby; not examined; from history, probably hypertension; 10, stillborn twins; 1, maternal grandmother of·15, died at 64 of apoplexy; 2, husband of 1, died at 64 of "fatty heart."

The father died at 52 (No. 2) of pneumonia. The mother (No. 1) had hypertension for years, dying of uremia at 70.

In the first place it is significant that out of thirteen pregnancies four were miscarriages and four died in infancy. The oldest son (No. 3) escaped a prenatal infection only to acquire one later in life. The oldest daughter (No. 7) appeared to be well, but was not examined. The next oldest, an unmarried woman of 40 (No. 8), is said to have been delicate as a child. It is noteworthy that the pregnancy preceding the birth of this child resulted in a miscarriage and that three of the four succeeding pregnancies were likewise miscarriages; the fourth child died in infancy. At 12 she was very anemic. In her school work she was not up to grade, as she had difficulty in "grasping things," as she expressed it. For this reason a private tutor was provided, but she made very little progress because she was unable to concentrate her attention on what her teacher was saying. At 24 years of age she had a very severe attack of "nervous prostration." She cried much at this time, and thought people were talking about her, making unjust accusations against her character. She spent a month in bed, and ever since she has been extremely sensitive about being with people and has been more or less of a recluse. Nine years ago while on a shopping tour her legs began to tremble. She was taken home and was given a hypodermic and the twitching disappeared in about half an hour. For about six months the left side of her face would twitch; it was called "chorea."

Menstruations have been normal, but for about a year were preceded by an uncontrollable attack of "ugliness," as she described it. At these times she could not control herself, and several times she has required morphin. She is considered incapable in the household, and is not able to assume any responsibility. Her acquaintances consider her "peculiar." The family appears to be of the opinion that she is naturally disagreeable, and that if she really tried she could be like other people. She has been almost constantly under the care of a nerve specialist. The last few years she has been less nervous, though she is still far from normal. She is a tall woman, and appears to be in good health. It was not possible to make a physical examination. The Wassermann reaction was two plus (50 per cent. inhibition).

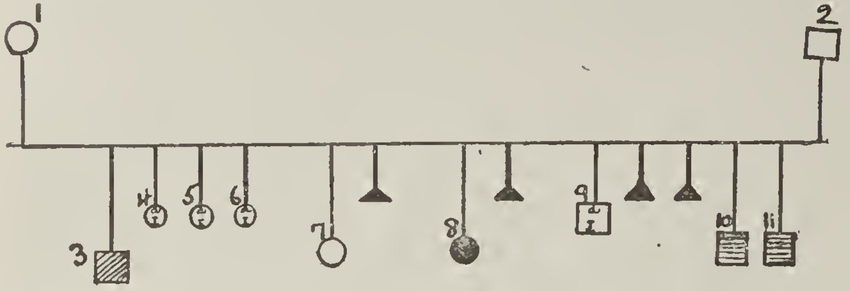

Chart 3.—Heredity chart, Family 3: 1, hypertension, died at 70 of uremia; 2, died at 52 of pneumonia; 3, hypertension; diabetes; acquired syphilis; 4, 5, 6, 9, died in infancy; 7, *a*, well; not examined; 8, *a*, 39, chorea; retarded development; Wassermann reaction + +; 10, *a*, 34, neurasthenic; visceroptosis; general pains; prematurely old; Wassermann reaction negative; 11, *a*, 30; petit mal; Wassermann reaction negative; spinal fluid negative.

The next youngest brother, aged 34 (No. 10), has always been a weakling. I first saw him in May, 1911, at which time he complained of stomach trouble and dizziness with gas after meals, and suffered with constipation. His tongue was "parched on awakening" and while he did not belch, he had a "continuous flow of foul gas" and also "trembling in his stomach." He was also a slender enteroptotic individual, sallow of complexion, delicate in appearance and with all the earmarks of a neurasthenic. He was put on a diet for constipation, given olive oil injections and exercises, and he improved considerably. For a time he had some mucus in his stools accompanied by cramps, but this finally disappeared. His whole demeanor, however, was one of listlessness, and he goes about most of the time as though in a trance. He is prematurely gray, and looks careworn and old.

It did not occur to me that he might be a heredosyphilitic when I first saw him five years ago, for at that time, in common with most physicians, I thought syphilis always wore the scarlet letter. His Wassermann reaction was negative a year ago, but he was put on mixed treatment, and at the end of three weeks his older sister volunteered the information that she had "never seen such a change in any one in such a short time." She said, "He is awake in the morning at the table; he reads the paper, seems alert and complains of no aches or pains. Prior to this his only conversation had been about his ill health." She also stated that he would go to business where formerly after breakfast he would sit down and go to sleep. She seemed to think there was some possibility that he might amount to something in business, so great was his improvement. The youngest son, the patient who suffered from the attacks of petit mal, has already been described. He was seen by two New York consultants, a neurologist and a syphilologist both of national repute, who saw no reason for assuming a syphilitis basis for the attacks; "Were not all the tests negative?" Quite naturally this family passed from my observation.

Case 4.—A married woman aged 35 (No. 20, Chart 4), complained of extreme nervousness. As a child she was very nervous, and would often awake screaming at night, fearing some one was in her room. Only when her father slept in her room, between her bed and the door, was she reassured. In childhood she suffered from pain in her right leg. This pain was always along the shaft of the bone, and never in the joint. For one year she had daily massage without benefit. Mud baths and hot salt rubs were also tried, but with no relief. Part of the time she was under the care of the physician to the royal family of Sweden. Tuberculosis of the bone was diagnosed, and when she was about 12 years old several operations were performed on the right leg below the knee, and also above the ankle and along the femur. She continued to have pains in her right leg, however, which were always most severe at night. For years she has slept poorly, partly because of nervousness, but largely as a result of the "rheumatism" in her leg. Walking about would often stop these pains, and nearly every night for years she has gotten up and walked the floor, often dozing off while walking, and waking as she stumbled over something. She had very poor endurance and occasional night sweats.

Six years ago, as the result of a fall, the right knee was injured and the patella is now firmly adherent to the tibia. The patient was so nervous that it was difficult for her to give the facts of her history. She presented no signs of hereditary syphilis. Teeth, palate and scapulae were normal. The pupils also were normal; left knee jerk very active, right not obtained, owing to the deformity resulting from the injury six years ago. There were several scars along the right femur and the tibia and over the lower third of the tibia tenderness was elicited.

The history, then, was that of a very nervous child with some disease of the bones of the right leg. This child developed into an unstable, nervous woman who slept poorly, complained of weakness, pain in her right leg and occasional night sweats. This was not the history of hereditary syphilis, surely, nor did the physical examination suggest it. The family history, moreover, is chiefly remarkable in that a large number died of tuberculosis ("TB," Chart 4). Her mother, maternal grandmother, maternal aunt and two uncles, two sisters and two brothers had all suffered from tuberculosis. Questioning, however, developed other symptoms that could not be attributed to tuberculosis.

While her mother (No. 3) died from tuberculosis, she suffered for many years from such headaches that she frequently would say she could stand the cough if the headaches would only stop. The mother's sister (No. 4) also had severe headaches, as did the maternal (No. 1) grandmother. Among her own brothers and sisters four are exceedingly nervous (9, 17, 18, 19), one has severe headaches, one strabismus, another was blind for several months (keratitis?), another is very myopic, and three have been alcoholic since early life (Nos. 9, 16 and 19).

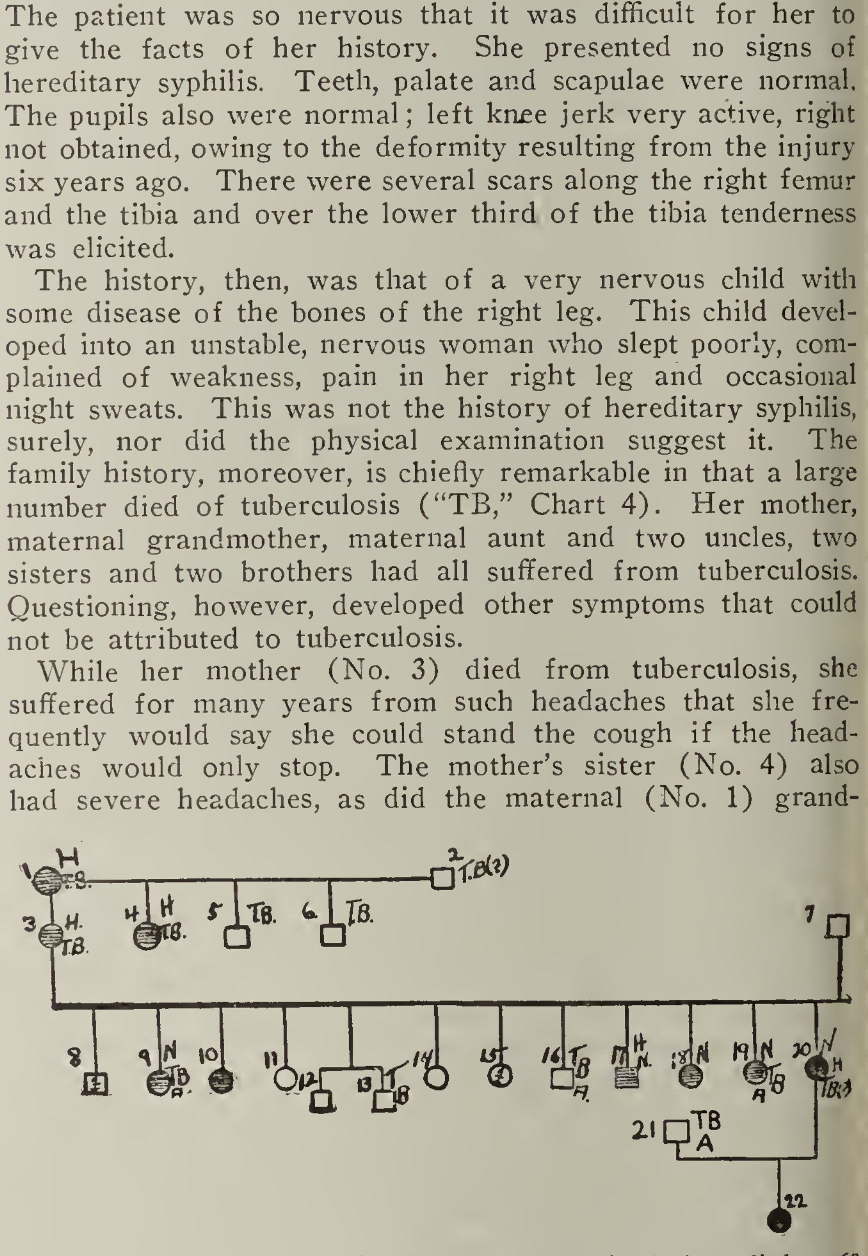

Chart 4.—Heredity chart, Family 4: 1, severe headaches; died at 60 of tuberculosis; +; 2, *d*, tuberculosis (?) "old man"; 3, severe headaches; tuberculosis at 30; died at 64; 4, headache; died of tuberculosis at 60; +; 5, 6, died of tuberculosis; 7, *d*, 60, cancer of the stomach; 8, 15, died in infancy; 9, chorea; extremely nervous; strabismus; alcohol; died at 45 of tuberculosis; 10, *a*, 50, blind several months; 11, very myopic; died at 4 of "tumor"; 12, alive, well; 13, *d*, tuberculosis; 14, *d*, "tumor of neck"; 16, *a*, tuberculosis; alcohol; 17, *a*, very nervous; "terrible headaches"; 18, *a*, very nervous; 19, very nervous; alcohol; died at 19 of tuberculosis; 20, *a*, 30; +; very nervous; headache; bone disease (tuberculous?); "rheumatism"; Wassermann + + + +; cured (?) by treatment; 21, husband of 20; Wassermann negative; 22, aged 11; interstitial keratitis; deaf; Wassermann + + + +; "cured" (?) by treatment.

It is unlikely that I would have thought of hereditary syphilis in connection with this patient had it not been that her only daughter (No. 22), a large, well developed girl of 13, had been a patient of mine with interstitial keratitis and an eighth nerve involvement. This daughter and her mother had four plus Wassermanns, but the father (No. 21) gave a negative test.

The response to treatment confirmed the diagnosis. The patient received a number of injections of salvarsan and for several months took mercuric inunctions. The improvement was so prompt and so marked that she could not understand it. From a high strung woman on the verge of tears she has developed into a perfectly calm self-contained individual entirely free from any suggestion of "nerves."

Six months after the first salvarsan she said that she had not lost one night's sleep since the treatment. A month later, she stated that she was in better health than she ever had been before in her life, and what seemed most surprising was the fact that, notwithstanding several weeks of almost constant rain, she had had absolutely no rheumatism. This past winter, though she has worked in a little grocery store with scarcely any heat, she has had no recurrence of her pains.

This family illustrates in the first place how deceptive an incomplete family history may be. On the surface it appeared to contain only an unusually large number of cases of tuberculosis; but a complete study reveals certain symptoms that tuberculosis would not explain. It also illustrates the truth of Fournier's contention that hereditary syphilis presupposes to tuberculosis. But most important of all, it illustrates that the study of a child may shed some light on the ill health of a parent.

It is not known through how many generations syphilis can be transmitted. The activity of the process in the daughter with interstitial keratitis, the offspring of a heredosyphilitic mother, was manifestly such an active infection, that there seems little doubt that she could have given birth to syphilitic children. Had the child been a boy it is perhaps possible that he could have passed on the disease to another generation from infection by means of his semen.

During the past year three children have come under my observation because of a marked nasal catarrh. The discharge was thick and purulent, though not of offensive odor. The Wassermann was strongly positive in two. The third, the son of a syphilitic, was not tested, but he was put on inunctions of mercury with mmediate and marked improvement. An equally satsfactory result was obtained in one of the other cases. The third child did not receive treatment. The folowing case is illustrative of what may result when such a condition is unrecognized:

Case 5.—An unmarried girl of 18 (No. 35, Chart 5), was referred to me three years ago by a nose and throat specialist who suspected she might have a syphilitic process of the nterior of the nose. She was a pretty buxom girl with excelent teeth, a normal palatal arch, and presenting absolutely no signs of hereditary syphilis. There was a purulent foul melling discharge from the nose, which was increased in width at its base. She gave a strongly positive Wassermann. The doctor who referred her to me suspected she was an immoral girl, and I concurred with him in his opinion. It was not until over a year later that I made a special study of her own early history and that of her family. When she was 8 or 10 years of age she was a mouth breather; the ondition was not improved by the application of adhesive plaster on her mouth, and finally at about the age of 15, her denoids were removed. She still continued to have a nasal discharge, and received treatment from various specialists nd clinics. She was at first told it was hay-fever and that in the fall it would probably go away. The nasal discharge increased, however, and she would have crusts form in the nterior of the nose.

Shortly before I saw her a physician had told her she had probably contracted a contagious disease from a drinking cup, but the nature of the disease she was entirely ignorant of. One month previously, her nose had begun to swell. Over a year later a sister of this girl, aged 23 (No. 32), came to me complaining of transient swelling of her lips (angioneurotic edema?) and nasal catarrh. She was always "catching cold in her head." Her endurance had always been poor. Although 23 years old, she did not appear to be either mentally or physically more than 18. Except that she was a slender, frail, immature girl, her physical examination would be called negative but for her teeth. She had probably had hypoplasia of all six year molars; they were extremely yellow, and the lower incisors were yellow at the tips. The Wassermann was three plus.

Several months later another sister, aged 22 (No. 33), consulted me because of sudden "cramps" in the calves of the legs (intermittent claudication?). Following an illness at the age of 12, said to have been typhoid, she had ulcers on her legs. She was exceedingly nervous, and all of her life had suffered more or less from headaches, chiefly across the forehead and invariably worse at her menstruation periods. Her Wassermann was strongly positive.

A third sister, aged 19 (No. 34), suffered from epilepsy. She, too, had been subject to severe headaches, and in childhood had suffered from severe pains in her legs, referred to as "growing pains." She had always been nervous. The Wassermann test showed complete inhibition. Following the use of mercury inunctions, the nervousness was notably less.

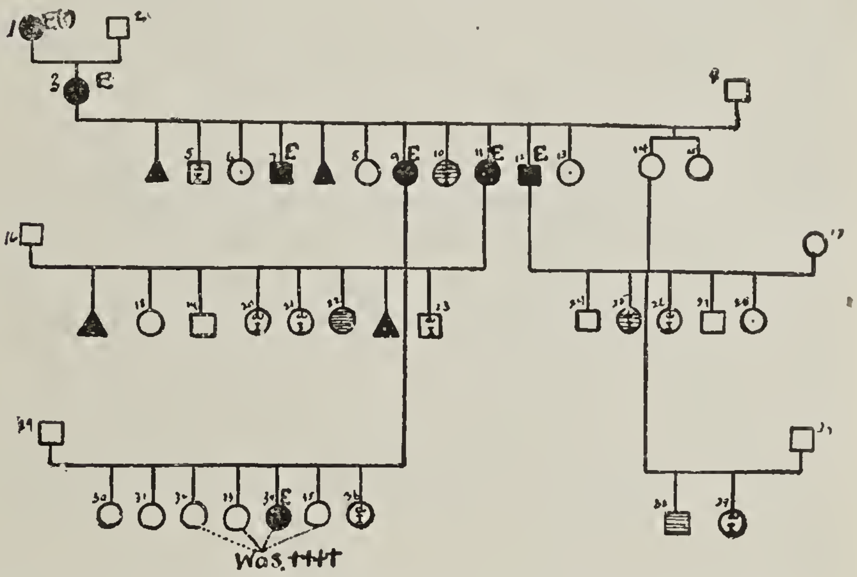

Chart 5.—Heredity chart, Family 5: 1, *d*, 84, probably epileptic; 2, *d*, 80; 3, *a*, epileptic; 4, *d*, 62, arteriosclerosis; 6, *a*, well, 60; 7, epileptic, *d*, 40, heart and kidney disease; 8, *a*, well, 50; 9, *a*, epileptic; married; 29; a drunkard and suicide; positive Wassermann reactions from their children, 32, 33, 34 and 35, and 34 is epileptic; 10, teeth at 1 week; dropsy; died at seventh year; 11, *a*, epileptic; had two miscarriages; three children died in infancy; a daughter, (22), arrested development; 12, *a*, epileptic; Wassermann reaction negative; 13, *d*, Bright's disease; aged 23; 14, *a*, said to be well; her son, 38 has a very large head and is mentally deficient; 15, *d*, 21, cause (?); 5, 20, 23, 25, 26, 36, 39 died in infancy; 24, *a*, frail, Wassermann reaction negative; 25, "blue baby"; 28, very frail.

This family, then, presented four girls, one of whom had rhinitis, three were very nervous, one was an epileptic, one gave evidence of an arrest of development both physically and mentally, and two had headaches.

As the father was a drunkard and suicide and the mother an epileptic, the so-called neuropathic heredity would explain all of the symptoms, save the nasal lesion, were it not for the positive Wassermanns. It is quite possible that the mother contracted syphilis from her husband. There is considerable, on the other hand, to suggest that the mother may have been heredosyphilitic.

One maternal aunt (No. 11) and two maternal uncles (Nos. 7 and 12) suffered from epilepsy, as well as the maternal grandmother (No. 3), who is still living at the age of 80. Her health otherwise is excellent, and she is a very active woman. Her mother (No. 1) lived to the age of 84, and is also stated to have suffered from "fits." One maternal aunt, (No. 11), and uncle, (No. 12), and the grandmother gave negative Wassermann tests.

It was not possible to make a complete study of the children of the other members of the family. A daughter (No. 22) of one of the epileptic aunts, however, was immature in appearance and had abnormal teeth. This aunt had also had two miscarriages and lost four children in infancy or childhood. Another sister (No. 14) has one living child of 6 years who has a very large head and is mentally deficient. Another of the mother's third sisters (No. 10) had teeth at one week and died of dropsy at 7 years of age. Two sons (Nos. 7 and 13) died from kidney disease.

Care must be exercised in differentiating between what might be called incidental syphilis which merits consideration but no therapy, at least for the moment, and what we may designate as pertinent syphilis.

As an example of the former, mention might be made of a case of pneumonia recently seen in consultation. The patient, a young woman, had a large bulging forehead. Two sisters had similar foreheads. The mother was prematurely gray and very nervous. The father had a third nerve palsy. It was unnecessary to ask questions or make blood tests to diagnose familial syphilis, but this was purely incidental to her pneumonia. However, should her convalescence be protracted, the underlying hereditary syphilis might become pertinent and her improvement hastened by specific treatment.

The Wassermann test is unquestionably the most valuable laboratory test yet discovered, but to depend on it exclusively is to court disaster. There are three classes of physicians who attach undue importance to this test: first, the lazy physician who would rather some one else would make his diagnosis for him; second, the man incapable of taking a complete history and making a thorough examination, and lastly the type which Christian has so well described as the man who "with but a slight glance at his patient, and no conception of the patient's symptoms, rushes to his laboratory tests with the idea that scientific accuracy increases by the square of the distance from the bedside and by the cube of the time spent in carrying out a test."

To the dictum, "When in doubt have a Wassermann test," we should add, "but first make an intensive study of the family."

ABSTRACT OF DISCUSSION

Dr. W. W. Graves, St. Louis: I have on several occasions called attention to the importance of studying the whole family where one of its members gives even the slightest indication of syphilis. One of the cases reported by Dr. Stoll, in which he suspected syphilis in the third generation, was brought to him because the patient had interstitial keratitis, and he studied every member of the family and found that the parents and grandparents in that family were syphilitic. Dr. Kaskell, in discussing Dr. Drysdale's paper, stated that a recent study had shown the Wassermann reaction in 40 per cent. of the wives of paretics and tabetics was positive, whereas only a small number of the progeny of these paretics and tabetics gave positive Wassermann reactions. In our study of syphilis we are inclined to rely too much on positive and negative Wassermann or luetin reactions, whereas we should study the family, not only as far as the history of that family is concerned in all its details, but we should, as well, make comparative clinical studies of families. If there is one thing that is particularly characteristic of the progeny of syphilitic parents it is the deviation to be found in such progeny when compared with the parents. I grant that it is common to find children of syphilitic parents who compare favorably with other children of the community, but the only standard we have for the individual is how he compares with his ascendant, and those who are most accessible are the parents, and then a comparison of each child with the other. The characteristic thing of children born of syphilitic parents is that they do not compare favorably with their parents, particularly in their physical endowments and in their resistance to disease. We know how rare are Hutchinson teeth, how infrequent is interstitial keratitis, how rare is deafness without otitis, and how infrequent is the Wassermann reaction, but if we study every member of the family in a comparative clinical way we cannot fail to find gross deviations which demand explanation. The most pernicious effects of syphilis are on the parental germ plasm, from which the individual develops; hence the deviations and the vulnerability to disease of syphilitic progeny.

Dr. A. L. Skoog, Kansas City, Mo.: I recently studied an interesting case, a girl of 18, who five months ago developed a hemichorea involving the right leg, arm and face. It was progressive. Outside of that there were practically no clinical findings; the reflexes were but very little different on the right side as compared with the left. A Wassermann was made on the blood which resulted in a 4 plus positive. The spinal fluid likewise showed a 4 plus positive. There was no lymphocytosis. The globulin content was increased. This girl's father and mother died when young, the patient being the only child. I could not find positive cause of death in either parent, but suspected vascular syphilis. Two sisters on the maternal side are living in the same city and are now being treated for late syphilitic troubles after certain positive diagnosis had been made.

Dr. William Ravine, Cincinnati: I would like to ask Dr. Graves if the scaphoid scapula can still be looked on as one of the stigmata of hereditary syphilis, or if there has been reason to change the view concerning this finding. In the work of examining juvenile delinquents I always look and note the existence or absence of the scaphoid scapula, and very often we find nothing else of value.

Dr. W. W. Graves, St. Louis: I have never stated that the scaphoid scapula should be considered a sign, in itself, of congenital syphilis in the individual or of syphilis in his parents. There is but one way to determine its significance, and that is to study every member of the same generation for the scaphoid scapula and what I have called its correlations, plus a similar study of the parents and other ascendants. The scaphoid scapula is of great value as a clew, but as evidence of congenital syphilis it should never be used alone. Since finding the scaphoid scapula eight years ago and later indicating its clinical significance, I have feared that the profession might use the scaphoid scapula as a pathognomic sign of congenital syphilis, whereas nothing could be further from the truth.

Dr. Henry Farnum Stoll, Hartford, Conn: I want to add my testimony to what Dr. Graves has just said in regard to the scaphoid scapulae. As examining physician of an outdoor school of a hundred pupils, in the course of a year I see a good many children and for over a year I have been on the lookout for scaphoid scapulae. I have been fortunate in having a social worker who has made intensive studies of the families for me and I agree with Dr. Graves that when it is possible to make a complete study of the parents and grandparents, one can nearly always find symptoms or signs strongly suggestive of syphilis. Occasionally it is the only stigmata. Fournier, who years ago said that paresis and tabes were due to syphilis, also stated that the heredo-syphilitics of the weakling group are especially prone to tuberculosis. When they develop this disease it is especially apt to be fatal. A Colorado physician has recently made a special study of a series of cases of tuberculosis that were doing badly and found that a high percentage showed various dystrophies. He did not deduce, however, as I think he should have, that these dystrophies were probably due to hereditary syphilis. We should commence to teach the public that syphilis is exceedingly common and that it is liable to occur in any family. We should teach them to look on syphilis as a misfortune, not as a disgrace, for there ar more innocent than there are guilty sufferers. Until w promulgate this idea we shall fall short of solving the problem of syphilis.

Self-Education.—The best part of every man's education i that which he gives to himself.—Sir Walter Scott.

STUDIES ON THE EFFECTS OF ACIDS *

ARTHUR D. HIRSCHFELDER, M.D.
MINNEAPOLIS

In 1891, Franz Hofmeister,[1] the physiologic chemist of Strassburg, demonstrated that if disks of gelatin vere brought into water and solutions of neutral salts, hey gained less in weight in some solutions than in others. The inhibition of the swelling depended on he nature of the salt, tartrates, citrates, acetates, phoshates and sulphates, causing a greater inhibition than lid chlorids, bromids and nitrates. In 1908, Martin H. Fischer[2] performed the same experiments, but dded hydrochloric acid to the solutions, and in these cidulated solutions obtained results similar to the bove-mentioned results of Hofmeister. Fischer perormed his experiments not only with gelatin, but also vith fibrin and numerous tissue colloids. He found the ame conditions to apply to them all, namely, all the alts inhibited the swelling of colloids, which was rought about by immersing them in acids, and did so n about the order given by Hofmeister.

Fischer applied this experiment to the most varied henomena that concern the transfer of water within he body, and explained absorption, swelling and dema by an increased swelling or absorption of water y the colloids of the tissues. On the other hand, he xplained excretion and disappearance of edema by he giving off of water when the power of the colloids o hold it in hydration became diminished.

By merely applying the findings made by Araki,[3] that ocal asphyxia gives rise to local formation of acids, nd the findings of Ranke and Jacques Loeb[4] that cuting off the circulation gave rise to similar acid formaion in the dead or injured tissues accompanied by welling of the latter, Fischer reasoned that all injured ssues were acid to the rest of the body, and therefore bsorbed water and became edematous.

Fischer, moreover, has made use of the same experinent to explain the action of drugs which accelerate ecretion, especially that of the salts with diuretic and urgative action. All these salts fall in the group that nost inhibit the swelling of fibrin in acid solutions. It as to this property that he ascribed the production f their specific effects, and on the basis of this coneption he has recommended their use in the treatnent of nephritis, edema and even glaucoma.

His doctrines are on the one hand so revolutionary hat they have challenged opposition from many sides, nd on the other hand, so fascinating that any one who ves a beautiful chemical theory would be actuated a desire to confirm them.

It was in this spirit that I proceeded to repeat the xperiment of Hofmeister or Fischer to demonstrate e rôle of the purgative and diuretic salts in inhibitg the swelling of fibrin, and was able to confirm it osolutely. For example, when 20 c.c. of fortieth olecular hydrochloric acid are added to 0.25 gm. owdered fibrin in a test tube, the latter swells up to a height of about 5 cm. within a few hours. In solutions containing fortieth molecular sodium chlorid, sodium nitrate, sodium bromid, as well as the same amount of hydrochloric acid, the fibrin swells to only about half this amount, while in the mixtures containing citrate, tartrate, phosphate and sulphates the swelling was scarcely more than in distilled water.

However, when these solutions were tested with various indicators, it was found that while the mixtures of chlorids, bromids and nitrates possessed almost the acidity of the original acid and could form tropeolin OO corresponding approximately to p_H^+ log — 2, the citrates, tartrates and phosphates were barely acid to paranitrophenol (corresponding to p_H^+ log — 5).

Determinations of the H ions made by means of the Frary hydrogen electrode by Mr. Elmer Fegan of the chemistry department showed the acidities given in the accompanying tabulation.

ACIDITIES

Fortieth normal hydrochloric acid	0.8	$\times 10^{-2}$
Fortieth normal potassium bromid	8.0	$\times 10^{-3}$
Fortieth normal sodium nitrate	7.5	$\times 10^{-3}$
Fortieth normal sodium sulphate	9.1	$\times 10^{-3}$
Fortieth normal sodium tartrate	3.5	$\times 10^{-4}$
Fortieth normal disodium phosphate	7.3	$\times 10^{-5}$
Fortieth normal sodium citrate	3.0	$\times 10^{-5}$
Water	6.4	$\times 10^{-7}$

When, however, the tubes containing tartrates, citrates, acetates and phosphates were brought up to the same degree of acidity as those containing chlorids, nitrates and bromids, either by adding strong hydrochloric acid so as to leave the anion unchanged, or by adding the corresponding acid so as to vary the anion, the fibrin then swelled to about the same degree in all of these mixtures as it did in those containing the other neutral salts. In the case of all these acids, swelling depends chiefly on the H ion except that all the neutral salts tested inhibited swelling to approximately the same degree. The striking exception was the sulphates, for in sulphate-containing solutions the fibrin did not swell as it did in the other acids; and indeed when either sodium sulphate or sulphuric acid was added to a tartrate solution in which the fibrin had already swelled, the latter at once began to contract down to a marked degree, and within a few hours had lost about half its volume.

These findings demonstrate that Fischer's doctrines of specific actions of diuretic and purgative salts on the swelling of colloids, if true, would apply to the sulphates alone; and so far as they are applied to the action of acetates, citrates, tartrates and phosphates they must be susceptible of some other explanation. It demonstrates, moreover, that except for the sulphates, the coincidence with the Hofmeister scale of actions in Fischer's experiment depends on the H ion concentration and not on the rest of the action involved.

The action of these salts in their effects on edema is closely bound up with the theories of edema itself. It must be at once recognized that the experiments of Loeb and Fischer which deal with the swelling of parenchymatous tissues falls as has been claimed by von Monakow,[5] into a somewhat different category from that of the common edemas. The latter are merely collections of lymph in the spaces of the interstitial tissue, usually loose areolar tissue, not *in* the cells but *between* them. Even if one were to grant the cor-

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* From the Department of Pharmacology, University of Minnesota.

* The expenses of this research were defrayed by a grant from the search fund granted by the regents of the university.

* Read before the Section on Pathology and Physiology at the xty-Seventh Annual Session of the American Medical Association, etroit, June, 1916.

[1] Hofmeister, Franz: Arch. f. exper. Path. u. Pharmakol., 1888, iv, 247; 1888, xxv, 1; 1890; xxvii, 395; 1891, xxviii, 210.

[2] Fischer, Martin H.: The Nature and the Cause of Edema, The urnal A. M. A., Sept. 5, 1908, p. 830; Oedema and Nephritis, New rk, John Wiley & Sons, 1915.

[3] Araki, T.: Ztschr. f. physiol. Chem., 1891, xv, 335; 1894, xix, 422.

[4] Loeb, J.: Arch. f. d. ges. physiol., 1898, lxix, 1; 1899, lxxi, 457; v, 303.

[5] Von Monakow: Deutsch. Arch. f. klin. Med., 1914, cxv, 47, 224; 1914, cxvi, 127.

rectness of Fischer's theories, they could not necessarily apply in the same way to interstitial edema.

An excellent medium for the study of such an interstitial edema is furnished by the conjunctivitis produced by the instillation of mustard oil into the conjunctival sac in rabbits.

This lesion is characterized by a very intense edema of the subconjunctival tissue. The edema fluid is colorless, and its reaction can readily be shown by the injection of indicators. It is alkaline to paranitrophenol (change at p_{H^+} log — 5), to rosalic acid (p_{H^+} log — 6) but acid to phenolphthalein (p_{H^+} log — 8), whereas, injection of phenolsulphonephthalein, which is a more delicate indicator (Levy, Rowntree and Marriott[6]) shows that its reaction lies between H log — 7.2 and log — 7.5 close to the alkalinity of venous blood. Since the blood can become less alkaline than this without edema occurring in these tissues it seems highly unlikely that this factor could be responsible for the development of edema. The reaction corresponds well with the figures obtained for transudates and for most exudates by Foa, Hanzlik, Loeb, Rowntree and Marriott, and demonstrates that the development of the subconjunctival edema can scarcely be ascribed to an acidosis.

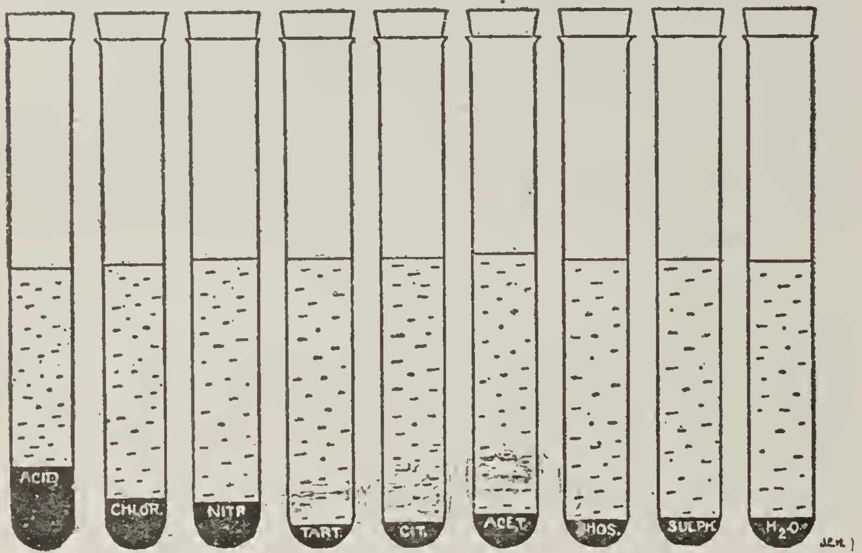

Fig. 1.—Series of test tubes containing 0.25 gm. beef fibrin plus hydrochloric acid and various sodium salts. Acid, hydrochloric acid in concentration just sufficient to turn dimcthylamidoazobenzol pink (approximately, p_{H^+} log — 3). The tubes marked "chlor.," "nitr.," "tart.," "cit.," "acet.," "phos." and "sulph." contain the same amount of hydrochloric acid as the "acid" tube, but each tube contains besides this an amount equal to fortieth molecular sodium chlorid, nitrate, citrate, tartrate, acetate, phosphate and sulphate, respectively. The acidity of this series ranges from p_H log — 3 to p_H log — 6.

Moreover, if the lid is excised entirely, placed in Ringer's solution, and very slightly acidulated with hydrochloric acid until it is just acid to paranitrophenol, no edema whatever develops. The same is true when mustard oil is instilled into the rabbit's eye if the lid is cut out within three or four minutes after the instillation; that is, before the edema has had time to develop. If the lid is placed in Ringer's solution, or in serum of either the same or another rabbit, it does not become edematous even though it is left there for several days. This proves that the development of the edema in this case cannot be due to simple absorption of water by the colloids of the tissue; for if this were the case the absorption should go on as well in vitro as in vivo.

Moreover, as experiments of Spiess[7] and Ninian Bruce[8] have shown, the development of edema under conditions like that pertaining in the case of mustard oil conjunctivitis is very largely dependent on the local circulatory conditions.

Spiess showed that application of local anesthetics hindered the development of edema, and Bruce demonstrated that this depended on the maintaining of the afferent nerves intact; for edema did not develop after the application of mustard oil to the conjunctiva if the trigeminal nerve had been cut and allowed to degenerate. He showed, moreover, that the inhibition of edema could not be due merely to some sensory reflex, since edema did develop if the application were made soon after the cutting of the nerve, before degeneration of the vasodilators was complete. But since no edema developed from an application of mustard oil after a sufficient length of time had elapsed to allow these vessels to degenerate, he concludes that the vasodilator nerves must remain active in order that the formation of edema may be brought about. Moreover, it can easily be shown that if epinephrin is applied to the conjunctiva immediately after the instillation of mustard oil, the development of edema may be delayed for several hours until the vasoconstrictor effect of the epinephrin wears off.

All these points taken together tend to throw doubt on the theory that edema of interstitial tissue is more dependent on the swelling of the colloids of the edematous tissues than on circulatory factors.

ABSTRACT OF DISCUSSION

Dr. Martin H. Fischer, Cincinnati: Franz Hofmeister never put protein into an acid medium and noted its swelling. He worked exclusively on the swelling effects of the salts of the alkali metals and alkaline earths. The discovery that acids and alkalies increase protein swelling was made by Spiro, and its detailed study was first undertaken by Wolfgang Ostwald. The antagonism between neutral salts and acids on protein swelling was discovered by me. Because of its importance for the explanation of different biologic facts, and because its discovery made possible the establishment of the analogy between the laws governing water absorption by tissues and water absorption by proteins, I have every reason for remembering where and when I discovered it. In biologic material, the effects of acid in pro-

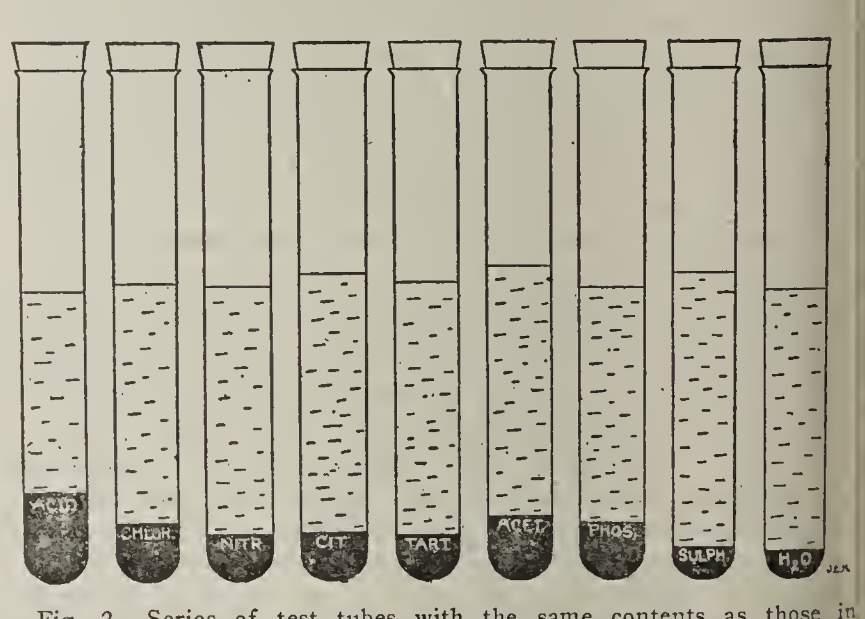

Fig. 2.—Series of test tubes with the same contents as those in Figure 1, except that enough hydrochloric acid has been added to each tube to render it just pink to dimethylamidoazobenzol (approximately the same hydrogen ion (p_{H^+}) content as that of the "acid" tube). The fibrin in all the tubes containing salts except that in the sulphate tube has swollen to about the same dimensions as that in the chlorid and nitrate tubes or even more so.

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[6] Levy, R. L.: Rowntree, L. G., and Marriott, W. McKim: A Simple Method for Determining Variations in the Hydrogen Ion Concentration of the Blood, Arch. Int. Med., September, 1915, p. 389.

[7] Spiess, G.: München. med. Wchnschr., 1906, p. 345.

[8] Bruce, A. Ninian: Arch. f. exper. Path. u. Pharmakol., 1910 lxviii, 424.

ducing tissue swelling were first noted by Otto Nasse in the sixties. It was subsequently discovered by the plant physiologists in plant tissues. It was the discovery of the antagonism between the neutral salts and acids in the swelling of proteins that furnished the last link establishing the identity of water absorption by colloids and by living tissues, and which, by explaining on a colloid-chemical basis what had previously been called osmotic, put the whole osmotic theory of water absorption by protoplasm on the defensive.

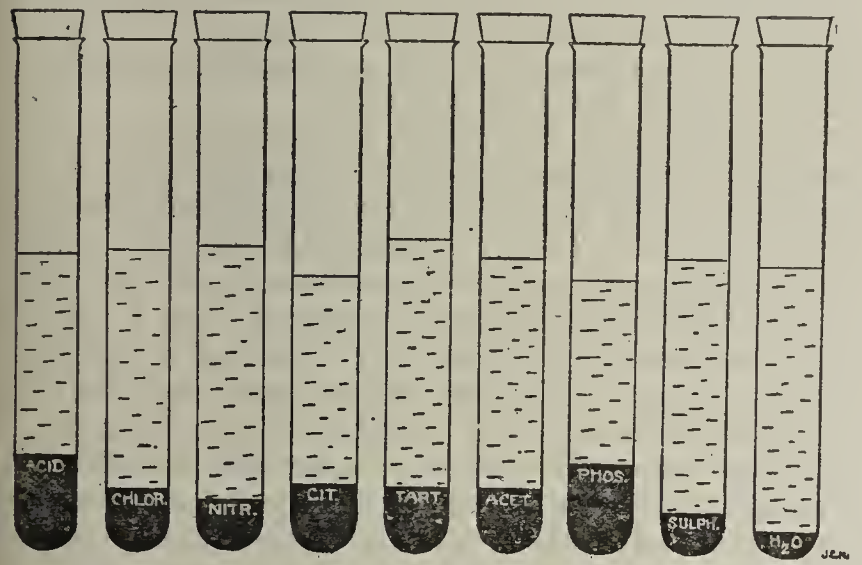

Fig. 3.—Series of test tubes with the same amount of fibrin and the same amount of salts as in Figures 1 and 2, but none with hydrogen ions brought to the concentration which just turns dimethylamidoazobenzol pink by the addition of the acid whose action corresponds in each case with that of the salt added; showing that increasing the action does not, except in the case of sulphate, prevent the swelling of the fibrin brought about by increasing the hydrogen ions.

When Dr. Hirschfelder talks of "acidity" he invariably means hydrogen ion acidity. In my writings, I constantly speak of an "increased acid content," which is something totally different and which may or may not be followed by changes in hydrogen ion acidity. It is perfectly obvious that when we add the salt of a "strong" base with a "weak" acid to any acid, we can and do neutralize the acid thereby and so reduce the hydrogen ion acidity of the mixture. My original point, that these biologic swellings do *not* follow the hydrogen ion acidity, is supported, however, by far more evidence than Dr. Hirschfelder has introduced. Protein does not swell equally, for example, in a series of different equionic acids, and he himself admits that a sulphate reduces swelling without altering the hydrogen ion acidity. Dr. Hirschfelder brings up again that old distinction in edema between the fluid in a cell and the fluid surrounding it. The swelling of the parenchymatous tissues I have defined in the terms of colloid chemistry as an increased hydration capacity of their constituent colloids. The edema fluid surrounding such a swollen cell is water of syneresis, a product like and produced similarly to the so-called "condensation" water formed in our colloid bacteriologic mediums. It is really squeezed off by the colloid mass. Dr. Hirschfelder's experiments on the production of edemas of the eyelids by the use of mustard oil are similar to those of Chiari. Against Dr. Hirschfelder's views that these swellings are not colloid in type stand Chiari's findings that such edemas are easily relieved by use of those most powerful dehydraters of proteins, calcium salts. Dr. Hirschfelder's experiments on eyelids are, moreover, subject to the same criticism which I directed against Bauer's observations on the brain—both work with tissues so stale that they have exceeded their optimum swelling point. Ringer's solution is not a substitute for blood, but a mixture of salts devised by Ringer in his experiments on excised heart muscle. The excised heart muscle suffers from lack of oxygen and therefore requires more salt from the beginning, in order to maintain its normal weight, than is required in the body. Ringer's solution, injected intravenously, is therefore found to be not a "physiologic" salt solution, but a decidedly hypertonic one. When eyelids are placed in blood serum, the experiments of Beutner are imitated. No swelling then results because no "free" water is present; it is all tied to the colloids in the blood serum.

Finally, I want to add a word regarding the importance of acid as a factor in producing edema (hydration). Were acid proved to be of no importance at all in this matter—which it will not be—it would not affect my fundamental contention that edema represents an increased hydration capacity of the tissue colloids. I have said that an abnormal production or accumulation of acids in the affected cells is one cause, but not the *only* one. While many have said that this is not true, they have not suggested any other factors that might work. I have myself added three, namely, the amins, urea and pyridin. More are destined to be discovered, and when they can be shown to be factors in increasing hydration in the case of the body, they become "causes" for edema. But a hundred such added causes do not change the fundamental fact that the colloids of the body and their state determine chiefly the amount of water held by a cell, a tissue or an organ under physiologic and pathologic circumstances.

Dr. Arthur D. Hirschfelder, Minneapolis: I hope I have not given to any one the idea that I did not desire to accord to Dr. Fischer full credit for priority and originality in the elaboration and introduction of the theory of colloid chemistry, of the imbibition of water in colloids, as a causal factor in edema and absorption. As regards the specificity of the ions which Dr. Fischer has shown, and as regards the fact that one cannot rely entirely on the hydrogen ion concentration for the production of the effect, I mention the uniformity of results in mixtures of acid with a constant hydrogen ion concentration in connection with some of the important salts which have diuretic and purgative action, namely the phosphates, the citrates and the tartrates. These contrast with Dr. Fischer's experiments. Dr. Fischer and I certainly agree entirely as regards the sulphates, and I have no desire at all to limit the conception to the idea that there were not numerous other acids whose salts, like the sulphates, inhibit swelling. As regards the factors concerned in the development of the edema in conjunctivitis from mustard oil, we can disregard as irrelevant the experiments with calcium salts, sodium codosobenzoate, etc., and confine ourselves to the consideration of the experiments I have just given. If we cut out the lid and place it at once, perfectly fresh, in rabbit's serum, it fails to swell. That is, it fails to imbibe water from the serum whether we regard that as a true solution containing suspensions or as a hydrated colloid containing about the same amount of water of hydration as the plasma or lymph. If the lid after mustard oil becomes edematous within the animal by imbibition of water from the blood or lymph it should do so when excised and immersed in serum. It seems to me, therefore, that if parenchymatous organs like brain, kidney and muscle are capable of doing this, and interstitial tissues like the conjunctival tissue are not, we should have to recognize an inherent difference between parenchymatous swelling and interstitial edema and regard the latter simply as an oversecretion of lymph.

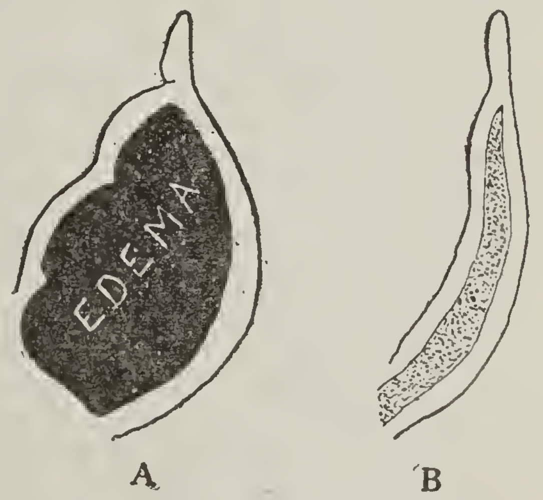

Fig. 4.—*A*, cross-section of a rabbit's eyelid excised from the rabbit one hour after the instillation of 2 drops of mustard oil into the conjunctival sac. The mustard oil was washed out with sodium chlorid four minutes after instillation. The edematous tissue is shaded black. *B*, cross-section of a rabbit's eyelid excised four minutes after the instillation of mustard oil and immersed in rabbit's serum for one hour. The dotted area represents subconjunctival tissue free from edema.

THE RESISTANCE OF ERYTHROCYTES IN NORMAL RABBITS AND GUINEA-PIGS

AND THE CHANGES PRODUCED IN EXPERIMENTAL PURPURA *

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Several times one of us has made the observation that in acute hemorrhagic dyscrasia (purpura hemorrhagica, severe anemia, etc.[1]) when purpura is present, a decrease in the resistance of the red cells to hypotonic salt solution frequently occurs. This has been quite marked at times and has led us to believe that there is a direct association between changes in the red cell resistance and the occurrence of purpura. Furthermore, as we have observed changes in the resistance only during the acute onset of purpura, or while the purpura was developing and not during subsidence of the symptoms, it has occurred to us that the decreased resistance might be a factor in the pathogenesis of the purpuric lesion. The present work was therefore undertaken in order to determine whether or not in experimental conditions simulating purpura in man such changes in the resistance of the red cells are constant.

TECHNIC

On account of the few available figures on the resistance of normal erthrocytes of rabbits and guinea-pigs, we have first endeavored to establish a standard average resistance for the erythrocytes of this species. The resistance of the red cells was tested by adding 1 drop of blood to 1 c.c. of hypotonic salt solution in strengths which were progressively increased 0.025 per cent. from 0.250 per cent. to 0.550. The results are expressed graphically in Table 1, together with the results with dogs and in man for comparison.

In our attempts to produce purpura, we first utilized agents said to be capable of producing purpuric lesions, as benzol (benzene, C_6H_6) and diphtheria toxin. The use of benzol was suggested by the work of Selling,[2] and of diphtheria toxin by that of Duke,[3] who states that he has occasionally produced purpura in animals by the use of diphtheria toxin. In a series of six rabbits, we were unable to produce purpura with benzol. The drug was given in varying doses; it produced the characteristic change in the blood picture, that is, an anemia and a leukopenia, yet in no case did evidences of purpura appear. Seven rabbits and three guinea-pigs were injected with sublethal doses of diphtheria toxin. Of these, five rabbits and all the guinea-pigs were injected daily, and all died from two to twelve days after the first injection. Two rabbits receiving only three doses of the toxin with two days intervening between each injection survived the treatment. The guinea-pigs all showed slight signs of purpura[4] when examined postmortem. In all of them were found ecchymoses in the subcutaneous tissue at the site of injection and minute petechial spots either in the perirenal fat, the omentum, the epididymis or the suprarenals. Only two of the rabbits showed at necropsy any evidence of purpura, as evidenced by occasional petechiae in the serous covering of the abdominal parietes. During life none of these animals showed changes in the number of platelets. The two surviving rabbits at no time showed any external manifestation of purpura or any noteworthy changes in the blood picture. An example of these essentially negative results may be seen in Table 2.

The failure of our efforts to produce constantly definite purpura, by the methods described, forced us to experiment with the more elaborate method described by Ledingham.[5] This is a method devised by Ledingham in connection with his confirmation of the work of the French investigators LeSourd and Pagniez,[6] which depends on the use of a so-called antiplatelet immune serum. With this serum the production of purpura experimentally is attended with no difficulty.

In the preparation of this serum the modification devised by Lee[7] was followed, as it was considered to be a more satisfactory technic than that advised by Ledingham. The latter author recommends the use of the supernatant cloudy fluid which overlies the white and red layers of centrifuged defibrinated blood. With this technic sufficient amount of platelets could not be secured to recompense for the time or the number of animals required. The technic of Lee, therefore, was followed, in which 20 c.c. of blood are drawn from the guinea-pig by inserting the needle directly into the heart. The blood is then placed immediately in a weak potassium oxalate solution (potassium oxalate, 2 gm.; sodium chlorid, 4 gm.; distilled water 500 c.c.). The blood is then centrifuged, the overlying layer of white platelets sucked off with a pipet, placed in a narrow centrifuge tube (1 cm. in width), normal salt solution added and the whole again centrifuged, in order to have as few red cells as possible in the platelet preparation. The final preparation taken up in salt solution consists essentially of platelets, though at no time was it found possible to prepare an emulsion absolutely free from red cells. The yield of platelets from the blood of two guinea-pigs was considered the amount necessary for injection into one rabbit.

TABLE 1.—RESISTANCE OF ERYTHROCYTES OF DIFFERENT SPECIES (AVERAGE)*

	Number of Animals	Resistance	
		Complete (Maximum)	Begins (Minimum)
Rabbit	21	0.395	0.525
Guinea-pig	23	0.312	0.420
Dog	22	0.330	0.462
Man	..	0.360	0.450

* In this and succeeding tables the first column of figures under resistance indicates highest percentage of salt solution at which hemolysis was complete; the second, that at which hemolysis begins.

Rabbits were injected with this amount four times at intervals of seven days. One week after the last injection they were bled. In the experiments described below two different antiplatelet serums so prepared were used, Serum A and Serum B.

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* From the Department of Research Medicine, University of Pennsylvania.

* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Musser, J. H. Jr.: Study of a Case of Aplastic Anemia, Arch. Int. Med., August, 1914, p. 275.

2. Selling, L.: Benzol as a Leukotoxin, Johns Hopkins Hosp. Monographs, 1913, New Series, 71.

3. Duke, W. W.: Pathogenesis of Purpura Hemorrhagica with Especial Reference to Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.

4. In no case were purpuric spots found in the skin, but petechiae of the serous surfaces or subcutaneous suggillations were taken as indicative of the successful production of purpura.

5. Ledingham, J. C. G.: The Experimental Production of Purpura, Lancet, London, June 13, 1914, p. 1673.

6. LeSourd and Pagniez: Compt. rend. Soc. de biol., 1908, lxiv, 931.

7. Lee, R. L., and Robertson, O. H.: The Effect of Antiplatelet Serum on Blood Platelets and the Experimental Production of Purpura Hemorrhagica, Jour. Med. Research, 1916, xxxiii, 323.

RESULTS

As will be seen from Table 3, by the use of this serum, purpura was produced in every guinea-pig in which it was injected. Associated with this purpura there was a very definite lowering of the resistance of the red cells. Whereas, previously, we had found in normal animals that the average resistance of the cells to hypotonic salt solution was 0.42 minimal and 0.312 maximal, after the injection of the antiplatelet serum, resistance was absolutely lower, both minimal and maximum resistance being affected.

TABLE 2.—EXAMPLE OF NEGATIVE RESULTS *

Date	Procedure	B.B.C.	W.B.C.	Plates	Resistance	
3/30	Before injection	6,600,000	10,100	626,000	0.425	0.55
3/31	0.2 c.c. toxin	....	......	....	0.4	0.55
4/ 3	0.2 c.c. toxin	....	......	....	.....	.....
4/ 5	0.2 c.c. toxin	....	......	....	0.375	0.525
4/ 7	....	6,200,000	8,400	585,000	0.375	0.525
4/17	....	....	......	....	0.375	0.55
4/24	....	....	......	....	0.375	0.525

* Rabbit 16, weight 1,200 gm., received diphtheria toxin.

In addition to the changes noted above, the erythrocytes, leukocytes and platelets were also counted before and after injection. The following protocol is an example of our results in pigs which survived a time sufficiently long to allow hematologic examinations:

Pig 7.—A, 0.367 gm. Erythrocytes, 7,700,000; leukocytes, 8,200; platelets, 424,000; 0.5 c.c. Serum B injected intraperitoneally. Twenty-four hours later, erythrocytes, 6,160,000; leukocytes, 19,800; platelets, 40,000; bleeding time, twenty-five minutes. Necropsy: Animal died at 3 p. m.; large number of purpuric spots on abdominal wall; hemorrhages into pericardial sac; hemorrhagic infarcts in lungs; small hemorrhages into stomach and intestinal walls; large hemorrhage in uterine cavity; bladder filled with claret-colored fluid which microscopically showed erythrocytes and leukocytes; spleen very dark, and blood escaped freely when organ was cut.

In some cases there was found even more marked evidences of anemia and leukocytic increase, thus substantiating Ledingham's[8] work with antiplatelet serum. The necropsy records exemplify the general findings of other workers.

As a control, normal rabbit serum was injected into four guinea-pigs. Two of the pigs received 0.5 c.c. of this serum, the third 1.0 c.c. and the fourth 0.25 c.c. In none of them occurred any essential change in the blood counts or the platelet count; the resistance was unchanged and no evidence of purpura was found at the necropsy of the two animals that were killed.

In order to determine if the antiplatelet serum employed was hemolytic, 1 drop of defibrinated blood was added to the following solutions:

Antiplatelet serum: 1.0, 0.5, 0.4, 0.3, 0.2, 0.1, 0 c.c.
Normal salt: 0.0, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0 c.c.

In the plain salt solution control there was no hemolysis; in all other solutions occurred varying degrees of agglutination and hemolysis.

COMMENT

The preliminary portion of this paper shows that it is possible to produce purpura with diphtheria toxin, but with results which are not constant, and that with benzol the production of the experimental lesion is difficult. The best and most constant results occurred with the antiplatelet serum. The latter must be considered from two points of view: First, it is a serum that is capable of causing purpura and, secondly, it is also hemolytic. So far as the first part is concerned, we are able to confirm the work of Ledingham and Lee that a serum made by injections of platelets can constantly produce purpura. However, it is difficult to determine just how great a part the hemolytic property of the serum plays in causing the purpura. The question arises, Is the hemolytic property due to the red cells present in the platelet emulsion employed in the preparation of the serum, or is it an inherent property of antiplatelet serum common to all cytolytic immune serums? We incline to the latter view, for a specific hemolytic serum does not possess the power of causing purpura (Pearce[9] Bunting,[10] Wells[11]) or at least does so only occasionally.

We are inclined to believe, therefore, that the hemolytic factor is a characteristic of the antiplatelet element of the serum and in part at least is responsible for the production of purpura. If this is so, the suggestion naturally follows that the pathogenesis of purpura may be dependent on a substance which destroys the platelets and at the same time decreases the resistance of the erythrocytes, and thus hastens their destruction. Through the decrease of platelets thus caused would result a loss of thrombogenic substances and the characteristic prolongation of bleeding time; but the real basis of the pathogenesis of purpura would be the hemolytic substance which destroys the plates and weakens red cells. To reach this conclusion, however, it is essential to work with a pure antiplatelet serum. In some additional work which has been planned it is intended, therefore, to study the effect of (1) a hemolytic immune serum as contrasted with (2) that of an antiplatelet serum made from pure

TABLE 3.—RESULTS

Guinea-pig No.	Preliminary Resistance		Dose, Serum, C.c.	Resistance After Injection		Result	Necropsy
1	0.3	0.4	0.5, A	0.3	0.475	Killed 5 days	Petechiae; hemorrhages
2	0.275	0.4	1.0, A	0.3	0.425	Died 24 hours	Petechiae; hemorrhages
3	0.3	0.425	1.0, B	.....	.....	Died 18 hours	Petechiae; infarcts; hematuria
4	0.3	0.5	0.5, B	0.375	0.55	Died 36 hours	Petechiae; infarcts; hematuria
5	0.3	0.4	0.5, A	.....	.....	Died 18 hours	Innumerable petechiae; hematuria
6	0.325	0.425	1.0, A	.....	.....	Died 18 hours	Innumerable petechiae; hematuria
7	0.3	0.425	0.5, B	0.45	0.6	Died 48 hours	Marked purpura; hemorrhages; hematuria
8	0.275	0.4	1.0, B	.....	.....	Died 12 hours	Hematuria
9	0.325	0.45	0.5, B	0.35	0.55	Recovered	No external petechiae; plates lowered markedly
10	0.3	0.425	0.5, A	0.4	0.6+	Died 36 hours	Petechiae; hematuria
11	0.3	0.4	0.25, A	0.4	0.6	Died 60 hours	Hematuria

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[8] Ledingham, J. C. G., and Bedson, S. P.: Experimental Purpura, Lancet, London, Feb. 13, 1915, p. 311.

[9] Pearce, R. M.: Concerning the Specificity of the Somatogenic Cytotoxins, Jour. Med. Research, 1904, xii, 1.

[10] Bunting, C. H.: The Effect of Lymphotoxins and Myelotoxins on the Leukocytes of the Blood and on the Blood-Forming Organs, University of Penn. Med. Bull., 1903, xvi, 200.

[11] Wells, H. G.: Chemical Pathology, Philadelphia, 1907, p. 201.

platelets, and thus to determine the importance of the hemolytic factor in a pure antiplatelet serum.

CONCLUSIONS

1. Purpura has been produced experimentally by an immune serum which is lytic to both the platelets and the erythrocytes.

2. This purpura is associated with a well marked decrease in the resistance of the erythrocytes to hypotonic salt solution.

3. Whether the destruction of platelets and the decreased resistance of the red cells are due to a common factor in the serum, or to two bodies — a hemolytic element in addition to an antiplatelet element — has not been determined.

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SPHENOID SINUS

PRESENT DAY VALUE OF SURGICAL PROCEDURE *

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The recognized procedures of today of operating on the sphenoid sinus can be divided into the intranasal and extranasal. As the latter (extranasal) is never used except when other sinuses are coaffected, we will consider more particularly those operations which are performed through the nose. By this method the anterior sphenoidal wall is invariably attacked, although the ways and means are often divergent, as, for example, Schaffer[1] used a sharp curet, Spiess[2] penetrates into the sinus an electric trephine, Grünwald[3] a conchotome, Andrews[4] a curved knife, Grayson[5] a hand-burr, etc., with or without the removal of the middle turbinate; but it was not until Hajek[6] published his paper in 1904 that the operation assumed a definite form in progressive steps.

Briefly, his method is as follows: The posterior half of the middle turbinate is removed by means of the scissors and snare (Fig. 1), the posterior ethmoid cells (superior turbinate) broken down with a hook and removed piecemeal, thus baring the anterior sphenoidal wall (Figs. 2 and 3). This ostium of the anterior wall is removed in its entirety with his heavy bone forceps especially designed for this work (Fig. 4). This method, modified as occasion may demand, is one in general use at the present time.

As this is also the most radical intranasal operation on the sphenoid that we have, the modifications consist in the preservation of the middle and superior turbinate and in the size of the opening made in the anterior sphenoidal wall. We can divide the intranasal operation into the conservative and radical, the former conserving the middle turbinate and all or most of the superior turbinate with more or less enlargement of the natural ostium, and the latter sacrificing these structures with the removal of as much of the anterior sphenoidal wall as possible. In the former the nasal structures are almost undisturbed; in the latter the posterior half of the internal nares is practically exenterated.

INDICATIONS

As the conservative method may to all intents and purposes be considered but a step in the radical, one is justified in all doubtful cases in giving the patient the benefit of the doubt. Thus, when symptoms point to some disturbance in the sphenoid region which demand surgical intervention in the form of aeration and drainage, it is unquestionably poor judgment to open up the sphenoid in its entirety when the judicious enlargement of the sphenoid ostium with the Faraci forceps will suffice to bring about a cure. As a matter of fact, the positive indications for the radical operation are so few that they can be enumerated as follows:

1. In the classical form of chronic sphenoid sinusitis with typical pain, profuse discharge and occasional symptoms of retention where one has reason to believe permanent pathologic changes have taken place in the mucosa.

2. When orbital or cerebral complications threaten or have occurred.

3. Where the conservative method has been tried and found ineffective in bringing about a cure.

4. In mucocele or pyocele of the sinus of long standing.

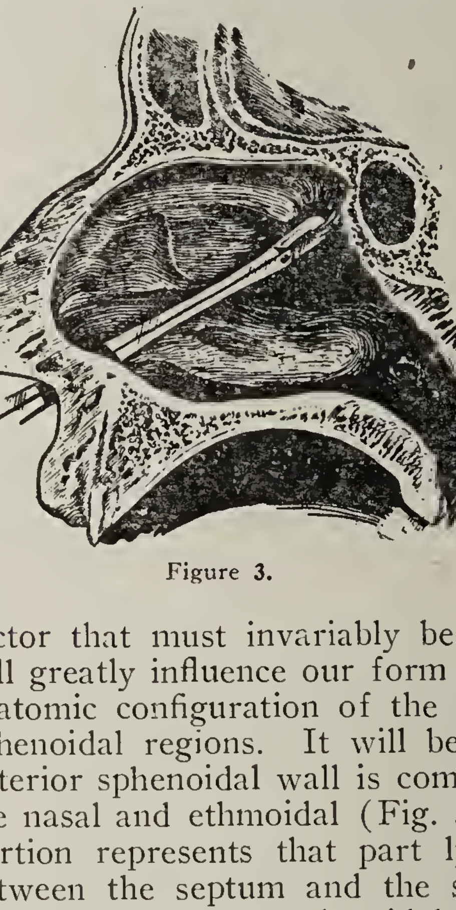

Figure 3.

While these may represent the classical indications, nevertheless there is one factor that must invariably be reckoned with which will greatly influence our form of procedure, i. e., the anatomic configuration of the posterior ethmoid and sphenoidal regions. It will be remembered that the anterior sphenoidal wall is composed of two portions, the nasal and ethmoidal (Fig. 5). The nasal or free portion represents that part lying free in the nose between the septum and the superior turbinate and contains the spheno-ethmoidal recess (Fig. 6). The ethmoid portion lies behind the last of the posterior ethmoidal cells, representing a ratio of about 3 to 5, the nasal portion being the smaller. This ratio is subject to great variation, the nasal or free portion often presenting but a mere slit, particularly after inflammatory changes have taken place. Given, then, that such circumstances obtained, it would practically be impossible to perform the conservative operation (simple enlargement of the ostium) even though it was clearly indicated by the symptoms present. On the other hand, with an excessively wide pars nasalis, the middle turbinate being inrolled against the lateral nasal wall, thus bringing the anterior sphenoidal wall into clear view by anterior rhinoscopy, an extensive operation on the sphenoid can readily be made without in any way

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

* This paper and those by Drs. G. E. Shambaugh and Samuel Iglauer which follow are part of a symposium on sinus diseases. Of the remaining papers, those by Drs. Joseph C. Beck, Lee M. Hurd and George F. Cott were published in The Journal for December 16; those by Drs. William E. Sauer and Hanau W. Loeb and the discussion will appear in The Journal for December 30.

[1] Schaffer: Ueber acute und chronische Erkrankungen der Keilbeinhöhle, Deutsch. med. Wchnschr., 1892, p. 1062.

[2] Spiess: Zur Chirurgie der Sinus sphenoidalis, Arch. f. Laryng., 1897, vii, 145.

[3] Grünwald: Die Lehre der Naseneiterungen, 1896.

[4] Andrews knives, Müller's Instrument Catalogue.

[5] Grayson: The Exploratory Opening of the Sphenoid Sinus, Laryngoscope, 1915, p. 65.

[6] Hajek: Zur Diagnose und intranasalen chirurgischen Behandlung der Eiterungen der Keilbeinhöhle, Arch. f. Laryng., 1904, xvi, 105.

injuring the middle or superior turbinate, not to mention the posterior ethmoid cells.

It will thus be seen that the disposition of the structures lying in front of the anterior sphenoidal wall will guide us largely as to the form of operation that will be necessary. A sufficient portion of these structures must either be removed or pressed to one side to enable one to have free-access, both visual and workable, to the anterior wall.

VALUE OF PRESENT DAY METHODS

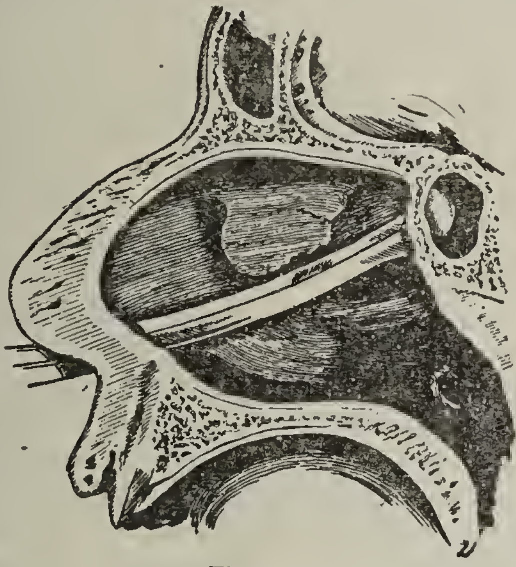
Figure 4.

Before discussing the methods now at our disposal, we must consider the various forms that one is liable to meet in diseased conditions of the sphenoid.

Acute Inflammation.—I doubt if one is ever called on to treat acute sphenoiditis per se, that is, without the rest of the nasal mucosa being involved. It is, of course, possible for general acute infection of the schneiderian membrane to undergo resolution, leaving a focus of inflammation in the sphenoid sinus; but under these circumstances the disease is more or less subacute. The nearest we come to a genuine acute purulent sphenoidal empyema is the acute exacerbation of a chronic sinusitis, particularly when stagnation of the secretion occurs. As this takes on the characteristics of a pyocele, it will be dealt with later.

Catarrhal Inflammations.—This condition is one of the commonest and least recognized of all the diseases which involve the accessory sinuses. Here few of the classical symptoms are observed; but rather the persistent pharyngitis sicca, postnasal discharge, fulness and dryness in the nasopharynx, hawking and rasping in the morning, point to a diseased condition in the posterior part of the nose. Casselberry[7] has well described this form of affection. Rarely does it become frankly purulent or show marked exacerbations, but tends to continue in about the same degree of inflammation. Simple enlargement of the natural ostium in order to further aeration and drainage will usually suffice to bring about a complete cure. Irrigation is unnecessary, as the mucosa is but slightly affected and will throw off the infection when aided by ventilation. The value of the conservative operation in this form of disease is unquestioned, and should deserve wider appreciation than it now receives.

Chronic Purulent Inflammation.—In this form the mucosa is infected in local areas, some portions being more or less healthy. The characteristics of this type are remittent. Exacerbations occur in which the symptoms become pronounced, the discharge is profuse, typical headaches appear, etc. During the quiescent stage the symptoms abate, but there is always a certain amount of postnasal discharge, dull headache and a marked tendency to "catch cold." In fact, the patient must always exercise the greatest care against excesses of every sort, particularly eating heavy food at night, alcohol, tobacco and mental stress or strain.

The conservative operation here also offers great possibilities. The installation of a good sized opening in the anterior wall without disturbing the middle or superior turbinate will often furnish the desired result. The Faraci bone cutting forceps (Fig. 7) are ideal for this purpose. After the ostium is found by means of the probe and long Killian speculum, it is a simple matter to insert the end of this slender instrument and bite away as much of the anterior wall as desired, at least enough to warrant thorough ventilation and the best of drainage (Fig. 8). Of course, if anatomic formations prevent the carrying out of this procedure, removal of the impeding structures to such an extent that this purpose may be accomplished is necessary and naturally indicated. Even if this is carried out during an acute exacerbation, its value is at once manifest, for the symptoms promptly subside without further treatment and gradually become less and less apparent, until they disappear entirely, together with the patient's susceptibility to take cold or to the excesses which previously had been denied him.

Chronic Purulent Inflammation with Permanent Pathologic Changes in the Mucosa and Underlying Bone.—This is the typical sphenoidal empyema of the textbooks, and one which is much more seldom met with than either of the two preceding. It is, of course, but an advanced type of these; but when it once occurs, the symptoms admit of no doubt as to the condition present. All the classical symptoms appear and are marked. The radical intranasal operation was devised to meet this condition. As the posterior ethmoid cells are usually involved, their removal serves as a double purpose, to take away the infected cells as well as to gain room in order to open the sinus in its widest extent. The rationale of this method is to eradicate as far as possible all diseased tissue with complete ventilation of the operated area.

Mucocele.—Pent in collections of mucoid material within the sphenoid sinus are more or less rare, although they have been reported by Rhese,[8] Benjamins[9] and others. Obviously here the radical operation is indicated, as the mucosa has been converted into the lining membrane of the sac and will probably never return to its original form. It is, moreover, a well known fact that unless a large portion of the wall is resected, the mucocele tends to reform; at any rate, the sac wall continues to secrete for months. Mucoceles in themselves are rarely dangerous except from pressure, as they tend to assume enormous proportions, causing the osseous walls of the sinus to fairly melt away under their slow but steady pressure. The radical operation will at least put a stop to its subsequent growth and rob it of its dangers, although it is doubtful if the parts ever again assume their normal condition. A catarrhal discharge usually follows, and continues in greater or lesser intensity ad infinitum.

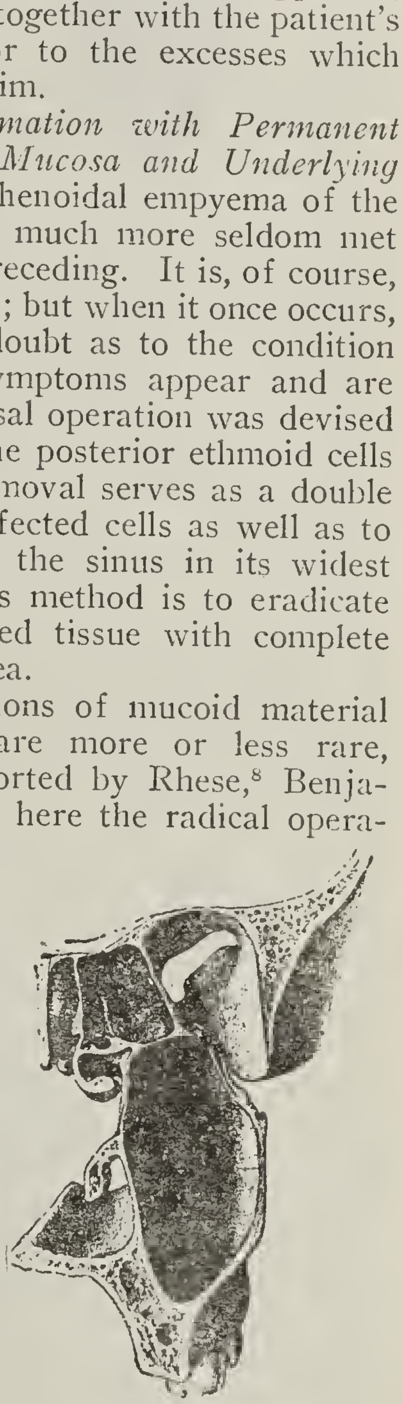
Figure 5.

Pyocele. Closed Empyema.—A collection of pent up pus in a sinus results either from the drainage passages becoming suddenly closed during an attack of empyema or from a mucocele becoming infected (rare). In either case it is necessary to perform a radical operation as soon as possible after the diagnosis is made. Its value in this particular incident will largely be determined by the severity of the infection and the length of time which has elapsed between the onset of the symptoms and the surgical intervention. The earlier the intervention the greater the possibilities of success. However, no case can be considered hopeless unless some grave complication, such as purulent meningitis, cavernous sinus thrombosis or brain abscess, supervenes.

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[7] Casselberry: Attenuated Types of Suppurative Sphenoiditis in Relation to So-Called Postnasal Catarrh, etc., Jour. Ophth. and Oto-Laryng., 1913, p. 210.

[8] Rhese: Ueber Keilbeinhöhlenmukozele, Ztschr. f. Ohrenh., 1911-1912, lxiv, 169.

[9] Benjamins: Mucocele des Sinus sphenoidalis, Arch. f. Laryngol., 1911, xxiv, 353.

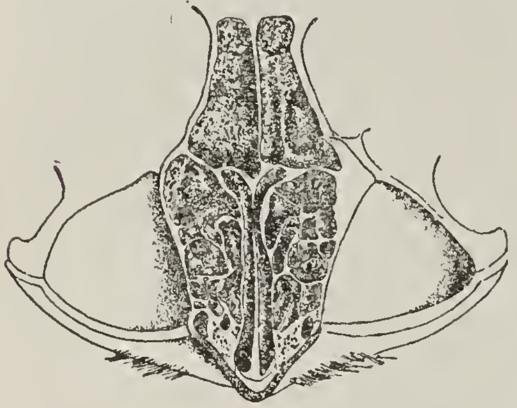
Figure 6.

INDIVIDUAL METHODS AND THEIR VALUES

Means Employed to Primarily Open the Sphenoid.—The Curet: This instrument, first utilized by Schaffer,[1] is the method now in use by Killian,[10] Hinkel,[11] Mosher,[12] Coakley,[13] Curtis[14] and many others, and usually involves a very simple technic. After the anterior wall of the sphenoid is brought into view (either by removing a portion of the middle turbinate or in favorable cases by merely infracting that structure against the lateral wall of the nose), the ostium of the sphenoid is sought or, failing to find it, the anterior wall is broken in at its thinnest part or the point of least resistance to the instrument. This is always in the neighborhood of the ostium and high up on the wall. After an opening has been installed and the proper orientation obtained by means of the probe, the break is enlarged by suitable forceps to the desired size. Killian and Mosher vary this by preserving the middle turbinate and excavating, so to speak, the anterior and posterior ethmoid cells until the anterior sphenoidal wall is reached. It is then opened by pressing it in with the beak of the instrument. The comparison of value of these methods depends on the anatomic configuration of the particular case at hand. If the middle turbinate is rolled in close to the lateral nasal wall, thereby presenting a large nasal portion of the anterior wall of the sphenoid so that the ostium is more or less convenient to the end of the probe, there is no question that the direct method or that one which leaves the ethmoid cells intact is the one to be preferred. Even if the ostium is found without being under direct control of the eye, it is perhaps better to attempt to open it, using the probe as a guide, for once being opened it is comparatively easy to enlarge the break until a portion of it is plainly visible. The nasopharyngoscope may be of great value in determining the precise location of the ostium. The great advantage of this method is that the ostium is used as a landmark, i. e., a point of entrance.

In the indirect method (through the ethmoid cells), the middle turbinate is used as a guide until the posterior cells are encountered. It has the advantage that it strikes the thinnest portion of the front wall of the sphenoid (pars ethmoiditis) and permits a much larger opening than the previous method through the spheno-ethmoidal fissure. It is of particular value where the posterior portion of the nasal septum is deflected toward the diseased side or where the middle turbinate is crowded against the septum. Its chief disadvantages are that the sphenoid ostium cannot be well utilized as a point of orientation and that even in skilled hands it is not entirely without danger,[15] certainly much more so than the inside method.

The Sharp Hook: This instrument originated with Hajek,[16] and has found many advocates (Tilley,[17] Onodi,[18] Logan Turner, Boenninghaus[19] and others). The instrument, being long and slender, permits its introduction through a very narrow olfactory fissure until the sphenoid wall is reached. A few well directed scrapes open up the sinus. This instrument is of great value, particularly where judiciously applied, as it is always working away from the points of danger. The only possibility is a sudden breaking in with injury to the lateral sinus wall and the dangerous or even fatal hemorrhage that will surely follow.[20] On this account the instrument should not be used blindly, but the ostium sought for and the wall opened in its immediate neighborhood. If, however, the ostium has been found, the need for the hook is at once superseded by the much safer curet. The one eventuality where the hook has served me to good purpose was when the landmarks had become obliterated by blood and torn tissue and where it was necessary to proceed very slowly, as much finer work can be done with its sharp point. The various cells were cautiously opened until at last the sphenoid was reached and the sinus entered through the thin plate which separates it from the posterior ethmoid cell (pars ethmoiditis). When used under these circumstances, the instrument possesses a decided value of its own.

The Curved Knife: Andrews uses this instrument, which to all intents and purposes is a sharp hook with rounded end and is manipulated as is the Hajek hook.

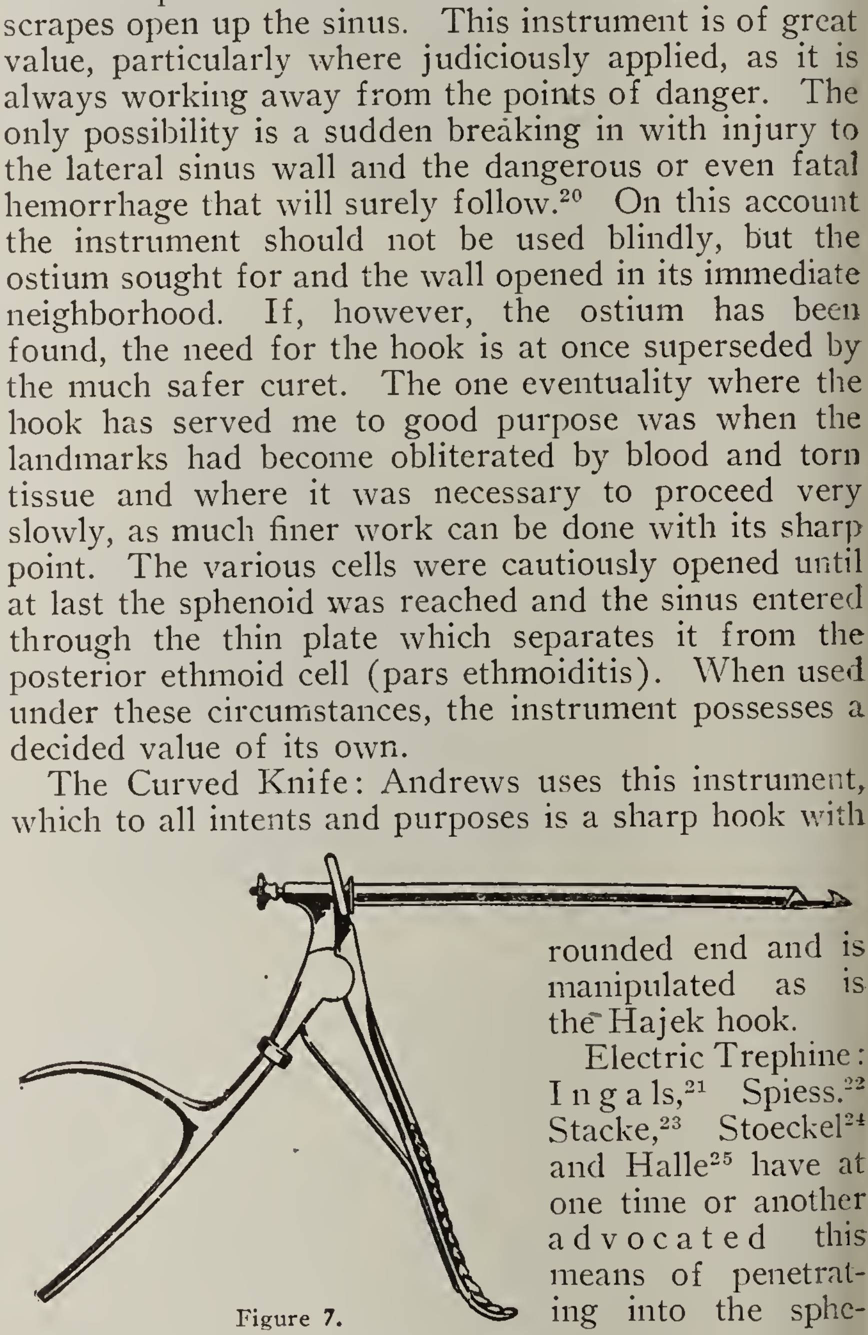
Figure 7.

Electric Trephine: Ingals,[21] Spiess,[22] Stacke,[23] Stoeckel[24] and Halle[25] have at one time or another advocated this means of penetrating into the sphenoid. At first glance this would seem to be an ideal method; but taking all things into consideration, it had best be left in the hands of the few that have become skilled in its use. Ingals and Spiess penetrated the middle turbinate, but I presume that they have now abandoned this route. Halle has perhaps perfected the method to the highest state of efficiency, having previously made a crossed incision through the mucoperiosteum of the anterior wall and resected back the four flaps, thus exposing the bare wall to his burr. The main disadvantages would seem to be the manual control of the instrument, for even with the steadiest hands a slip is liable to occur, and it only means a very little slip with a rapidly revolving cutting instrument to cause serious or even fatal injuries.

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[10] Killian: Ueber die Therapie der Entzündungen der Siebleinzellen und der Keilbeinhöhle, Verhandl. d. deutsch. otol. Gesellsch., 1900.

[11] Hinkel: Symptoms and Treatment of Sphenoidal Sinusitis, Tr. Am. Laryngol. Assn., 1902, p. 93.

[12] Mosher: The Applied Anatomy and the Intranasal Surgery of the Ethmoidal Labyrinth, Tr. Am. Laryngol. Assn., 1912, p. 25.

[13] Coakley: Diseases of the Nose and Throat.

[14] Curtis: Modern Methods of Accessory Sinus Treatment, Laryngoscope, May, 1905.

[15] Mosher: Personal communication (not, however, in Mosher's hands).

[16] Hajek: Nebonhöhlen der Nase, 1898.

[17] Tilley: The Symptoms, Diagnosis and Treatment of Chronic Suppuration in the Sphenoid Sinus, Brit. Med. Jour., 1905, ii, 1198.

[18] Onodi and Rosenberg: Die Behandlung der Krankheiten der Nase, 1906, p. 356.

[19] Boenninghaus: Handbuch der speziellen Chirurgie des Ohres, 1913, iii, 209.

[20] Emerson: Report of a Fatal Operative Case, Showing Developmental Absence of the Outer Sphenoidal Wall and in Its Place a Large Vein Communicating Directly with the Cavernous Sinus, Laryngoscope, 1909, p. 43.

[21] Ingals: Discussion, Tr. Am. Laryngol. Assn., 1905, p. 91.

[22] Spiess: Zur Chirurgie des Sinus sphenoidalis, Arch. f. Laryngol., 1897, vii, 145.

[23] Stacke: Ueber die Verwendbarkeit des Elektromotors bei Operationen, Arch. f. Ohrenh., 1897.

[24] Stoeckel: Die Breite endo-nasale Eröffnung der Keilbeinhöhle mit der Fraise, Arch. f. Laryngol., 1905, xvii, 496.

[25] Halle: Die Intranasalen Operationen bei eitrigen Erkrankungen der Nebenhöhlen der Nase, Arch. f. Laryngol., 1914, p. 105.

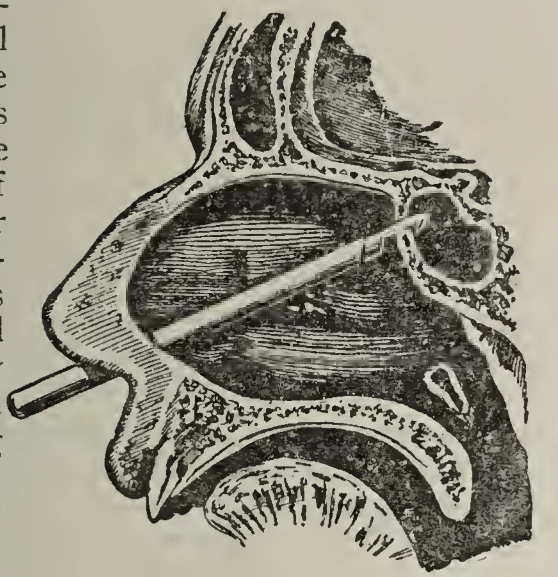
Figure 8.

The Chisel: Zarnico[26] and Gmeinder[27] have constructed long thin guarded chisels to crack an opening into the sinus. I have never used these except on the cadaver, and in this way have learned their danger, at least in my own hands. The guard is about 7 mm. behind the point. If the anterior wall is somewhat thick, the edge of the instrument is often directed upward, and when it suddenly penetrates the sinus it is liable to impinge rather sharply against the superior wall. Holmes,[28] Onodi,[29] Loeb,[30] Meyer,[31] Prentiss[32] and many others have reported cases in which a dehiscence was present in this wall and often the optic nerve was lying free within, only protected by a covering of mucosa. Injury to the sheath should cause blindness on that side and at the same time become the starting point for a subsequent meningitis. This method, compared to the others, has little to recommend it.

Evulsor: The object of this instrument was to penetrate the ostium, then by springing the blades apart to enlarge the opening from within outward, thus working away from the dangerous structures, at the same time bringing the fragments of bone and mucosa into the general nasal cavity[33] (Figs. 9 and 10). In those cases where it is possible to lay bare the ostium it serves its purpose well. On the other hand, unless a straight passage to the anterior wall is obtained, the instrument is too thick to accommodate itself to the narrow or crooked route presented. On the whole it is more valuable in the radical method where a large passage is assured with the ostium in plain view.

The Forceps: Luc[34] used his ethmoid crushing forceps in order to reach and open the sphenoid, but Faraci[35] has constructed bone biting forceps which are ideal for the purpose. They are exceedingly thin but strong and have a lance shaped end. After the ostium is found with the probe, the lance end of the instrument is pressed in and the wall removed from behind forward. Owing to the peculiar construction of the biting end, this can be accomplished with astonishing ease and celerity, and almost as much of the wall can be removed as with the heavier types of forceps, such as Hajek's. This, I think, represents the greatest advance in operations on this structure, and is the present day method of choice in our clinic.

Hand-Burr: The idea of this instrument was conceived by Grayson[5] for the purpose of making an exploratory opening into the sinus which can also be utilized for therapeutic purposes. The perforation is made as close as possible to the angle of junction of its floor with its internal wall (Fig. 11) and is 2 mm. in diameter, a size claimed to be quite sufficient to permit the escape of any fluid from within the sinus or the introduction of the jaw of a biting forceps for the purpose of enlarging the breach. He contends that the opening is perfectly situated for drainage and one through which the cavity can be thoroughly cleansed, and also advocates beginning the radical operation at this point. The value of this procedure can be judged by comparing its advantages and disadvantages, both practical and theoretical.

Advantages.—Anatomic: All things being considered, it attacks that portion of the sinus wall most available to instrumentation. It is easy to accomplish as far as the actual manipulations are concerned. Its only danger is the possibility of wounding the sphenoid artery. It can be applied when the anterior face of the sinus is difficult of access.

Disadvantages.—Anatomic: The thickness of the sinus wall as well as the hypertrophy of the diseased lining mucosa may prevent reliable conclusions from being drawn as to the pathologic state of the interior. Logan Turner has shown that even after an extensive breach has been made, it is difficult to judge the exact condition of the mucosa without a bacteriologic examination, as disease can be present without immediate manifestations after the sinus is opened. I have substantiated this statement in a considerable number of cases. Even if the sinus contained large quantities of pus, the opening is so small that during lavage such a slight amount would be brought out at once that it would be lost in the interstices of the posterior nares before it appeared in the pus basin. Another factor: the burr is so short and dull that it enters so slowly as to easily lift up the thickened mucosa from the underlying bone, thus causing the attempts to irrigate abortive. Accepting, however, that the exploration had been successful and pus had been found, the opening is too small to permit sufficient drainage or effective treatment, which are further made more difficult by

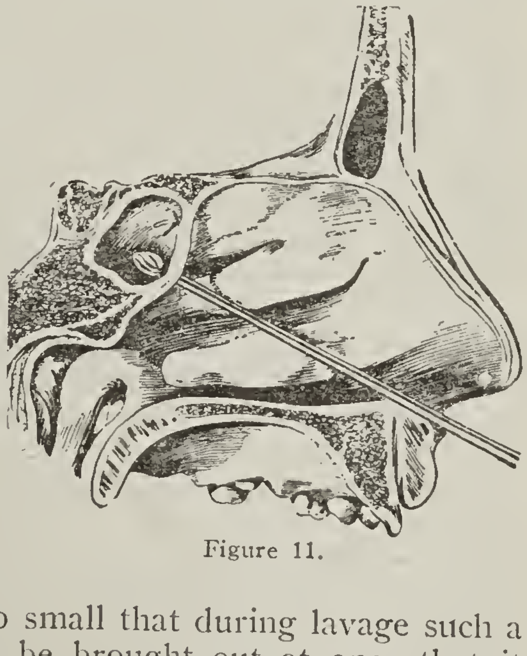
Figure 11.

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[26] Zarnico: Die Krankheiten der Nase, 1910, p. 691.

[27] Gmeinder: Instrument Catalogue of H. Pfan, Berlin.

[28] Holmes: The Sphenoidal Cavity and Its Relation to the Eye, Arch. Ophth., 1896, xxv, 460.

[29] Onodi: Das Verhältnis der Nervus optikus zu der Keilbeinhöhle, etc., Arch. f. Laryngol., 1903, xiv, 360.

[30] Loeb: A Study of the Anatomic Relations of the Optic Nerve to he Accessory Sinuses, Ann. Otol., June, 1909.

[31] Meyer: Sinister Unrecorded Anomalies of the Sphenoid, Ann. Otol., June, 1915, p. 257.

[32] Prentiss: Some Variations in Sphenoid Sinus, Jour. Iowa State Med. Soc., 1915, p. 263.

[33] Skillern, R. H.: The Present Status of the Radical Operation for Empyema of the Sphenoid Sinus, The Journal A. M. A., Dec. 19, 1908, p. 2108.

[34] Luc: Leçons sur les suppurations de l'oreille, 1910, p. 369.

[35] Faraci: Ferguson's Instrument Catalogue, Philadelphia.

the tendency of the wound to close, which it does, as Grayson admits, in twenty-four hours.

As a starting point for the radical operation, such a small opening (2 mm.) particularly when the bone is thick, as it is so prone to be in this particular locality, offers but a poor hold for any sphenoid forceps except possibly the Faraci, which one would hesitate to use on account of the grave risk of breaking the point off in the sinus.

Local or General Anesthesia.—In all intranasal operations on the sphenoid sinus (except in children), local anesthesia is far preferable, for it is a great advantage to have the cooperation of the patient. The pain is practically nil, the one unpleasant feature being the crunching and crackling of bone so deep within the nose. Only in those cases in which the patient is extremely nervous or the disease has so far progressed that he is semimoribund is general anesthesia indicated. In these cases a rapid and thorough operation is required in order that the patient can be returned to bed as quickly as possible with the least possible shock.

POSSIBLE ACCIDENTS DURING OPERATION

Hemorrhage.—Under ordinary circumstances the bleeding met with during and after the operation is trivial, provided one does not go down too deep into the sinus floor. The source of dangerous hemorrhages while opening the sinus is the sphenoidal branch of the nasopalatine which traverses its floor. After the sinus is opened, the cavernous sinus lying laterally is to be avoided, as two cases of accidental injury to these veins during curettement have been reported. One was fortunately controlled by tampons, but the other resulted fatally.[20]

Rhinorrhea Cerebrospinalis. — The escape of cerebrospinal fluid has also been encountered[36] in these cases; the gradual discharge continued for about twenty-four hours, and then ceased without apparently producing any untoward symptoms.

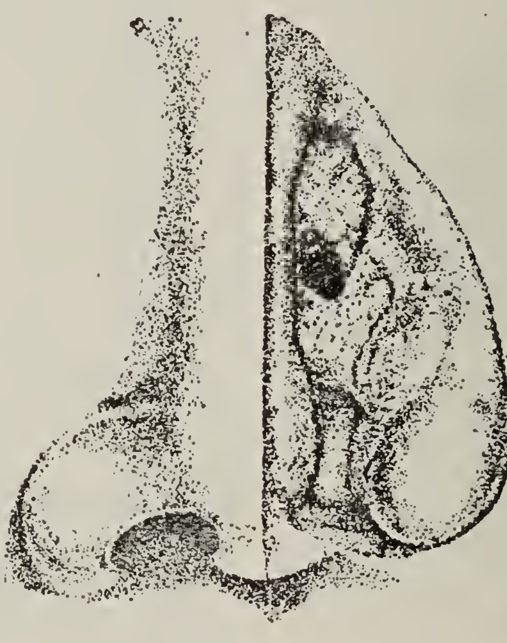

Figure 12.

During Irrigation.—After the sinus has been thoroughly opened, it is unwise to irrigate except under slight pressure, as symptoms of cerebral irritation (vomiting and unconsciousness) have followed its use.[37]

Applications of Strong Antiseptics to the Sinus Mucosa.—It is unwise to apply any irritating solutions directly after an operation, as the already inflamed mucosa shows a great tendency to postoperative swelling. Silver nitrate in particular will often cause an exacerbation of the symptoms and retard resolution.

Packing Tightly With Gauze.—If one wishes to provoke alarming symptoms, this procedure will certainly accomplish the result. Hajek[38] long ago called attention to it, and I can substantiate his experiences. All the signs of beginning cerebral involvement appear and continue until the packing is removed, and indeed not infrequently for some days thereafter. The irritation to the mucosa produces a swelling which cannot be taken up by the tight gauze packing; consequently there results great pressure within the sinus.

AFTER-TREATMENT

Subsequent treatment is as a rule simple. The one object is to provide sufficient drainage and aeration to the diseased mucosa. Directly following the operation it may swell up into a thick edematous cushion which nearly fills the sinus, due to postoperative reaction. On inspection actual polypoid hypertrophies may be present. One is tempted to use the curet at this stage, but it is interdicted. The swelling usually subsides in a few days under proper drainage, and I have seen actual polyps disappear spontaneously. If after a week or ten days necrotic spots still persist, the curet may be gently used (only on the floor and septum) to remove them.[6]

As the opening shows a great tendency to close through granulation tissue springing up, the edges should occasionally be touched with a bead of silver nitrate. Postoperative hemorrhage has been known to occur as late as the fifteenth day;[39] five cases also have been reported as occurring on the seventh to tenth,[40] one of which[39] required ligation of the external carotid.

As far as tampons are concerned they had best be entirely omitted. The sinus will drain better without them and it is now the consensus of opinion that to promote healing they are without value and may even exert deleterious influences. Only for the purpose of controlling hemorrhage should they be placed in the sphenoid sinus. Even though there is not much pain, it is well to administer[41] an opiate in the evening to insure a good night's rest.

IMMEDIATE AND ULTIMATE RESULTS

Conservative Method. — In those cases in which the mucosa only requires aeration and better drainage in order to throw off the inflammatory process, the simple enlargement of the ostium without injury to the adjoining structures will give brilliant results. The relief to the patient is almost immediate with practically no discomfort in the form of pain or hemorrhage. After the slight postoperative swelling subsides, the nose looks, and is to all intents and purposes, perfectly normal. It is true that the enlarged ostium rapidly contracts until it assumes its original size, but in the meantime the patient has become cured.

Radical Method.—It is often marvelous, the effect on the symptoms which this operation produces even in the severest cases. The excruciating pain is almost instantly relieved or at least so mitigated as to become bearable;[42] the patient seems at once to be transported into another atmosphere, from a desperately sick individual to one that is on the road to recovery. Meningeal symptoms[43] and cerebral manifestations[44] rapidly begin to clear up. Kander[45] and Avellis[46] have reported cases which had gone on to meningitis cured, to which I can add two more. One patient was moribund and had been so for forty-eight hours and required practically no anesthetic at the time of operation. Four hours afterward he was demanding something to eat. The temperature curve assumes a more normal one and the patient usually goes on to uneventful recovery.

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[36] Glas: Rhinorrhoea Cerebro-Spinalis, Wien. Laryng. Gesellsch., Centralbl. f. Laryngol., 1904, p. 154. Decherd, H. B.: Personal communication.

[37] Curtis: The Sphenoidal Sinus (Case), Laryngoscope, 1904, p. 866.

[38] Hajek: Fall von Empyem der Keilbeinhöhle mit bedrohlichen Stauungseicheinungen, Wien. med. Wchnschr., 1895, Nos. 32, 33.

[39] Myles: Trephining and Curettage of the Sphenoidal Sinus: Profuse Secondary Hemorrhage Requiring Ligation of the External Carotid, Laryngoscope, 1903, p. 293.

[40] Hinkel: Symptoms and Treatment of Chronic Empyema of the Sphenoidal Sinus, Laryngoscope, 1902, p. 736. Gleitsmann: Discussion, Tr. Am. Laryngol. Soc., 1895, p. 91. Hepburn: Discussion: Tr. Am. Laryngol., Rhin. and Otol. Soc., 1901, p. 68. Hajek: Nebenhohlen der Nase, 1915, p. 379. Boenninghaus: Handbuch der Speziellen Chirurgie, 1913, iii, 212.

[41] Hajek: Experiences in the Endonasal Radical Operation upon the Sphenoid Cavity, Ann. Otol., March, 1909.

[42] Skillern: Ein Fall von Geschlossenen Empyem, Ztschr. f. Laryngol., 1909, i, 337.

[43] Solenberger: Sphenoid Disease with Brain Symptoms, Colorado Med., September, 1914.

[44] Thomson, St. Clair: Cerebral and Ophthalmic Complications in Sphenoidal Sinusitis, Brit. Med. Jour., 1906, ii, 768.

As far as the parts themselves are concerned, one would expect considerable reaction to follow such an extensive procedure (removal of middle turbinate, posterior ethmoid cells and anterior wall of sphenoid sinus), but such is usually not the case. The patients complain of little pain, although there is constant leakage of serosanguineous fluid for eighteen to twenty-four hours. The internal engorgement is marked, which usually sympathetically affects the opposite side, compelling the patient to breathe through the mouth until it becomes reduced, which usually begins to occur at the end of the second day. The swelling gradually subsides until the normal is reached, which is from the seventh to the tenth day.

Nature seems to take care of the void in the same manner as it does the tonsillar fossa after a tonsillectomy, as it becomes more or less filled with granulation tissue (Fig. 12). I might add that I have never seen a dry nose follow this operation, no matter how extensive the procedure.

Concerning the sinus itself, a large percentage recover entirely;[47] but it must be remembered that its resistance is lowered, and will become reinfected with subsequent attacks of coryza with the reformation and secretion of pus. This, however, clears up readily under appropriate treatment.

VALUE OF OPERATION

It would seem almost superfluous from what has been said to discuss this phase of the subject. While its curative value alone in sinus disease makes it invaluable to the rhinologist, the brilliant and dramatic results are those obtained when grave cerebral and orbital symptoms have supervened. Many cases of progressive blindness have been reported with recovery of vision.[48] I can substantiate these results in several incidents. Many other ocular conditions as well as symptoms remote from the seat of infection have been cured by a timely radical operation on the sphenoid.

Sitting, then, in calm judgment on the merits and demerits of the endonasal sphenoid operation, one must necessarily come to the conclusion that on account of the almost uniformly brilliant results obtained and its comparative freedom from danger, it must be classed as a procedure that no rhinologist of the present can afford not to master.

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[45] Kander: Meningitis beim Keilbeinhöhlen Empyem mit Ausgang in Heilung, Verein Süddeutsch. Laryngol., 1907, p. 109.

[46] Avellis: Ortliche seröse Meningitis bei akuter Keilbeineiterung, Verein Süddeutsch. Laryngol., 1907, p. 116.

[47] Fraser and Verel: An Analysis of Seventy-Six Consecutive Operations on the Frontal, Maxillary, Ethmoidal and Sphenoidal Sinuses, Jour. Laryngol., 1913, p. 69.

[48] Brophy: Report of Three Cases of Monocular Blindness Due to Sinus Obstruction, with Recovery of Vision, Ophth. Rec., 1915, p. 351. Stark, H. H.: Sudden Blindness Due to Suppuration of the Accessory Nasal Sinuses, The Journal A. M. A., Oct. 30, 1915, p. 1513.

Every Man's Debt to His Profession.—I hold every man a debtor to his profession from the which as men of course do seek to receive countenance and profit so ought they of duty to endeavor themselves by way of amends to be a help and ornament thereunto.—Bacon.

THE SURGERY OF THE ETHMOID LABYRINTH *

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CHICAGO

The ethmoid is in several ways the central point of interest in questions relating to the nasal accessory sinuses. Developmentally the other sinuses, particularly the frontal and maxillary, are distinct outgrowths from the ethmoid. Anatomically the ethmoid, because of its central location, constitutes a key to the other nasal sinuses, including the sphenoid, as well as the frontal and maxillary sinuses. Pathologically the ethmoid labyrinth is more or less involved in almost every inflammatory process involving the other sinuses. And finally, the surgical treatment of inflammatory processes in any of the nasal accessory sinuses includes to a greater or less extent operation on the ethmoid labyrinth. It is evident, therefore, that any one who undertakes the treatment of nasal accessory sinus trouble should first of all be well grounded in the surgical anatomy of the ethmoid and should be familiar with the methods of operating on this structure.

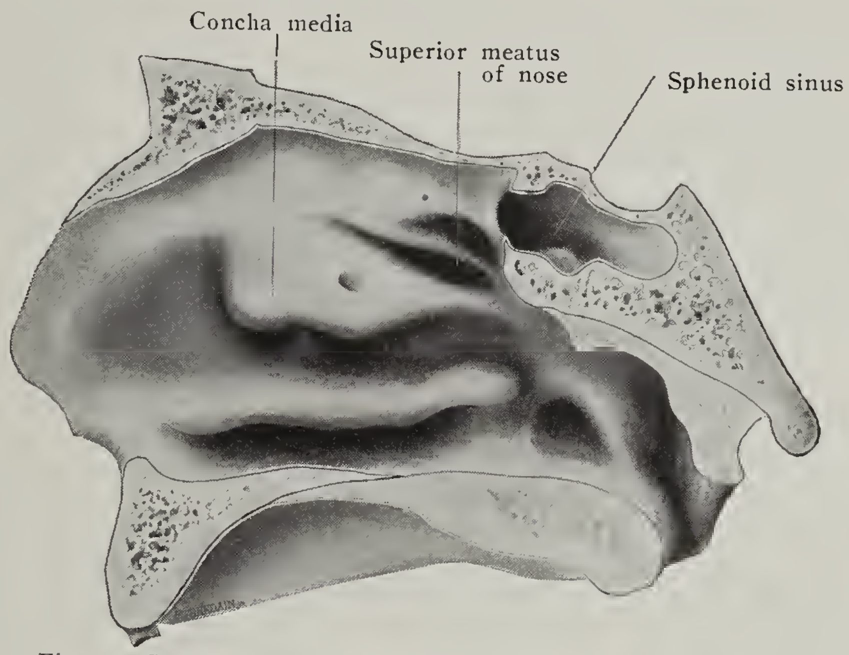

Fig. 1.—Sagittal section, showing lateral wall of nasal cavity.

Anatomic variations are peculiarly characteristic of the nasal accessory sinuses, and in none is this more marked than in the case of the ethmoid. There are, however, certain anatomic relations common to all cases. It is these constant relations which it is most important to keep in mind, since it is on these that the surgery of the labyrinth is based.

The first anatomic fact to keep in mind is the openings of the ethmoid cells into the nose. These openings are separated into two series by the plate of the concha media, and are clearly shown in Figures 1 and 2. The first figure, with the middle turbinated body in place, shows the openings for the posterior ethmoid cells above and posterior to this structure. Inspecting the nose from in front, secretion coming from the posterior ethmoid cells will be seen between the septum and the concha media, that is, in the meatus nasi communis. Figure 2, with the middle turbinated body cut from its attachment, shows the openings from the anterior series of ethmoid cells in the meatus nasi media. Secretion coming from these cells appears, therefore, between the concha media and the outer wall of the nose.

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

A second important anatomic fact is the relation of the ethmoid to the orbit. This relation is shown in Figure 10. The outer wall of the ethmoid labyrinth is formed by the orbital plate of the ethmoid and to a limited extent by the mesial wall of the maxillary sinus.

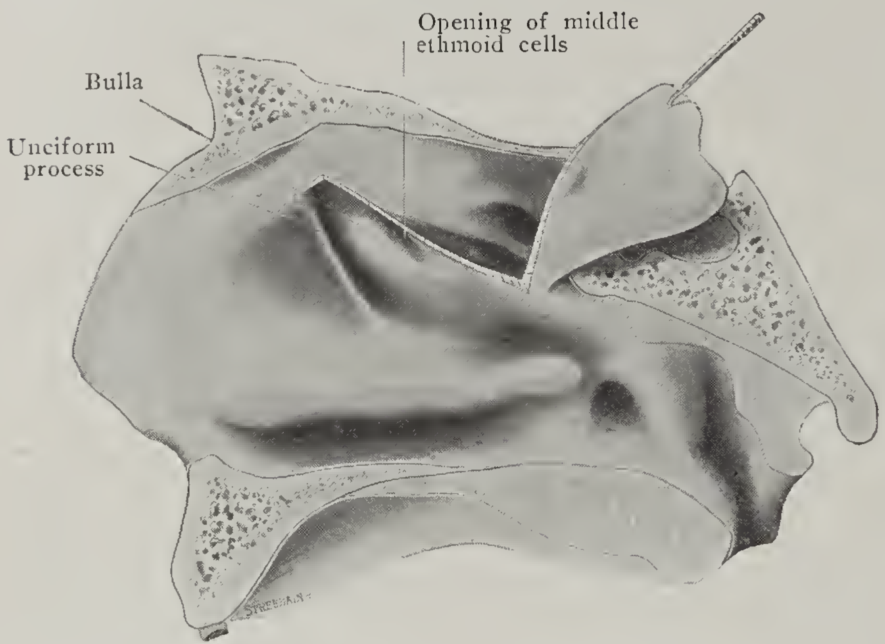

Fig. 2.—Middle turbinal removed, showing structures in middle meatus.

A third constant anatomic relation which has an important surgical bearing is the relation between the ethmoid cells and the brain fossa. This relation is best shown in a frontal section, as in Figure 10. The roof of the ethmoid labyrinth is formed by the floor of the anterior brain fossa. The bone forming this wall of the labyrinth is rather firm as compared with the much more fragile orbital wall. It is especially important to keep in mind the relation between the ethmoid cells and the cribriform plate. The bony plate forming the roof of the labyrinth joins the cribriform plate, but at no place do the ethmoid cells come in contact with this plate. The cribriform plate forms the roof of the meatus nasi communis. In order, therefore, to avoid perforating this delicate structure when operating on the ethmoid labyrinth, it is important to keep out of the meatus nasi communis. This is best accomplished by allowing the mesial wall of the labyrinth to stand until the exenteration of the ethmoid cells has been completed, when this wall of the labyrinth can with safety be clipped away.

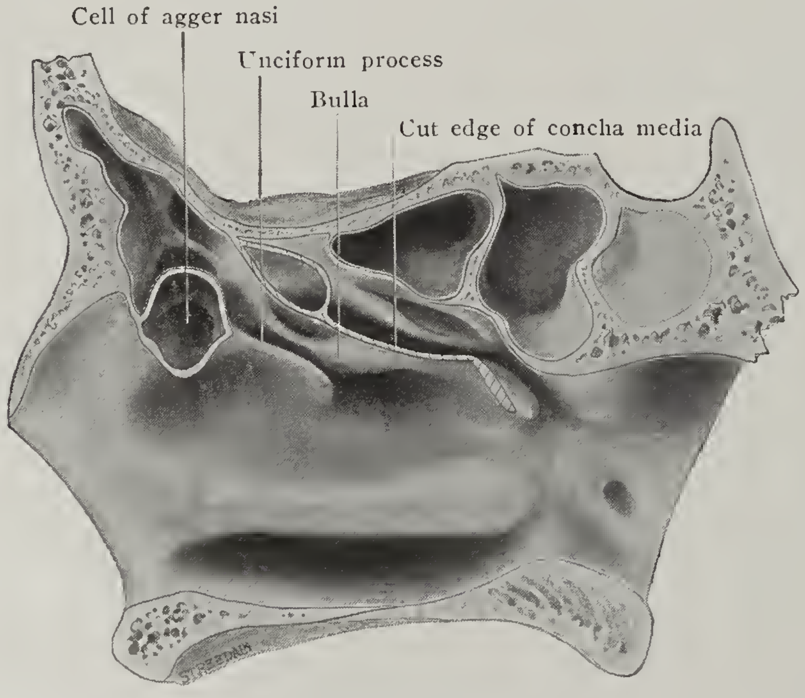

Fig. 3.—Lateral wall of nose; middle turbinal removed and ethmoid cells opened.

There are certain anatomic variations to keep in mind when working on the ethmoid labyrinth. One variation is the development of ethmoid cells outside the usual confines of the labyrinth. The first of these is the distention of the concha media by an ethmoid cell. This cell occasionally develops to a great size, obstructing the respiration on the affected side. The largest cell of this sort recorded was reported by me. The cell measured 28 mm. long and 25 mm. broad.[1]

Another anatomic variation is the development of an ethmoid cell in the unciform process, in the region which we designate as the agger nasi. This anatomic variation is not such a frequent occurrence as the cell in the concha media. Like the cell of the concha media, it occasionally takes on a large size. Cells of the agger nasi are shown in Figures 3, 5 and 7. The one shown in Figure 3 is unusually large. Other anatomic variations of this sort are the development of ethmoid cells upward into the frontal sinus, laterally over the roof of the orbit, and posteriorly over the sphenoid sinus.

Operations on the ethmoid consist of the removal of a part or the whole of the ethmoid turbinated body, the concha media, and the exenteration of a part or the whole of the ethmoid labyrinth. Only the intranasal operation on the ethmoid will be considered here, for the reason that the external operation on the ethmoid is rarely called for.

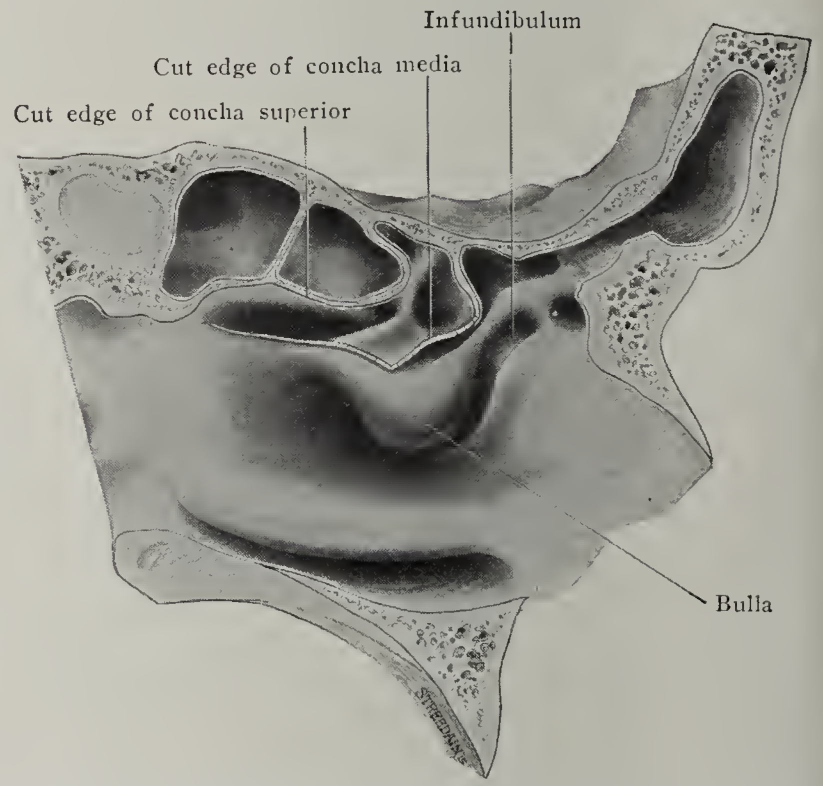

Fig. 4.—Lateral wall of nose; middle turbinal removed and ethmoid cells opened; bulla ethmoidalis large and dependent.

The operations on the concha media are undertaken for several quite different conditions. Some have to do with pathologic conditions outside the ethmoid, as disease in the frontal and maxillary sinuses. Others are concerned with disease of the ethmoid itself.

The resection of the concha media, by which the middle meatus is laid open, is often the simplest way to get relief from obstruction causing retention in the frontal or maxillary sinuses. The removal of the concha media is also the preliminary step in the resection of that part of the nasal wall of the maxillary sinus lying in the middle meatus. This is the simplest of all the operations on the maxillary sinus, and is often the operation of choice for the relief of acute or chronic empyema of this sinus. The resection of the concha media is also the preliminary step in securing adequate drainage for acute or chronic empyema of the frontal sinus.

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[1] Shambaugh, G. E.: Bony Cysts of the Middle Turbinated Body, Ann. Surg., 1902.

The conditions in the ethmoid itself, for the relief of which the resection of the concha media is undertaken, include cases in which, as the result of a narrow nasal chamber, the middle turbinated body is found wedged so tightly between the septum and the outer wall of the nose that with the slightest intranasal reaction the normal ventilation of the anterior ethmoid cells, as well as the frontal, and even the maxillary sinus, is impaired. The symptom resulting from this condition is first of all sensation of pressure or even pain between the eyes. The obstruction often excites attacks of sneezing, which are not infrequently associated with profuse watery nasal discharge. The resection of the concha media is undertaken to relieve nasal obstruction occasionally caused by a bullous enlargement of the concha media itself. This operation is often the first step in the operations for the relief of the symptoms resulting from the pathologic condition known as hypertrophic ethmoiditis. Very often the improved ventilation of the ethmoid labyrinth, accomplished by the resection of the concha media, is all that may be required to bring about a relief of these annoying symptoms and for the cure of the earlier stages of hypertrophic ethmoiditis. The frequency with which the condition of hypertrophic ethmoiditis is found associated with the anatomic condition described above, causing impaired ventilation of the ethmoid, justifies the suspicion that the development of hypertrophic ethmoiditis may sometimes be the result of impaired ventilation of ethmoid cells.

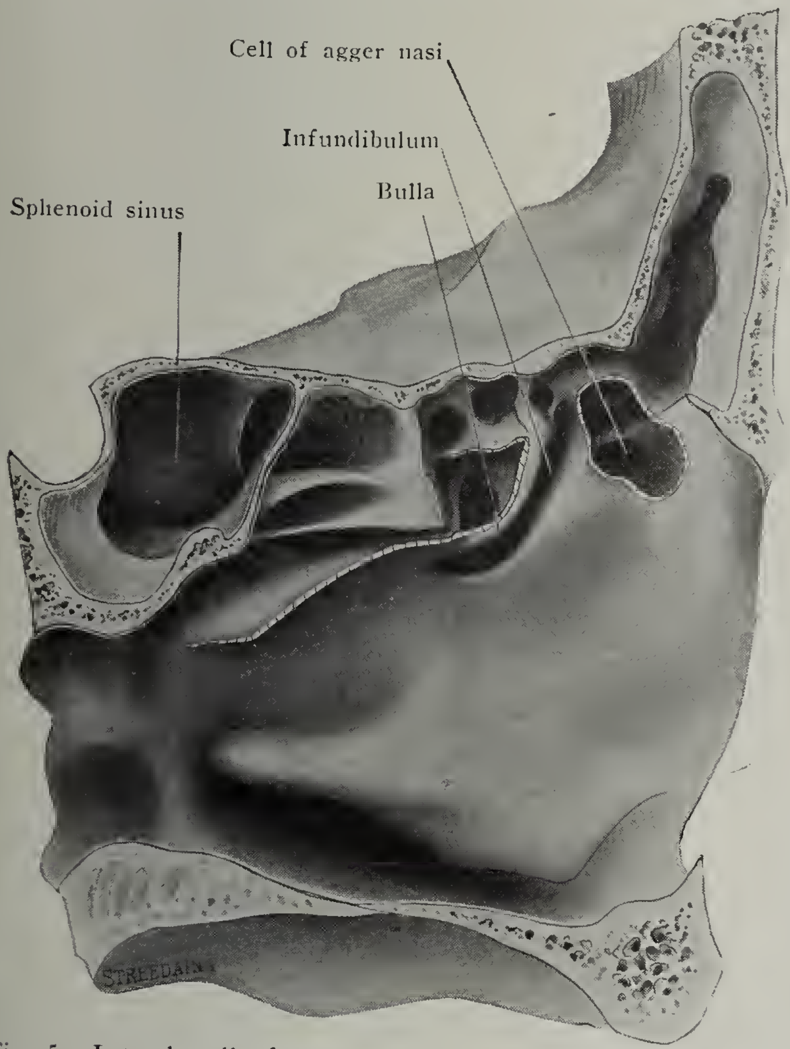

Fig. 5.—Lateral wall of nose; ethmoid cells opened. Cell in agger nasi.

It is evident that the class of cases in which resection of the concha media is indicated includes very often just those cases in which, because of anatomic conditions, the operation is more difficult to carry out. In recent years I have discarded other methods of removing the concha media for the method devised by Andrews, by which, with the use of a specially made knife, the anterior part of the concha is easily cut away from its attachment, permitting the introduction of a snare, when the turbinated body can either be cut off or pulled away from its attachment. By this method I have found it feasible to remove the middle turbinate in the most difficult cases in which, because of the constricted nasal chamber, it was scarcely possible to secure more than a glimpse of the lower edge of this structure.

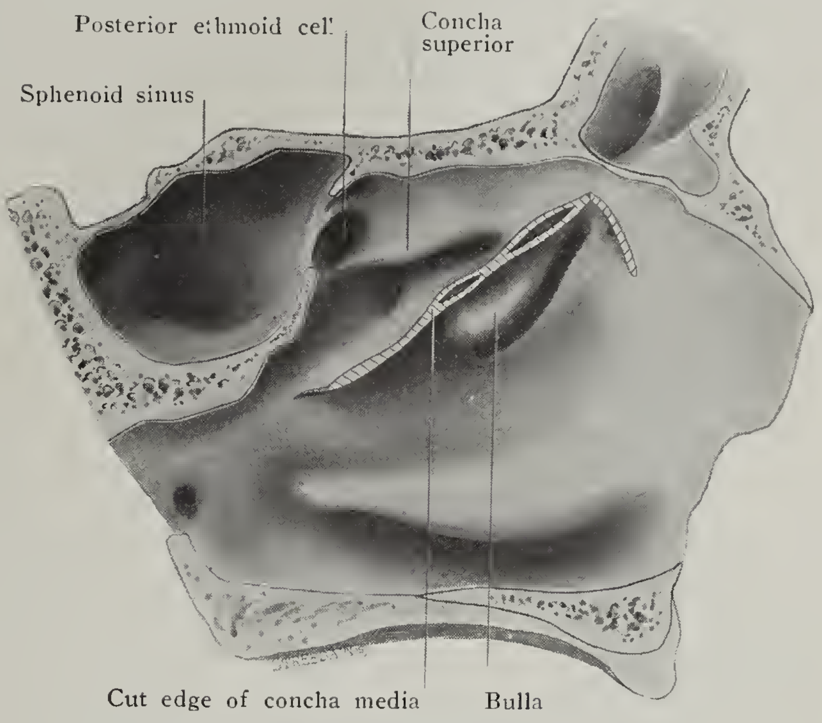

Fig. 6.—Lateral wall of nose; concha media removed.

The exenteration of a part of the ethmoid labyrinth is undertaken chiefly in the effort to secure better drainage for a frontal sinus infection. Here the anterior ethmoid cells are often included in the inflammatory process affecting the frontal sinus. The ethmoid operation serves, therefore, the double purpose of removing the diseased ethmoid cells and of securing better drainage from the frontal sinus. The partial exenteration of the ethmoid cells may also be under-

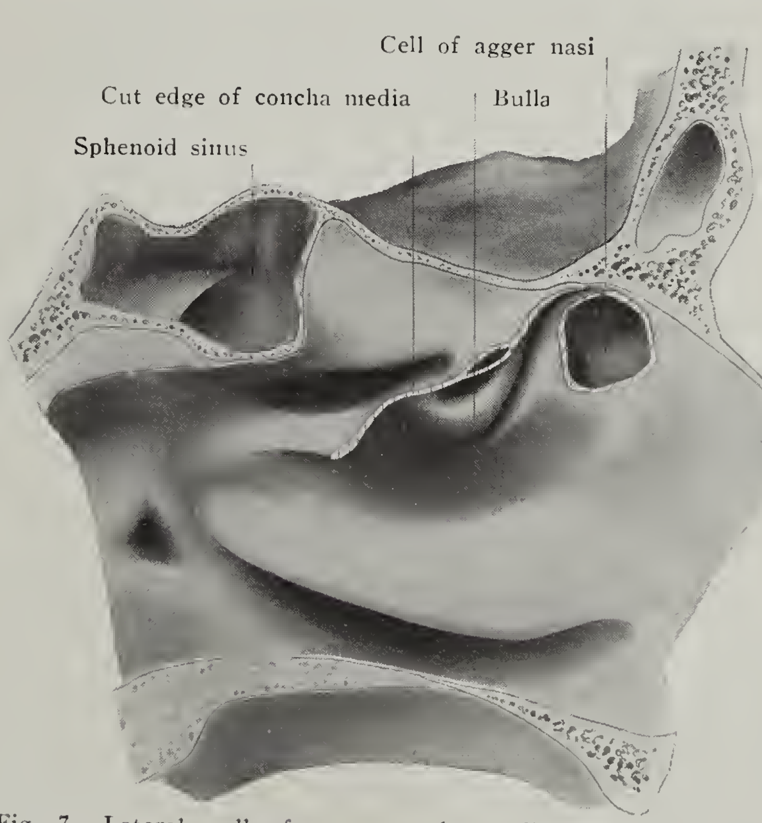

Fig. 7.—Lateral wall of nose; concha media removed. Large cell in agger nasi.

taken in cases of beginning hypertrophic ethmoiditis, or for the relief of symptoms arising from the rather rare condition of mucocele of the ethmoid.

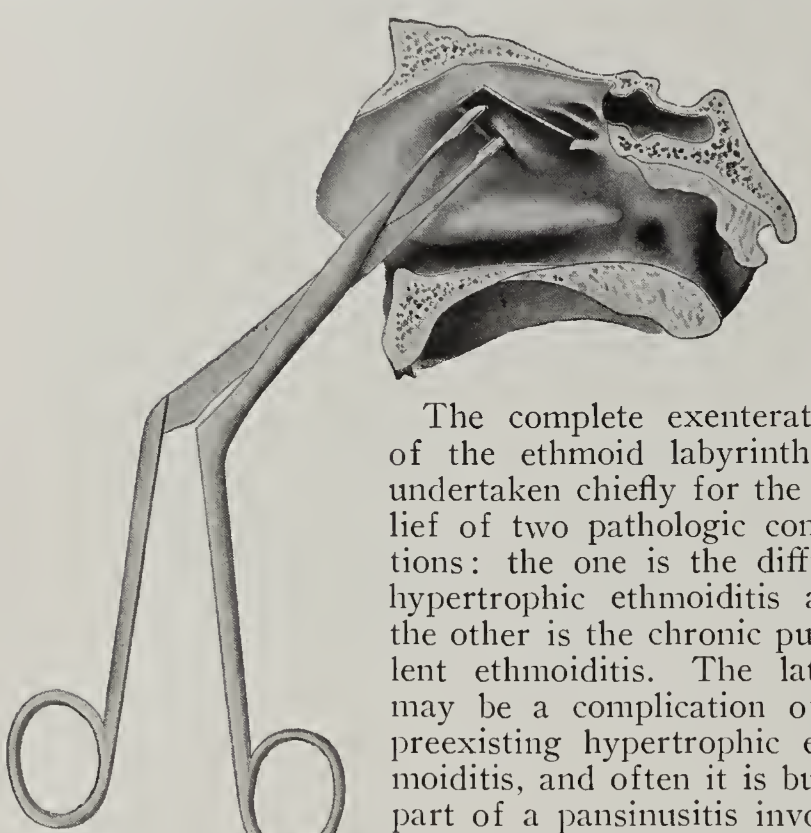

Fig. 8.—Lateral wall of nose; concha media removed. Second step in exenteration of the ethmoid labyrinth, forceps breaking into bulla ethmoidalis.

The complete exenteration of the ethmoid labyrinth is undertaken chiefly for the relief of two pathologic conditions: the one is the diffuse hypertrophic ethmoiditis and the other is the chronic purulent ethmoiditis. The latter may be a complication of a preexisting hypertrophic ethmoiditis, and often it is but a part of a pansinusitis involving all of the accessory sinuses on one or on both sides of the nose.

In selecting a method for accomplishing the ethmoid exenteration, two principles should be kept in mind: the first is the safety of the patient, the second, simplicity of technic. For obvious reasons the operation is usually done under a local anesthetic. It is quite important, therefore, that it should be done as quickly as possible. The method for exenteration of the ethmoid which I shall describe here is the one which seems to me to fill best the requirements of safety, simplicity and rapidity.

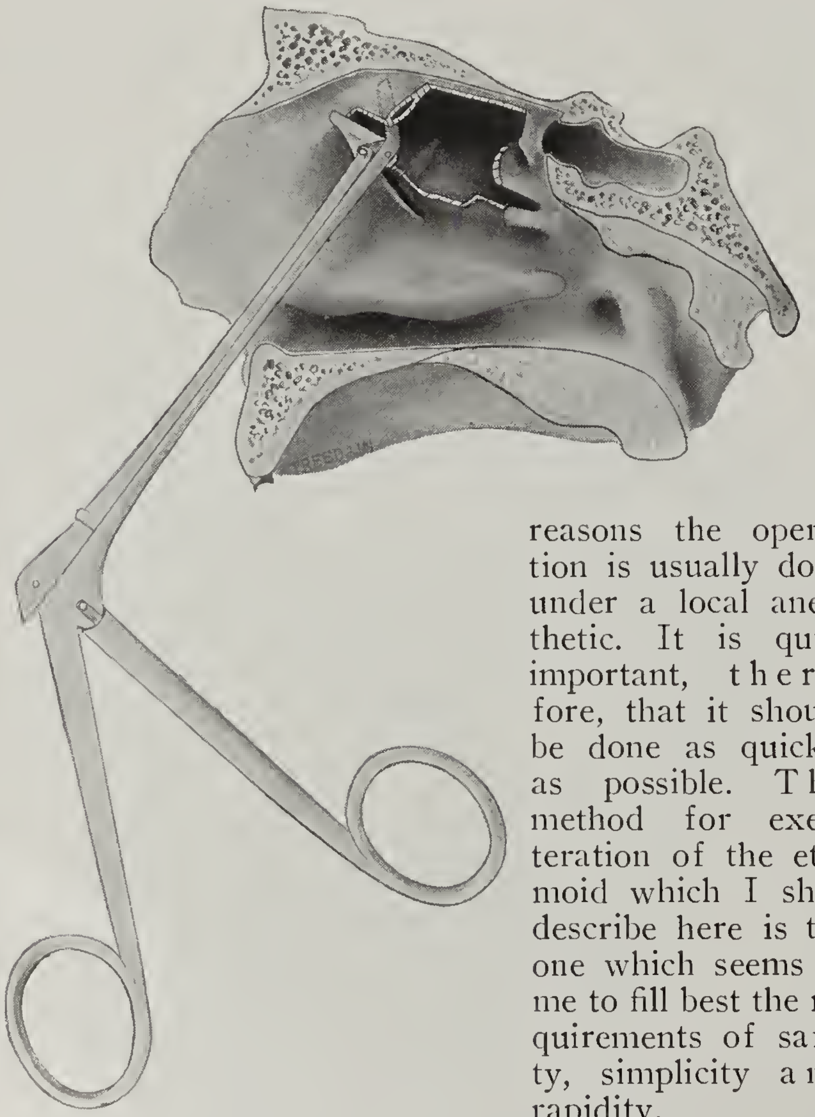

Fig. 9.—Final step in ethmoid exenteration; removal of anterior ethmoid cells.

The first step in most cases is the removal of the concha media. This is necessary to give the best possible inspection of the field of operation. In exceptional cases in which the concha media is small and does not interfere with the inspection of the structures forming the floor of the ethmoid in the middle meatus, the concha media may be left standing, at least until the exenteration of the labyrinth has been completed, when it should, as a rule, be removed, in order to prevent further impairment of drainage, especially through the formation of inflammatory adhesions.

The second step in the operation is accomplished in a very few seconds by using the type of nasal forceps shown in Fig. 8. This instrument has in my hands proved to be the one best suited for such work. It is easily held firmly with the fingers of the right hand while the cutting edges of the blades are readily forced through the fragile cell walls. The force is always directed more horizontally than upward and away from the septum, so as to avoid risk of injuring the cribriform plate. The risk of injuring the orbital plate is not great. The removal of a part of the orbital plate is apparently not any more dangerous than the exposure of the dura in the course of a mastoid operation. The most dependent part of the ethmoid labyrinth is the bulla (Figs. 10, 6, 4). This is broken into first (Fig. 8). In those exceptional cases where the agger nasi is the seat of an ethmoid cell, it will occasionally be advantageous to begin, as Mosher has advised, by breaking into this cell first. After the bulla has been broken into, it is the work of but a few seconds to complete the exenteration of the middle and posterior ethmoid cells.

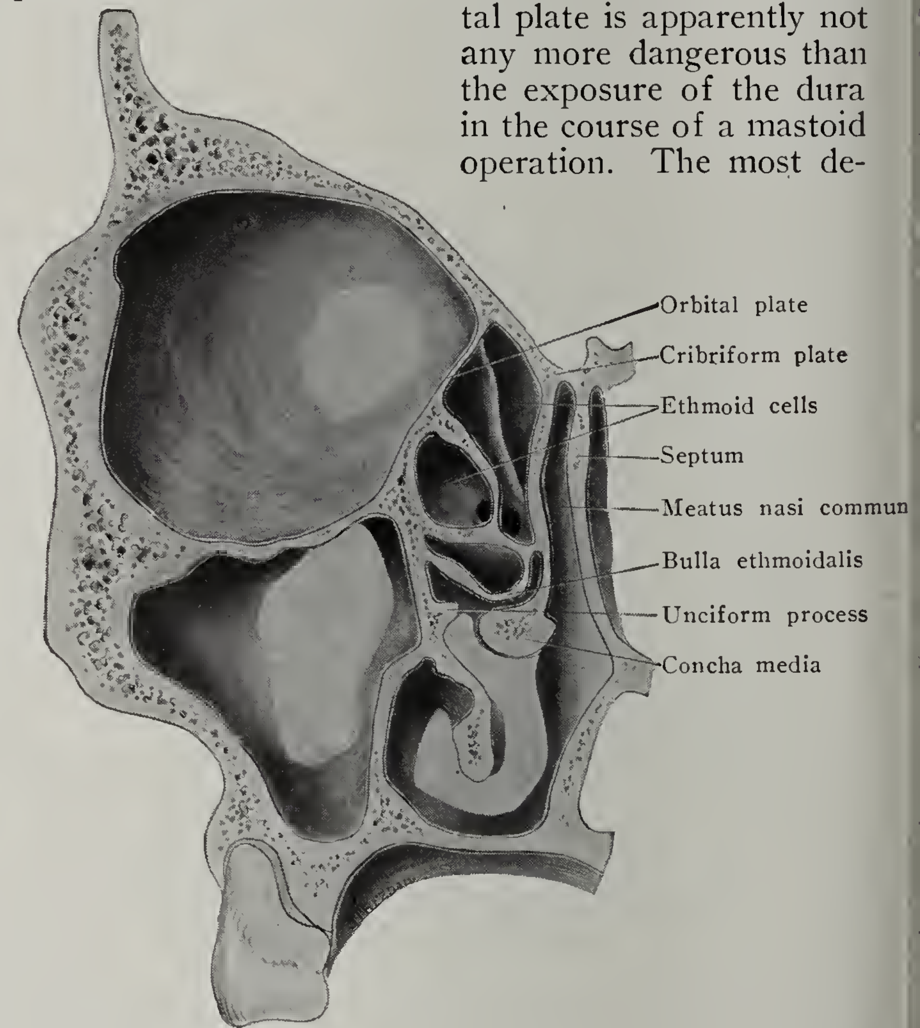

Fig. 10.—Frontal section, showing relations of ethmoid labyrinth to surrounding structures.

The final step in the operation is the removal of the anterior ethmoid cells. This is done by using forceps which cut forward (Fig. 9). The median plate of the ethmoid is best left in place until all of the cells have been removed. This serves as a protection against encroachment on the meatus nasi communis, the roof of which is formed by the cribriform plate. In some cases, especially where the nasal passage is contracted, it is best not to attempt to preserve this median plate of the ethmoid but to cut it away as rapidly as the adjoining cells are destroyed.

The use of curets will sometimes be of distinct assistance in accomplishing the exenteration of the ethmoid cells. There are two situations where I have found the curet an assistance. The first is a condition where, because of an unusual firmness of the bony walls, it is found difficult to break into the labyrinth with the forceps. The second indication is to complete the removal of the labyrinth in certain cases, after the work with the forceps has been completed. The type of curet to use is important. This should be a strong, well made curet, without a sharp point. The type used in mastoid work, for example, the Whiting model, serves our purpose here very well. This is the type of curet which Mosher has also adopted for operation on the ethmoid. I have found the Mosher model the best curet for ethmoid work.

As regards after-treatment, most of the patients require no special treatment. The operation is done at the hospital, since the shock resulting from work on the ethmoid makes it undesirable for patients to attempt to go home immediately after the operation. Most of the cases require no tampon if the patient remains at the hospital, where directions can be left for the introduction of a tampon in case secondary bleeding requires it. Occasionally one meets with severe bleeding at the time of the operation which may require the immediate introduction of a tampon. This should always be removed not later than the following day.

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THE OBLIQUE METHOD OF ROENTGENOGRAPHY OF THE ETHMOID AND SPHENOID CELLS *

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CINCINNATI

The usual method of roentgenography of the accessory cavities of the nose consists in directing the rays through the sagittal axis of the skull and intercepting them on a photographic plate placed immediately in front of the patient's face.

The roentgenograms obtained in this manner delineate the normal and diseased frontal sinuses and antrums in an entirely satisfactory manner, but on the other hand, the sphenoid projection is of practically no value. The ethmoid labyrinth of each side is also outlined on the plate, but not so satisfactorily as the frontal sinuses and maxillary antrums. This is due to the fact that in the sagittal roentgenogram the ethmoid and sphenoid cells lie in a row vertical to the plate, and thus the outline of one cell overlaps the other, rendering it difficult to distinguish disease of the anterior from that of the posterior group of cells. However, since the posterior ethmoids project farther into the orbit than the anterior ethmoids, abnormal blurring corresponding to the position of the former group may indicate their disease.

Full profile roentgenograms (bitemporal) give important information concerning topographic anatomic relations, but since the cell outlines of one side are directly superimposed on those of the other, they are comparatively valueless for diagnostic purposes.

Roentgenograms taken in the vertical axis of the skull with the plate either under the chin or at the vertex (Scheier,[1] Pfeiffer[2]) delineate the ethmoid and sphenoid cells, but are usually too indistinct for accurate diagnosis. As Skillern[3] puts it, "the posterior ethmoid and sphenoid are not always successfully skiagraphed, but there is every reason to believe that these will also be accessible as our technic becomes more and more perfect."

The Oblique Method.—The remaining method of roentgenography of the ethmoids and sphenoids is the oblique method, introduced by Rhese[4] some years ago, but never generally adopted either here or abroad. As I shall endeavor to show in this paper, Rhese's method is the most valuable of all for the study of ethmoid and sphenoid disease, but the difficulty attendant on the reading of oblique roentgenograms has probably interfered, to some extent, with its more general adoption.

The technical objections to the method now no longer exist, as demonstrated by Dr. Charles Goosmann, who very kindly undertook the roentgenography for me, and to whom I am greatly indebted for valuable advice and cooperation. In passing I may state that at my suggestion an attempt was made to obtain roentgenograms of the ethmoids on photographic films placed within the nose, but these could not be accurately read, owing to the small field under exposure.

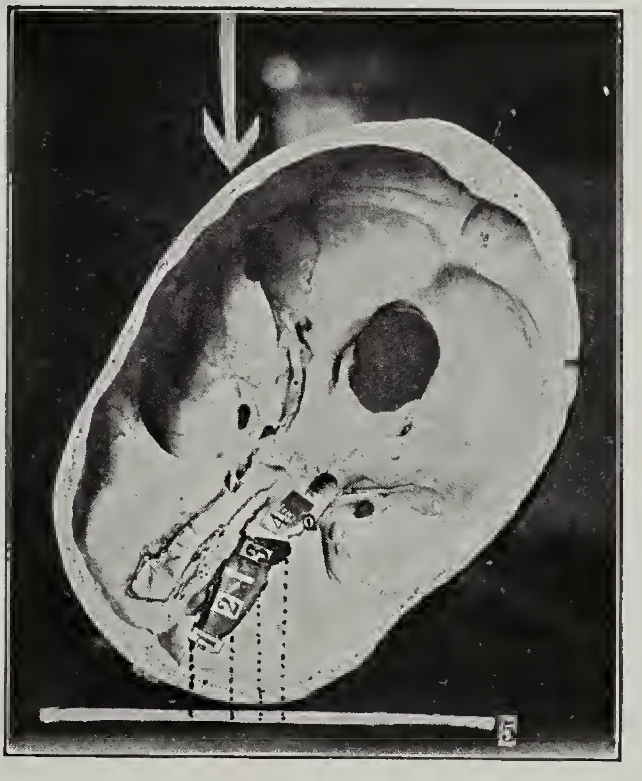

Fig. 1.—Position of skull, and direction of central rays, marked by arrow: 5, Roentgen-ray plate; 1, roof of frontal sinus; 2, of anterior ethmoids; 3, of posterior ethmoids; 4, of sphenoid. Dotted lines indicate projection onto plate.

Rhese's technic is as follows: The patient lies on his side on the table with his face in contact with the photographic plate. (The position is that of a person sleeping on his side, his arm under his head representing the plate.) The head is in contact with the plate at three points, namely, the malar eminence, the outer edge of the supra-orbital margin and the tip of the nose. The central rays go through the upper edge of the auricle, and are thus directed obliquely through the head, but vertically on the plate (Fig. 1).

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Scheier, Max: Die Bedeutung der Roentgenstrahlen für die Erkrankungen der nasalen Nebenhohlen, Beitr. z. Anat., Physiol., Path. u. Therap. d. Ohres, d. Nase u. d. Halses, 1908, i, 402.
2. Pfeiffer, W.: Eine neue roentgenographische Darstellungsmethode der Keilbeinhohlen, Arch. f. Laryngol. u. Rhinol., 1910, xxiii, 420.
3. Skillern, R.: Accessory Sinuses of the Nose, Philadelphia, 1913.
4. Rhese: Die chronischen Entzündungen der Siebbeinzellen und der Keilbeinhöhle; mit besonderer Berücksichtigung ihrer Beziehung zur allgemeinen Medizin und ihrer Diagnostik durch das Roentgenverfahren, Arch. f. Laryngol. u. Rhinol., 1910, xxiv, 383. Sonnenkalb: Die Roentgen Diagnostik des Nasen und Ohrenarztes, Jena, 1914, p. 76.

A study of Figure 1 shows the lines in which the sphenoid and ethmoids of the side nearest the plate are projected. The posterior-superior portion of the sphenoid, *S*, on the near side, is left uncovered by the sphenoid of the far side. The posterior-ethmoid group is projected immediately anterior to the sphenoid sinus and is overlapped by the sphenoid and ethmoids of the far side. The anterior ethmoids are overlapped by the ethmoids of the far side. The upper portion of the anterior ethmoids, that is, "the fronto-ethmoids," are projected on the plate without any overlapping from the opposite side.

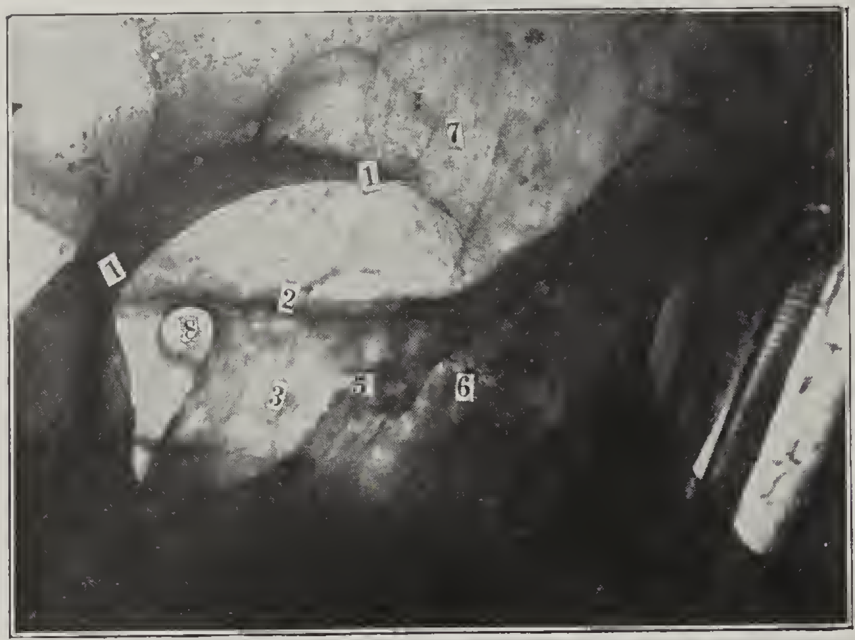

Fig. 2.—Roentgenogram of dry skull (right side): 1, 1, orbital margin; 2, suture line between frontal bone and lamina papyracea; 3, sphenoid; 5, posterior ethmoids; 6, anterior ethmoids; 7, frontal sinus; 8, optic foramen.

Since the sphenoid and the ethmoid labyrinth on the side nearest the plate are separated from the latter by the short distance equivalent to the depth of the orbit, they naturally come out distinct in the roentgenogram. For purposes of comparison a plate must be made of each side.

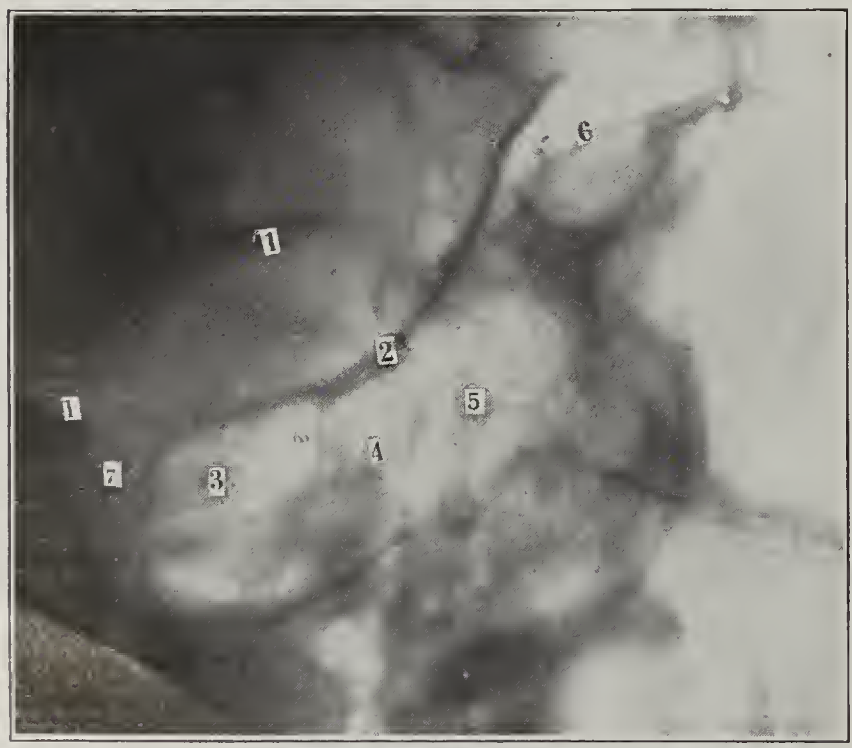

Fig. 3.—Roentgenogram of normal cavities in an adult (right side): 1, 1, orbital margin; 2, suture line; 3, sphenoid; 4, posterior ethmoids; 5, anterior ethmoids; 6, frontal sinus; 7, optic foramen.

The Normal Sphenoid and Ethmoids.—In the oblique roentgenograms there are certain fairly constant lines or landmarks which aid in the reading of the plates. The margin of the orbit appears as a circle and the two orbits together give the impression of a pair of large-rimmed glasses resting on the nose. Within the circle of the orbit which was in contact with the plate a horizontal line will be noted crossing the median wall and representing the suture line between the lamina papyracea and the frontal bone. The superior fissure of the orbit is represented by a line descending vertically in the posterior part of the orbit. Parallel to this line and about one-half inch anterior thereto a second line descends through the orbit and represents the line of junction of the bony septum with the anterior sphenoid face. At the junction of the posterior vertical line and the horizontal line there is a small circle corresponding to the optic foramen. The sphenoid sinus appears as a rhomboid or oval approximately bounded by the two vertical lines. By placing a probe in the sphenoid sinus of a patient and making plates both in the lateral and oblique positions the reading of the sphenoid portion was proved to be correct. The ethmoid cells are bounded above by the horizontal line alone and below by the margin of the orbit, and the fronto-ethmoid cells are noted anteriorly near the floor of the frontal sinus. The latter are clearly shown and the malar eminence is a prominent landmark (Figs. 2 and 3).

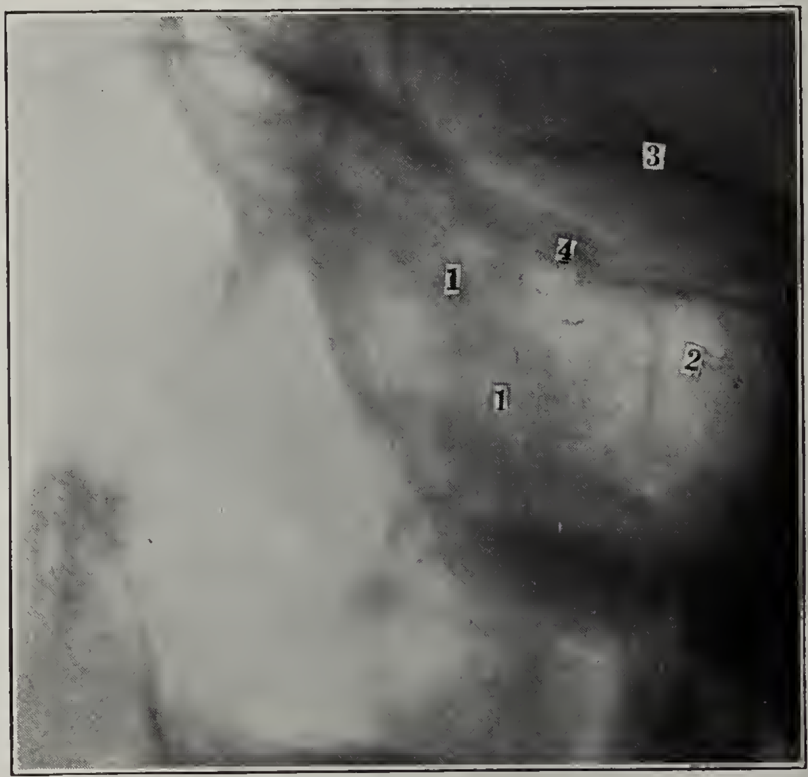

Fig. 4.—Roentgenogram showing anterior ethmoiditis at 1, 1; 2, normal sphenoid; 3, orbital margin; 4, suture line. Note blurring in diseased areas (left side).

If one sets up a mental image of the structures in contact with the median wall of the orbit and adjacent to it, and imagines these structures projected onto this wall, the reading of the plate is much simplified.

The Pathologic Ethmoids and Sphenoid.—When the sphenoid or ethmoid cells contain pus, hyperplastic or neoplastic tissue, the roentgenogram usually reveals the diseased condition. The crisp, sharp normal lines are more or less obliterated and replaced by blurred, washed out or indistinct contours. The pathologic tissue may be revealed as an abnormal shadow of greater or lesser density, varying with the nature and seat of the disease process (Figs. 4 and 5).

With sphenoidal disease the blurring occurs in the posterior part of the orbit. Posterior ethmoidal disease is outlined in the middle portion of the orbit, while with the anterior ethmoiditis the blurring occurs farther forward near the outlines of the nasal process of the superior maxilla (Fig. 6).

The fact that the oblique roentgenogram enables one to locate disease of the anterior or posterior ethmoids or of the sphenoid itself constitutes the chief advantage of this method. In each of two cases an unsuspected polyp was found within the sphenoid when it was opened. In numerous cases controlled by operation, ethmoid disease was accurately located as predicted from the roentgenogram. When polypi were present the larger ones were removed prior to making the Roentgen-ray plates, in order to obviate obscuration of the ethmoid outlines by the polypi. In practically every polyp case a concomitant ethmoiditis was revealed by the Roentgen ray.

It frequently happened that ethmoiditis was not depicted on the frontal plate taken in each case, but was clearly shown on the oblique plate. However, the accuracy of diagnosis will be increased by employing both methods, which should be done in all cases. While positive plates are of great value in checking up clinical findings, negative plates in doubtful cases are also important and may prevent needless operations. This was well illustrated in the case of a physician who had elsewhere been told that he required an ethmoid operation. As soon as he was informed that his plates were negative all of his symptoms disappeared.

It should not be assumed, however, that absolute reliance can be placed in the roentgenograms without regard to clinical symptoms. In a few cases the plates proved misleading, since operation failed to entirely confirm the roentgenogram diagnosis. Sources of error are encountered if the sinuses of the two sides vary considerably in the natural thickness of their valls, with a resulting contrast in the roentgenogram. urthermore, as pointed out by Rhese[4] and as we now from transillumination, a healed process in an ccessory cavity may still appear as an abnormal shadow. As a general rule, however, reliance may be placed on the Roentgen findings.

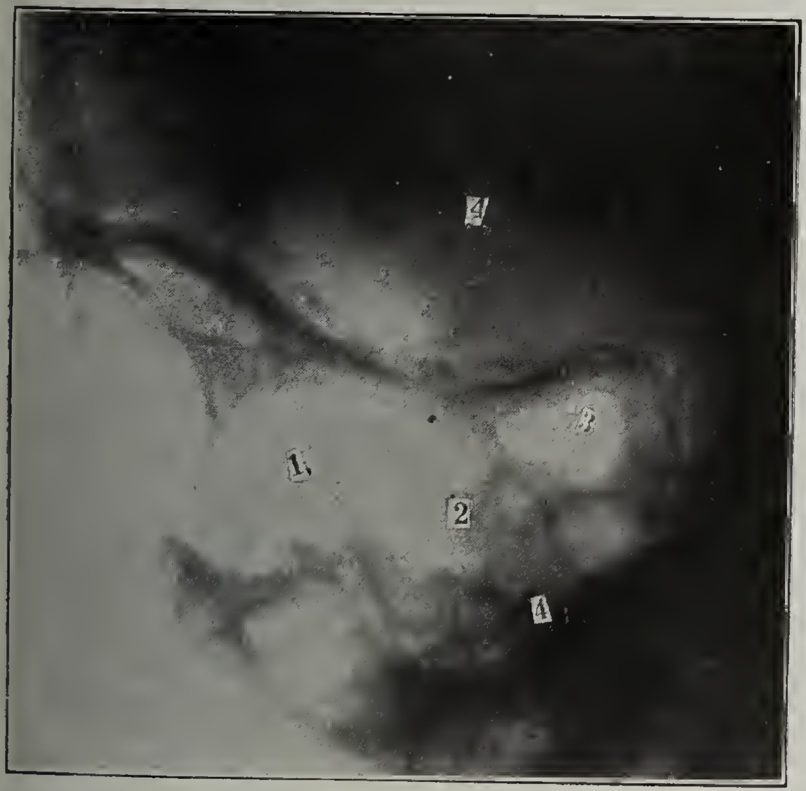

Fig. 5.—Roentgenogram showing 1, anterior, and 2, posterior ethoiditis; 3, normal sphenoid; 4, orbital margin. Note blurring in disased areas (left side).

Considering the important anatomic relations of the sphenoidal and ethmoidal cavities as well as the possible dangers attendant on operations therein, we should make careful clinical study of each case, and in addition, roentgenography should be employed as one of our most valuable aids to diagnosis.

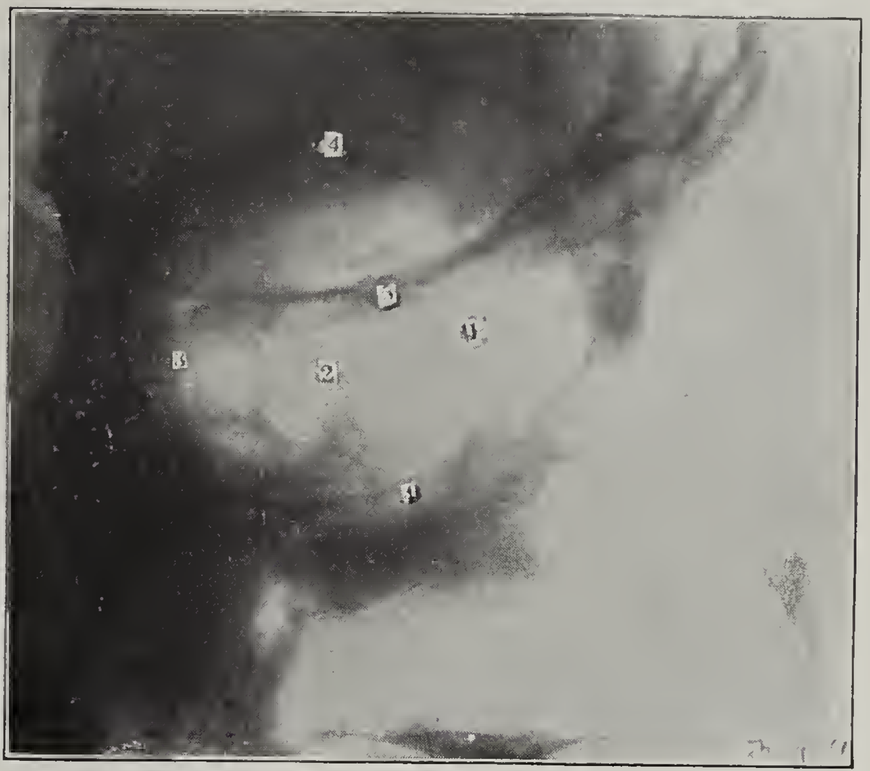

Fig. 6.—Roentgenogram showing involvement of 1, anterior, and 2, posterior ethmoids, and 3, the sphenoid. 4, 4, orbital margin; 5, suture line (right side).

SUMMARY

The usual methods of roentgenography of the sphenoid and ethmoid cells give uncertain results.

The oblique method is the most valuable and accurate. Both the oblique and sagittal methods should be employed.

The roentgenogram is a great aid to diagnosis and should be combined with careful clinical study.

Venereal Disease.—I have said that venereal disease ruins but does not kill. It does not select itself out by death. The deaths from venereal disease in the British army have rarely ranked more than one to 1,000 of strength, while the cases have ranked as high as 500, and only in the last few years have got as low as 100. Deaths from venereal disease in the civil population of England and Wales were, for 1909, from syphilis 47 per 1,000,000; from gonorrhea, one per 1,000,000. The total deaths from syphilis in Paris in 1909 were 0.397 per 10,000 inhabitants, of which 0.24 per 10,000 were of children under 1 year of age. The deaths from tuberculosis of the lungs were 40.53 per 10,000 inhabitants; from heart disease, 13.67 per 10,000. It is obvious from these figures that venereal disease finds in armies a veritable breeding ground. That such disease is highly dysgenic, i. e., race deteriorating in influence, is indisputable. The frightful effects of syphilis, and its direct communication from parents to children, are fairly well known popularly. But with regard to the serious effects of gonorrhea, the popular mind is not equally well impressed. Indeed, it is too commonly regarded as a mild and not very shameful disease. But medical opinion is really doubtful whether it is not, in some of its effects, as bad as or even worse than syphilis. About 50 per cent. of women infected are made barren by it. Many are made chronic invalids. It is the commonest cause of infant blindness (*ophthalmia neonatorum*). In Prussia, 30,000 such blind persons are to be found.—V. L. Kellogg.

SOME POINTS ABOUT HOOKWORM DISEASE, ITS DIAGNOSIS AND TREATMENT

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ANGEL ISLAND, CALIF.
AND
J. P. HICKEY, M.D.
Acting Assistant Surgeon, United States Public Health Service
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If we bear in mind that the enormous territory comprising 66 degrees of latitude and representing a belt running around the middle portion of the earth may be, and generally is, the habitat of the hookworm, we will be impressed with the fact that hookworm disease may be encountered at almost any time and perhaps when least expected.

Observations made on Orientals in the United States Immigrant Hospital, Angel Island, Calif., extending over a period of more than three years, convince us that whenever practitioners are consulted by an Oriental a microscopic search for hookworm ova should be made just as much a part of the routine examination, in all cases in which the diagnosis is not apparent or is at all doubtful, as is the routine examination of the urine, the blood or the sputum.

Possibly the fact that some of us are not quite familiar with the preparation of specimens for hookworm examination or with the appearance of the ova of this parasite in the stools has acted as a deterring factor in making search for evidence of this disease a routine practice. We are all naturally liable to consider measures with which we are not perfectly familiar as possibly requiring some degree of special aptitude or training; but we can lay aside any disinclination to make a routine search for hookworm ova, if our hesitancy is founded on the fact that we are not quite familiar with its appearance, because the discovery and identification of these ova in the feces is not a particularly difficult piece of microscopic work. It takes no longer and it is no more confusing than a thorough microscopic examination of a urinary sediment. There are only a few things which may possibly be confused with the hookworm egg, and a very limited experience will enable the average observer to differentiate these, at least from a practical standpoint, even without resorting to micrometry.

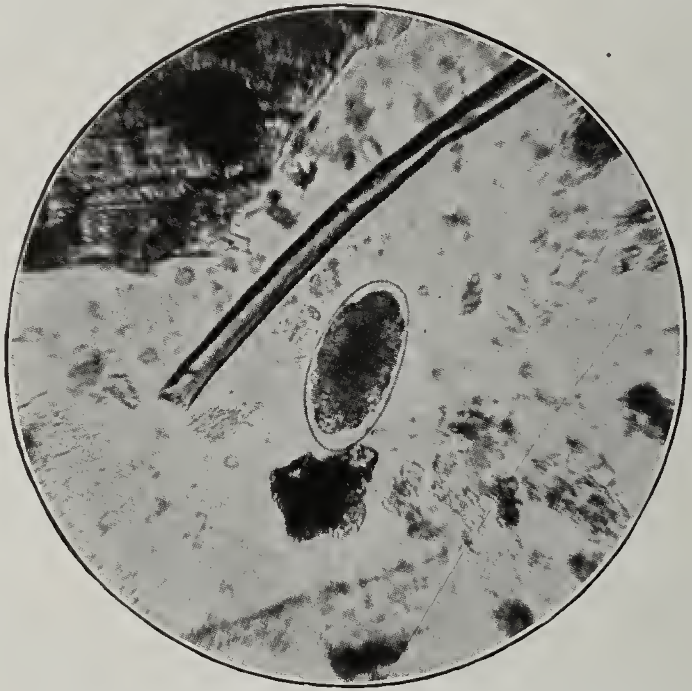

Fig. 1.—Trichostrongylus instabilis; in this and the following illustrations, the ocular is 10× and the objective 4 mm.

From Sept. 22, 1910, to Jan. 1, 1913, 6,428 stools of Oriental aliens were examined in the hospital, and 3,320, or over 50 per cent., were found to be infected with either *Ankylostoma duodenale* or *Uncinaria americana.* If these figures are borne in mind and also the fact remembered that similar aliens, as will be shown later, proceed without examination to all parts of our country to reside both in cities and in the outlying territory, it is apparent that the general practitioner has certainly an even chance of finding hookworm disease in any Oriental presenting himself for treatment for any condition, especially if the condition seems to be at all obscure. Coupled with this knowledge, the further fact should be remembered that it is the universal custom of truck gardeners in Japan and China to use human excreta as a fertilizer; and when one considers that many Orientals in this country are engaged in truck gardening as an occupation, one may draw one's own conclusion as to the number of foci of infection established in the United States. It is our opinion that hookworm disease is contracted by unconscious coprophagy (from raw vegetables) to a decidedly greater extent than is generally supposed to be the case. This opinion is supported by the fact that we have several times found hookworm ova in the stools of bound-footed Chinese women — persons who never even in their own homes have gone barefooted. We have found hookworm disease present in a large proportion of Chinese merchants who, after a residence in the United States of from fifteen to forty years, have been to China for a year's visit and then returned to this country, and who during their stay in China did not engage in agricultural pursuits, and when questioned denied having gone barefooted. Their statements have been substantiated by the facts that their financial condition did not necessitate their engaging in such pursuit, and their long residence in the United States had taught them the "shoe habit" to such an extent that they would probably not depart from it; and we have found a large percentage of infection in people from Hongkong and Canton who have never lived in a rural district. Coupled with this evidence is the fact that notwithstanding the high percentage of hookworm disease observed here, we rarely find lesions of an active ground itch or indications that such a condition has recently been present.

Because we find that it is quite impossible to judge simply from the appearance of an Oriental whether or not he is suffering from hookworm disease, the statement of Manson that "the secret of the diagnosis of ankylostomiasis, like that of many other diseases, is to suspect its presence" is fully borne out. Many persons present themselves for examination who are robust and even athletic in appearance, but whose feces on microscopic examination give positive results. It may be that owing to a mild infection, or possibly because of immunity conferred by generations of hookworm infected ancestors (assuming that the anemia of hookworm disease is the result of the presence of a toxin), these people will themselves never suffer to any great extent because of their infection; but they are nevertheless foci of danger if allowed to remain uncured.

The impossibility of diagnosing hookworm disease in this class of patients without the aid of the microscope was so frequently exhibited at this hospital that for one year all aliens were weighed, measured as to their height, and a note kept as to the degree of robust-ness and whether or not they presented any signs of anemia, lassitude, etc. Moreover, these men were all stripped and subjected to a thorough physical examination before search for the hookworm ova was made, and it would be unlikely that any physical characteristic pointing toward uncinariasis would be overlooked. The result of this tabulation bore out the impression that, if accurate results were to be obtained, the general appearance of a person must be quite disregarded and the microscope used as a routine measure in every case. Symptoms, such as anemia of the upper lip, pallor, "angels wings," dyspnea, etc., were noted in but a comparatively small percentage of these aliens. Possibly the majority of this type of cases are "hookworm carriers"; but even if so, that does not alter what should be the attitude of the general practitioner toward any Oriental patient: The possibility of hookworm disease should not be forgotten, and the microscope should be used as a routine measure before eliminating that possibility.

We have observed a symptom rather common among Orientals when other suspicious signs may be lacking, and, curiously enough, it is a symptom which we have not found mentioned in any of the literature on hookworm disease. We notice, more or less developed in a considerable proportion of infected young persons, and in a few cases even in persons younger than 15 years, a condition corresponding in appearance to an arcus senilis. There is some explanation why this premature change in the cornea should take place in hookworm disease, as it is a condition of fatty degeneration, which degeneration may easily be attributed to the anemia usually secondary to hookworm infection. One other condition which is of some value in a tentative diagnosis and very frequently leads to suspicion is the claim of an age considerably in advance of that which the appearance of the alien would indicate.

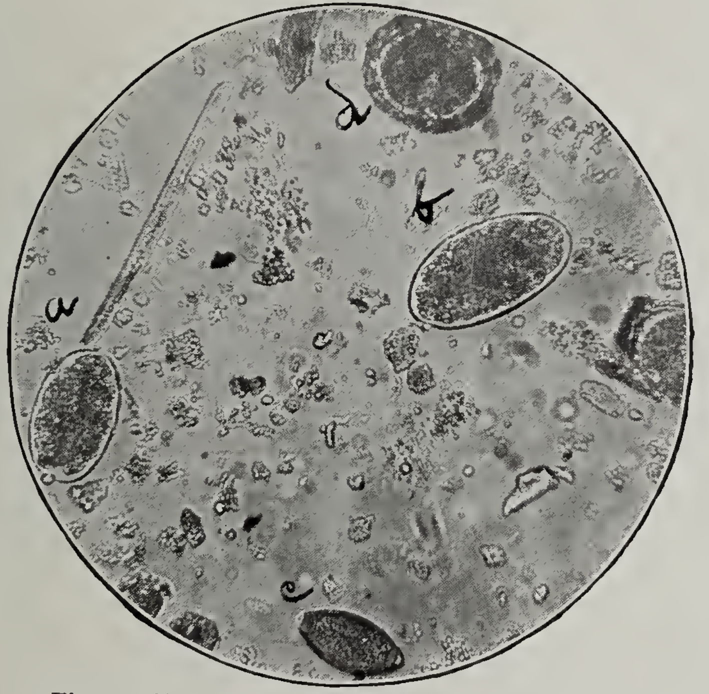

Fig. 2.—Note comparative size: *a*, Ankylostoma duodenale; *b*, Trichostrongylus instabilis; *c*, Trichocephalus dispar; *d*, Ascaris lumbricoides (with albuminous covering).

It being a question of a comparatively few years since the government assumed the position that uncinariasis was a dangerous contagious disease, it follows that great numbers of Orientals were admitted to the United States, largely to engage in mining and railroad construction, in both of which the environment favors the establishing of foci dissemination, without hookworm examination. Even at the present time a considerable proportion of arriving Orientals cannot, under the immigration law, be subjected to medical examination. These exempted persons are "sons of natives" who, although they were born in China and have lived there continuously up to the time of applying for admission to the United States, which in many cases means up to practically 21 years of age, are nevertheless admitted without examination. Many of this class, knowing that they will not be examined here, make no effort to have the parasite eradicated before embarkation.

During the year 1911, which covers the period that is spoken of on the Pacific coast as the "Hindu invasion," about 90 per cent. of all arriving Hindus were found to be afflicted with hookworm disease; but, interestingly enough, a large proportion of those infected were found free from all other intestinal parasites.

The facts outlined will be evidence enough that a routine examination of feces is imperative when approaching a diagnosis in the case of any Oriental, and applies almost as strongly to whites living contiguous to Oriental colonies.

Routine microscopic hookworm examination being, then, a part of our general survey of an Oriental patient (and it need not necessarily be confined to Orientals), the next step is the preparation of the specimen. Here we are fortunate in having to deal with a perfectly simple technic and one which requires extremely little practice to perform expeditiously. Our method is as follows:

1. Take a piece of (preferably) formed stool, approximately the size of a walnut, place it in a porcelain cup, and after adding about 60 c.c. of *cold* water, thoroughly break up the mass with the aid of a wooden tongue depressor. When the suspension is as complete as possible, destroy the tongue depressor.

If the stool is liquid, add an equal bulk of cold water and mix as directed above.

2. After placing over the mouth of the cup two or three layers of wide mesh surgical gauze, strain a portion of the contents of the cup into a centrifuge tube and centrifuge for ten seconds at full speed (which means 2,000 revolutions a minute). The gauze is thrown away and a new piece used for the next specimen. The cup is emptied of its remaining contents and thoroughly scalded.

3. Remove the tube from the centrifuge, and without disturbing the sediment, pour off the supernatant liquid and refill with cold water to about three-fourths the capacity of the tube.

4. Place a thoroughly clean rubber pad over the mouth of the tube, hold in place by the thumb, and shake vigorously. When preparing two tubes at the same time, extreme care will be necessary that the rubber pads are used on their respective tubes at each shaking.

5. Again centrifuge for ten seconds at full speed.

6. Pour off supernatant fluid as described above, and refill with cold water. Again shake.

7. Centrifuge for ten seconds at full speed.

8. Pour off supernatant fluid, leaving about one-half inch overlying the undisturbed sediment. The specimen is now ready for microscopic examination.

We have found it unsatisfactory to give castor oil in order to obtain a specimen for microscopic examination for the reason that the resulting oily stool interferes somewhat with its manipulation. If any cathartic is necessary, Epsom salt is much to be preferred.

A clean slide is now taken, on which is placed a small amount of sediment. Add sufficient water to nearly cover the slide, mix well, allow to stand for several minutes, and then pour off the surplus fluid.

By adding plenty of water to the sediment the density of the fluid will be lowered, thus favoring the settling on the slide of the hookworm ova, which have a specific gravity of 1.140. The eggs, when they do not appear in other portions of the slide, will sometimes be found near the edge over which the surplus fluid was poured.

In place of the platinum loop generally used in removing a small portion of the feces from the tip of the centrifuge tube, a better contrivance is a piece of aluminum wire, No. 14 gage, about 9 inches long, flattened at one end and fashioned into the shape of a spoon, with the other end bent into a loop for a handle. This makes an admirable instrument for the work. If we let the slide stand for several minutes before pouring off the surplus fluid, blotting the edge of the slide from which the fluid was poured, we shall have a fairly uniform layer with the hookworm ova adhering to the slide. This method is as accurate as any we have used, with the advantage that the even uniform layer permits rapid work. Care should be taken in using the scoop to get to the bottom of the tube, because, owing to the high specific gravity of the hookworm egg, the nearer the bottom the greater the chance of obtaining the ova. Low power magnification is used, and there is no necessity for a cover glass or for staining. Staining is simply increased work, and only complicates a little what is really an absolutely simple process. It is no more useful than would be the staining of easily recognizable constituents in a urinary sediment.

When one is making a great many examinations and using the same slides over and over again for this work alone, the following method of treating the slides will be found advantageous: Immerse them in a 15 per cent. solution of commercial lye and boil for thirty minutes; then thoroughly wash in hot water, after which immerse in aceto-alcohol, 2 per cent., and allow to remain several hours; then take out and wipe. This process removes grease, and the alkali attacking the glass very slightly roughens it, which occasions a certain amount of adhesion between the slide and the water spread and permits a more satisfactory placement of the latter. This method ruins the slide for blood, bacteria, etc., but there are now in use in this hospital slides which are continually treated by the foregoing method and which are still serviceable after having been used for this purpose alone for over two years.

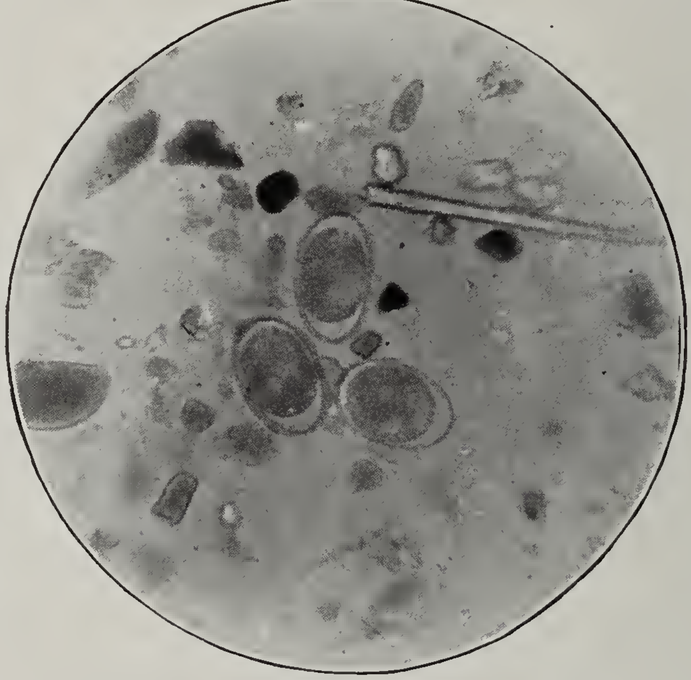
Fig. 3.—Ascaris lumbricoides (without albuminous covering).

In those cases in which a permanent mount of the various ova found in the feces is desired, the method of Surgeon M. W. Glover, U. S. P. H. S., is the most satisfactory. This consists in ringing the slide with asphaltum varnish and mounting the ova-containing sediment in sterilized and filtered sea water.

As previously stated, there are certain things which may be mistaken for hookworm ova; but with a little practice and after one has seen a few times those things which resemble a hookworm egg, there is very little chance for error, although it should be remembered that this egg itself appears in two species, namely, *Uncinaria americana* and *Ankylostoma duodenale.*

The ova of the following parasites may possibly be mistaken for hookworm eggs:

1. *Strongyloides stercoralis.*—We seldom find these ova in the stools except after purgation. They resemble the hookworm egg and are accompanied by rhabditiform larvae which under the microscope show great activity. It should not be forgotten that hookworm ova and larvae of *S. stercoralis* may be seen in the same fresh specimen.

2. *Strongylus subtilis* Looss, *Trichostrongylus instabilis* Railliet, *Trichostrongylus orientalis* (?) Jimbo. This ovum greatly resembles that of *Uncinaria americana* and *S. stercoralis* both in color and size, but with the difference that the vitellus is made up of from eight to thirty-two blastomeres, and the egg itself is perceptibly flattened on one side. There are no larvae to be seen in the stools as in the case of *S. stercoralis* (Figs. 1 and 2).

It may be necessary to wash the gross specimen of feces in order that the parasite may be isolated, in which case a course of treatment should be previously given to insure the delivery of the worm itself for identification. The parasites are about one-half the length of the hookworm, are few in number, and it sometimes requires the washing of several stools before one is recovered, although in the meantime the ova appear in the stools continuously.

If, after washing the stool, careful search has been unsuccessful in revealing hookworm, it is reasonably safe to conclude that the infection is due to *Strongylus subtilis.* These organisms are not found in great numbers, there being usually less than ten and only exceptionally fifty or more in the body. Because of its small size it can easily escape detection. No doubt the eggs of this worm are often mistaken for those of *A. duodenale.* Figures 1 and 2 are characteristic of these eggs. This organism we have found only in Japanese, and it is said to be nonpathogenic. The eggs measure from 0.072 to 0.080 mm. long by from 0.040 to 0.043 mm. broad, while those of *Ankylostoma duodenale* (Figs. 2 and 4) are from 0.056 to 0.061 mm. long by from 0.034 to 0.038 mm. wide, and *Uncinaria americana* from 0.057 to 0.072 mm. long by 0.036 wide. Thus, on the average, the smallest of the three is *A. duodenale,* the middle size *Uncinaria,* and the largest *subtilis.* Again, the ends of the eggs of *A. duodenale* are broadly rounded, those of *Uncinaria* taper toward each pole, while with *Strongylus* only one end is tapering. The ova of *subtilis* contain more blastomeres than the ova of hookworm.

To wash a specimen, sufficient water is added to make a suspension, and it is mixed thoroughly and strained through two layers of wide mesh gauze. The parasite will be found on the gauze, in many cases embedded in mucus, while most of the other constituents of the specimen will filter through. It will be found, if the patient has received the customary preparation in the way of salines before the administration of the anthelmintic, that the stools which follow will be practically odorless, thereby making the process of washing less objectionable.

Worms recovered by washing after oil of chenopodium treatment show no signs of life, while in the first stool after thymol or eucalyptol treatment, many of them exhibit movement.

3. *Ascaris lumbricoides.* These are liable to be confounded with hookworm ova only when they are without the bile-stained albuminous covering; but if we remember that the chitinous shell of the hookworm egg appears linelike, continuous and definite, while that of the roundworm is thicker, and on careful focusing appears double, with the circular nucleus usually more or less bile-stained (Fig. 3), while that of the hookworm is grayish, the two are not liable to be confused. Furthermore, the hookworm egg is of a smaller size and generally of a different shape than the roundworm ovum (Figs. 2 and 4).

4. *Schistosoma japonica.* These eggs assume various shapes in the same specimen, depending on the stage of development, at times resembling *A. lumbricoides* ova and sometimes the ova of hookworm. Pressure on the cover glass will sometimes cause movement of the contaminated miracidium within the shell and often cause the egg to assume an oval outline. Various observers differ considerably as to the usual size of this egg, as illustrated by Table 1.

The following description, by Boviard-Cecil, of this ovum accords entirely with our observations in this hospital:

> The ova which are found in the feces nearly always contain miracidia and are larger than the young undeveloped ova. The embryo as it lies in the ovum is pear shaped, with a tapering trunk and sharp pointed proboscis. Its average dimensions are 0.074 x 0.053. It is made up of cells which contain refractile granules and its surface is covered with cilia. If one of the eggs be pressed under a cover glass the parasite can be seen moving about inside the shell membrane.

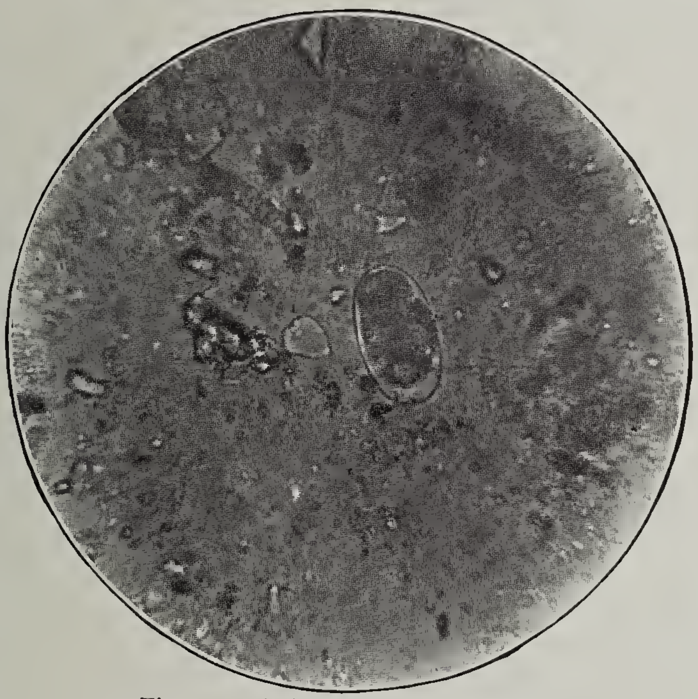

Fig. 4.—Ankylostoma duodenale.

TABLE 1.—SIZE OF SCHISTOSOMA JAPONICA OVA

Observer	Reference	Size, mm.
Manson.........	Tropical Diseases, 1914..........	0.0728 by 0.048
Fujinami.......	....	0.0662 by 0.036
Woolley........	....	0.0624 by 0.042
Boviard-Cecil...	Am. Jour. Med. Sc., 1914........	0.065 by 0.031, in uterus 0.074 by 0.053, in feces
Braun..........	Braun-Siefert: Die tierischen Parasiten des menschen, 1915..	0.075 by 0.053 0.090 by 0.075
Brumpt........	Precis de parasitologie, 1913.	0.070 by 0.045 0.075 by 0.055

The technic described for the preparation of specimens for microscopic examination is not applicable when searching for the ova of *S. japonica* for the reason that in schistosomiasis intestinalis the gross specimen of feces contains a large amount of mucus, embedded in which are the ova of the parasite. During the preparation of the specimen this mucus containing the ova, being insoluble in water, will not pass through the gauze filter and therefore will impede, if not prevent, the passage of the ova. This condition may be obviated either by using a mucus solvent such as antiformin or, preferably, by making a smear directly from the mucus.

The ova of *Trichocephalus dispar* (Fig. 2) *Oxyuris vermicularis, Bothriocephalus latus* and the various tenias need not be considered, as there is little probability of their being mistaken for the ova of hookworm, unless it be in the case of *O. vermicularis*, which has a thin shell and in some respects resembles *A. duodenale* ova; but its smaller size (0.054 by 0.025 mm., or about the size of whipworm ova), will serve to differentiate.

For those whose microscopes are not equipped for measuring, a practical working method is to visualize the size of the roundworm egg, this ovum being the most constant in size, and then mentally compare with it the size of the ovum under consideration.

It is an interesting fact that almost all Chinese and Japanese who show hookworm infection also show an accompanying infection of roundworm and whipworm, while Hindus usually show only hookworm. Figure 2 shows the ova of these three parasites and their relative size.

TREATMENT

Thymol is the anthelmintic almost universally administered throughout the United States in the treatment of hookworm disease, and it was used exclusively in this hospital until one year ago, when oil of chenopodium was substituted. Since that time, owing to the encouraging results obtained, oil of chenopodium has been adopted as the regulation treatment to the exclusion of all others, the oil being of the variety known as the Baltimore oil. Compared with thymol, oil of chenopodium gives markedly better end-results, and its value is further enhanced by the facts that not only is it followed by fewer disagreeable after-effects but with its use no dietetic precautions need be exercised either before or during its administration.

The literature on the physiologic and toxic action of chenopodium is limited, but what there is seems to show that there is very little danger connected with the use of the drug unless the doses are excessive and repeated. Motter says:

> Toxicologically a search of the "Index Catalogue" and the "Index Medicus" reveal but twelve published cases of poisoning by wormseed oil in something over fifty years . . . Of these eight were fatal . . . All of the reported cases, however, show a certain general similarity, indicating that the toxic action is exerted particularly on the central nervous system.

It is possible that the drug has a cumulative action, and should this occur, or an idiosyncrasy be manifested, free purgation and stimulation with hot coffee should be instituted at once. We have found the method of administration as recommended by Schuffner and Vervoort to be, with some modification, satisfactory. They give 16 drops (not minims) of oil of chenopodium every two hours for three doses, and a tablespoonful of castor oil with 3 c.c. of chloroform two hours after the last dose of chenopodium. In our experience this dose of chloroform was followed in a considerable percentage of cases by vertigo and stupor, and several times by a temporary deafness which lasted for two or three days. This led to trying a smaller dose of chloroform, which was found to be fully as efficacious in its results as the larger dose, and to eliminate the untoward symptoms mentioned. We prefer administering the oil on sugar rather than giving it in capsules, emulsion, or in tablet form.

Our routine course of treatment for adults is as follows:

Preparatory treatment: At 7 a. m. magnesium sulphate, saturated solution, 60 c.c., is given. At 7 p. m., sodium sulphate, saturated solution, 90 c.c. The next morning chenopodium is commenced, proceeding as follows:

7 a. m., oil of chenopodium, 15 drops.
9 a. m., oil of chenopodium, 15 drops.
11 a. m., oil of chenopodium, 15 drops.
1 p. m., castor oil, 18 c.c.; chloroform, 2 c.c.
1:30 p. m., plain castor oil, 30 c.c.
2 p. m., a cup of hot tea.

TABLE 2.—DIFFERENTIATION OF OVA

	Shell	Shape	Contents	Average Size, mm.
Ankylostoma duodenale......	Thin	Oval	Grayish	0.06 by 0.04
Trichostrongylus instabilis...	Thin	Oval, flattened on one side, more pointed at one pole.	Dark gray to brown.........	0.076 by 0.0415
Schistosoma japonica........	Thin; sometimes double contour.	Oval	Pale yellow to yellowish brown; granular or containing miracidium.	0.074 by 0.053
Ascaris lumbricoides.........	Thick; double contour *.....	Round or oval...............	Bile stained	0.065 by 0.045

* Applies when devoid of albuminous covering.

The dosage of oil of chenopodium from 6 to 7 years is 5 drops; from 8 to 9 years, 7 drops; from 10 to 11 years, 10 drops; from 12 to 15 years, 12 drops; 16 years and over, and under 60 years, 15 drops.

A varying amount of the stock solution of chloroform-castor oil mixture is used, depending on the age of the patient, and sufficient castor oil added to make the total dose 20 c.c. In the second column of Table 3 is indicated approximately the amount of chloroform per dose in minims. The stock solution contains: chloroform, 2 c.c.; castor oil, 18 c.c.; one dose is 20 c.c. This dosage is to be used in conformity with apparent age only.

TABLE 3.—DOSAGE OF THE CHLOROFORM-CASTOR OIL MIXTURE

Age	Dosage, c.c.	Chloroform, Minims	Castor Oil, c.c.
From 6 to 7 years..............	6	11	14
From 8 to 9 years..............	8	12	12
From 10 to 11 years..............	12	15	8
From 12 to 13 years..............	14	20	6
From 14 to 15 years..............	16	25	4
Over 15 and under 60.............	20	30	..

On the sixth day after treatment the stool is examined and, if found positive, another course of treatment is given and the stool again examined at the end of the second six days. It is not necessary to place limitations on the diet as is the case in using thymol.

In Table 4 are shown the comparative results obtained in our last 300 cases treated with thymol and the last 300 treated with oil of chenopodium.

Chloroform seems to have a marked synergistic action, as giving chenopodium and omitting chloroform from the castor oil has been tried but with inferior results.

A eucalyptol-chloroform-castor oil mixture has given results far below either chenopodium or thymol.

TABLE 4.—NUMBER OF TREATMENTS REQUIRED WITH THYMOL AND OIL OF CHENOPODIUM

Thymol (300 Cases)		Chenopodium (300 Cases)	
Number	Per Cent.	Number	Per Cent.
1......................	74	1......................	266 or 87
2......................	15 plus	2......................	34 or 13
3......................	6 plus	None over 2 treatments.	
4......................	2 plus		
5......................	0.5		
6......................	0.7		

Our experience with betanaphthol has been limited, owing to the discouraging early results obtained.

The drop dose of chenopodium is measured from an ordinary medicine dropper, which equals about 3 drops to 1 minim; 15 drops equal approximately 6 minims.

Chenopodium is administered to nursing mothers, the nursing of the infant being interdicted during the treatment day and for twenty-four hours after taking the chloroform-castor oil mixture. There have been no untoward symptoms affecting the child. We have had no experience with the administration of the oil of chenopodium during pregnancy, as pregnant aliens diagnosed as having uncinariasis are generally paroled on bond and returned to the hospital for treatment after the child is born, and we have not cared to chance the possible indirect oxytocic properties of an essential oil in this class of cases, there being practically no literature on this phase of the subject. In the series of cases treated with oil of chenopodium the ages of the patients range from 6 to over 60 years and represent many whose physical condition was below par, owing to the inroads of hookworm disease. As to the toxicity of chenopodium, we so far consider it absolutely safe when given in the doses mentioned above, nothing having occurred to cause a contrary opinion, and it has the additional value that it expels not only the hookworm but to a large degree also the roundworm, whipworm, tapeworm and the intestinal flukes.

The accompanying pictures are untouched photomicrographs of specimens obtained from patients in this hospital.[1]

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[1] In addition to the references already given, the following will be found of interest:
Castellani and Chalmers: Tropical Medicine, 1913.
Dock and Bass: Hookworm Disease, 1910.
Stitt: Practical Bacteriology and Parasitology, 1910.
Brumpt: Precis de parasitologie, 1913.
Braun and Seifert: Die tierischen parasiten des Menschen, 1915.
Katsurada: Centralbl. f. Bakteriol., 1914, lxxii, 363.
Jimbo: Annotationes Zoologicae Japonenses, 1914.

THE DYSCHROMIAS OF SYPHILIS *

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The late R. W. Taylor[1] held that the color changes occurring in the skin as a result of syphilis could be separated into two distinct groups, true pigmentary syphilodermas, and pigmentations and leukodermatous conditions developing in the course of syphilis, as relics or sequelae of lesions, chiefly secondary, and which might be considered as dyschromatous accidents. Taylor believed, with Maieff,[2] that the pigmentary syphiloderm was due to a chronic specific nflammation of the capillaries of the skin, with ensung endarteritis and occlusion of the affected vessels. As a result of this circulatory disturbance, the red ells lost their pigment, and the escaping coloring mat-er permeated not only the walls and adventitia of the vessels, but the connective tissue cells, and those of the derma and malpighian layer as well.

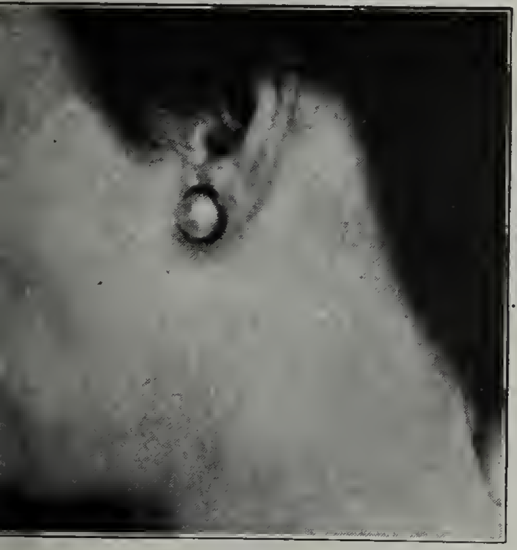

Fig. 1 (Case 1).—Retiform pigmentary yphiloderm.

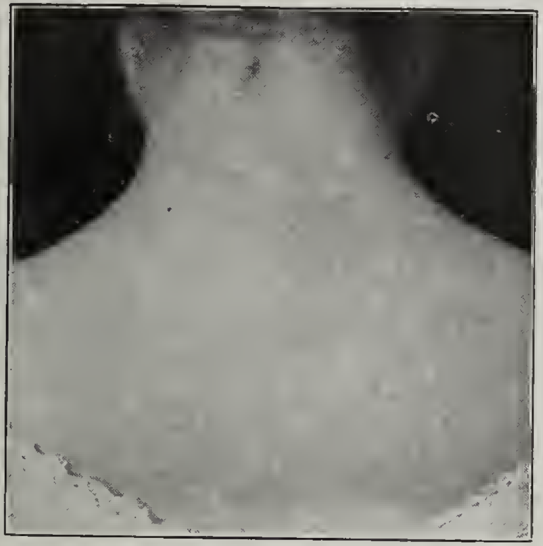

Fig. 2 (Case 2).—Marmoraceous pigmentary syphiloderm.

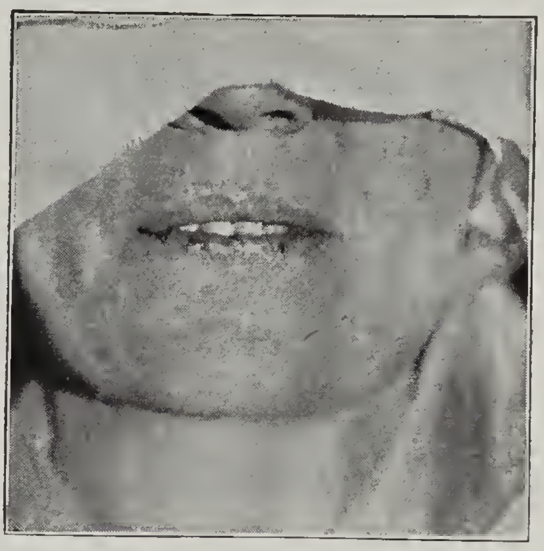

Fig. 3 (Case 3).—Pigmentary syphiloderm involving only the mucous membrane.

In view of the fact that this attractive theory of the ematogenous origin of pigment has been generally bandoned, I believe we should include all of the arious pigmentary changes under the general heading f "syphilitic dyschromias" (Stedman[3] defines dys-hromia as "any abnormality in the color of the kin"), although it may be well to accept Taylor's uggestion, at least in part, and separate the dys-hromias into two groups, a primary group, which mbraces the retiform pigmentary syphiloderm and he marmoraceous pigmentary syphiloderm, and a sec-ndary group, which includes all cases in which the yperpigmentation or the depigmentation is directly aceable to the presence of previously existing syphi-tic lesions of other types.

The subject is rather an elusive one, and probably e best method of clarifying it is by means of series of illustrative case reports, together with a brief discussion of the histopathology.

The following history is that of a fairly typical example of the retiform pigmentary variety:

Case 1.—A. B., housewife, aged 29, referred by Dr. N. E. Lake of Kansas City, Mo., had no history of a chancre, and, so far as the patient could recollect, the skin had always been free from papular and ulcerative lesions. Two years previously, however, she had suffered for several weeks with a "raw throat," and at that time she was also troubled with stomatitis. The discoloration from which relief was sought involved only the lateral surfaces of the neck and the posterior two thirds of both cheeks, and had been present eighteen months. It had begun in the clavicular regions, and had spread quite rapidly, the maximum degree of pigmentation being reached in the course of a few weeks. The white spots, which were circular or oval in outline, and about 0.2 cm. in diameter, had also developed quickly after the brownish patches had been present for about six weeks. The patient thought, when these areas first commenced to appear, that the skin was regaining its normal color, but the further course of the disorder soon disabused her mind of this hope. There had been no change in the character of the eruption during the past twelve months. The posterior cervical, axillary, epitrochlear and inguinal lymph nodes were infiltrated and palpable, and the serum reaction strongly positive (++++).

Instances of the marmoraceous variety, of which the following case is a good example, are comparatively rare.

Case 2.—F. L., housewife, aged 34, referred by Dr. T. J. Beattie of Kansas City, Mo., had had the pigmentary disorder for about one year, and its appearance had changed but little, if at all, during the preceding four months. The parent disease had been contracted two years before, a typical primary lesion having developed in the vulvar region at that time. The chancre had been followed by a generalized roseola, with the development of a positive serum reaction, but the eruption had disappeared quite promptly under heavy mercurial treatment. The skin then remained clear for several weeks, when the peculiar, dappled leukodermatous condition became apparent in the scapular and postcervical regions. The spots were milk-white in color, and rounded, oval or irregular in outline, with slightly hyperpigmented areolae. Subjective symptoms and sensory changes were absent, and the lesions had failed to respond to intensive treatment with both arsenic and mercury.

Pigmentary lesions of the mucous membranes are, in my experience, of rare occurrence. During the past eighteen months, however, I have encountered two well marked examples of this form. Both were in women:

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* Read before the Section on Dermatology at the Sixty-Seventh nnual Session of the American Medical Association, Detroit, June, 16.

* This paper, and those by Drs. Wile and Elliott, and Schamberg, olmer and Raiziss, which follow, are part of a symposium on syphilis. the remaining papers, those by Drs. Matthew A. Reasoner and arold N. Cole appear in The Journal for December 16; those by s. William B. Trimble and John J. Rothwell and by Dr. H. G. Irvine d the discussion will appear in The Journal for December 30.

[1] Taylor, R. W.: New York Med. Jour., 1893, lvii, 177.

[2] Maieff: Compt. rend. Cong. internat. de dermat. et de syph., ris, 1890.

[3] Stedman, Medical Dictionary New York. 1915, p. 274.

Case 3.—L. J., housewife, aged 46, a native and resident of Texas, referred to me by Dr. Nellie Kenefick of Kansas City, Mo., two years previously had contracted a virulent case of syphilis from her husband. The throat lesions were unusually severe, and the cutaneous manifestations had proved resistant to treatment. The serum reaction had remained strongly positive, almost from the beginning, and despite treatment. The presence of some small, dark brownish macules on the vermilion border of the lips and the inner surfaces of both cheeks was first noted about eight months after the appearance of the chancre. At this time a physician in Baltimore, where the patient was then visiting, was consulted, and on learning the history of the case, again instituted treatment by mercurial injections. Following this, the lymph node infiltration gradually subsided, but the pigmentary lesions persisted. A few months later, and about one and one-half years after the disease had been contracted, the blood still showed a strongly positive reaction, and the dyschromatous lesions had changed but little if at all in character. At the time the case came under my observation the only evidences of syphilis that persisted were the positive Wassermann and luetin reactions, and the brownish macules on the lips and inner surfaces of the cheeks. Permission to perform a biopsy was refused.

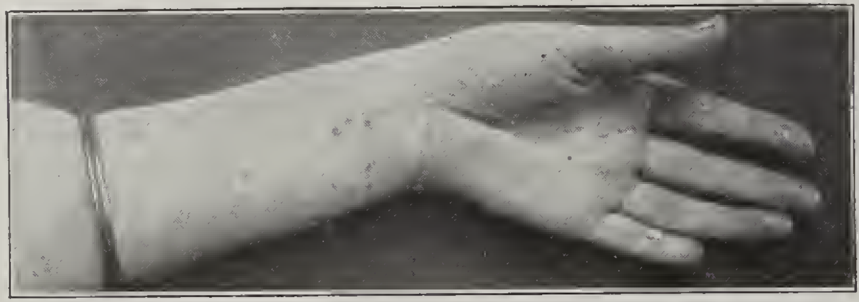

Fig. 4 (Case 5).—Postpapular pigmentary syphiloderm; generalized distribution.

Case 4.—The second patient, who was referred by Dr. Ernest F. Day of Arkansas City, Kan., presented a less striking clinical picture. The lesions, which were brownish or blackish, oval or elongated macules, varied from 0.1 to 0.5 cm. in their longest diameters, and were located on the inner surfaces of the cheeks, near the interdental lines, and on the mucous surface of the lower lip. They had developed during the second year of the disease, which was of ten years' standing at the time of consultation.

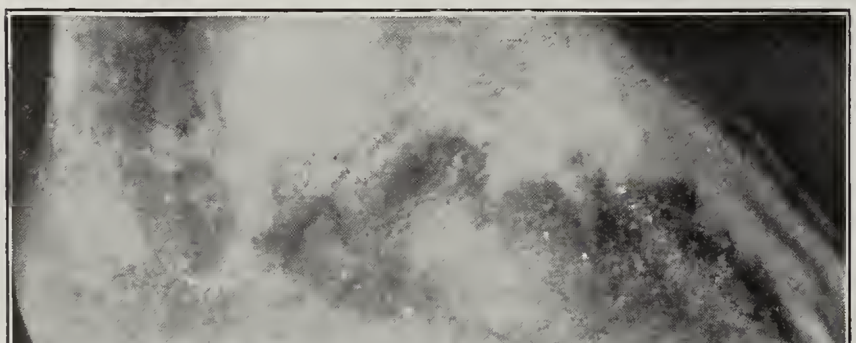

Fig. 5 (Case 6).—Syphilitic dyschromia of localized type.

In postpapular pigmentation, the localization of the lesions is dependent on the distribution of the preceding papular elements. The eruption may be generalized, and symmetrical, but often it is confined to one or more areas on the face, trunk or limbs. The lesions are the size of a pinhead or larger, circular or oval in outline, and of asymmetrical distribution, and give rise to no subjective symptoms. As in all dyschromias, the color does not disappear under pressure. The following example of postpapular pigmentation represents a not uncommon type of this variety of the affection.

Case 5.—In A. F., housewife, aged 32, referred to me by Dr. Frank J. Hall of Kansas City, Mo., the lesions had developed following the disappearance of a papular eruption which had been present about six weeks. The mucous membranes were not involved. The blood gave a strongly positive Wassermann reaction (++++).

The pigmentary deposits occasionally seen in late secondary syphilis may be quite sharply localized instead of being of more or less universal distribution.

Case 6.—In L. C., stockman, aged 42, referred by Dr. H. B. Savage of Galena, Kan., the dyschromia was confined to the outer surface of the right foot, and had been present for more than four years. The original infection had been acquired six years prior to the time of consultation. The pigmentary lesion was roughly oblong in outline, and measured 5 by 15 cm. So far as the patient knew, the discoloration had not been preceded by ulceration of any kind. He attributed its development to pressure from an ill-fitting boot. The lesion was of a dark brownish hue, and presented the characteristic appearance of dyschromia due to syphilis.

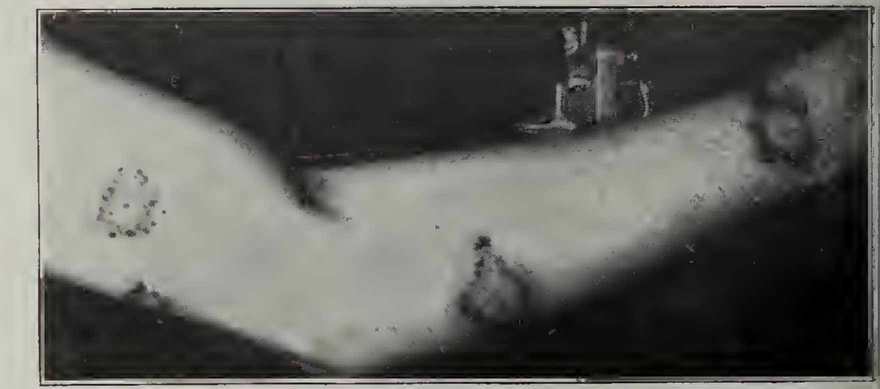

Fig. 6 (Case 7).—Pigmentation following tubercular syphiloderms.

Pigmentation following tubercular syphilodermas is of common occurrence. Occasionally, as in the following instance, the lesions may assume circinate as well as serpiginous outlines.

Case 7.—M. P., laborer, aged 41, referred to me by Dr. R. C. McClure of Kansas City, Mo., had an indistinct history of the presence of a chancre eight years previously. The tubercular lesions had developed three years prior to the time of consultation, and had given rise to slight superficial ulceration, with some resultant scarring. Their distributio was roughly symmetrical, and both the upper and lowe extremities were involved. The pigmentary lesions wer circinate in outline, and completely encircled the atrophic patches left by the preceding lesions.

Case 8.—In this following case, which also developed following syphiloderms of the tubercular variety, the dyschromia was even more striking. B. R., man, jeweler, age 43, referred by Dr. C. M. Stemen of Kansas City, Kan. The disease had been acquired during the patient's thirtieth year and the earlier cutaneous manifestations had disappeare promptly under mercurial treatment. The tubercular lesion had developed on the right leg, eleven years later, and the too yielded promptly to the action of arsenic and mercury Thin, smooth, flexible scars persisted, however, with a considerable degree of brownish pigmentation which had gradually increased in degree during the succeeding twelv months.

Examples of decoloration due to syphilis are muc rarer than instances of hyperpigmentation. A mos striking example was found in a negro subject:

Case 9.—A. F., negro, laborer, aged about 40, referred by Dr. Darwin Delap of the University of Kansas, School of Medicine, was positive that the white spots had first become apparent about four years prior to the date of consultation, though the history of the parent disorder was not clear. The depigmentation had begun in the lumbar region, and had followed the development of "lumps" in the skin. On examination it was found that the process involved one large and several small patches, arranged in a roughly oblong manner. The principal area was located in the dorsal and lumbar regions, and contained several small islands of hyperpigmented skin. Its upper boundary consisted, for the most part, of two long, slightly undulatory, superficial syphiloderms of the tubercular variety, which converged to form a spear-shaped point directly over the spinous processes of the dorsal vertebrae. Some of the smaller leukodermatous patches in the lumbar region had begun to assume a brownish hue, as if pigmentation were again taking place. The decolorized areas were smooth and unctuous to the touch, and there were no signs of cicatrization. The skin on other parts of the body, as well as the mucous membranes, was unaffected. The serum reaction was strongly positive (++++). The tubercular lesions healed promptly under antisyphilitic treatment.

HISTOPATHOLOGY

For laboratory study, specimens were excised from both the pigmented and pigment-free areas in Case 1, from the pigmented areas in Case 3, and from the normal, leukodermatous, and hyperpigmented (island) areas in Case 9.

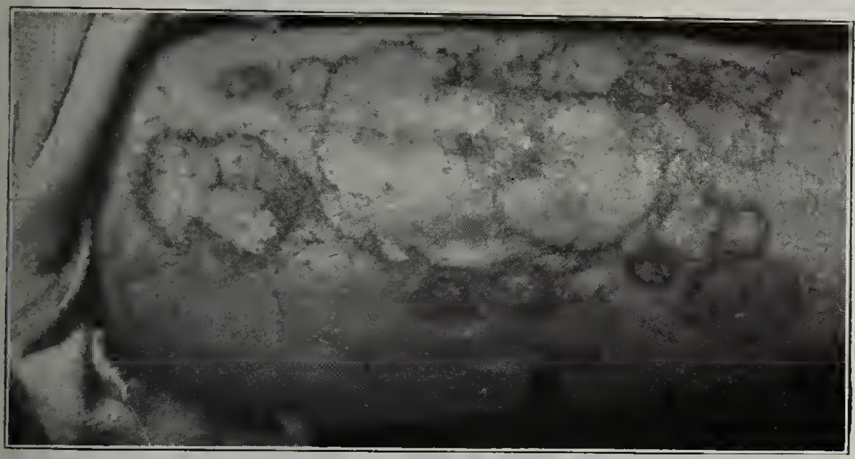

Fig. 7 (Case 8).—Pigmentation following tubercular syphiloderms of leg.

For staining purposes, various dyes were employed, although dependence was placed, for the most part, on hematoxylin-eosin, and the Unna-Pappenheim and Meirowsky-Grund methods. To one who has studied, or even reviewed, the extensive German literature on dyschromias in general, the microscopic findings were far from satisfying. They may be summarized as follows:

Case 1.—In the pigmented areas the papillae were normal in size, and the vessels apparently but little affected. The basal layer of the epidermis contained large numbers of pigment granules, and in some instances the presence of these minute collections of coloring matter could be traced well up into the prickle layer of the skin. Deep in the corium some of the vessels exhibited both endovascular and perivascular changes, but this was not a marked feature in any of the specimens. In the leukodermatous areas the papillae were much flattened or totally absent, and the pigment granules in the lower regions of the epidermis were either greatly decreased in number, or entirely absent. A specimen from the margin of one of the white spots showed that the pigmentary changes were gradual, and far less abrupt than one would expect from the sharp contour of the leukodermatous patches. The corneous layer was unchanged in all of the specimens from this case. No pigment was found in the corium.

Case 3.—The papillae were absent or had absolutely disappeared. The vessels in the corium exhibited both endovascular changes and perivascular infiltration (small round cells and plasma cells). The pigment, which was confined to the areas directly overlying the plasmoma, gave a negative reaction for iron (when tested with ferrocyanid and hydrochloric acid, through the courtesy of Dr. Frank J. Hall), and was for the most part confined to the basal layer of the epidermis. The coloring matter was insoluble in alcohol, ether, water, weak alkalies and weak acids. The prickle layer was slightly increased in thickness, and a few masses of pigment could be found in the upper layers of cells. Degenerative changes were absent. The granular layer was unaffected. The stratum corneum was slightly parakeratotic. No pigment was found in the derma.

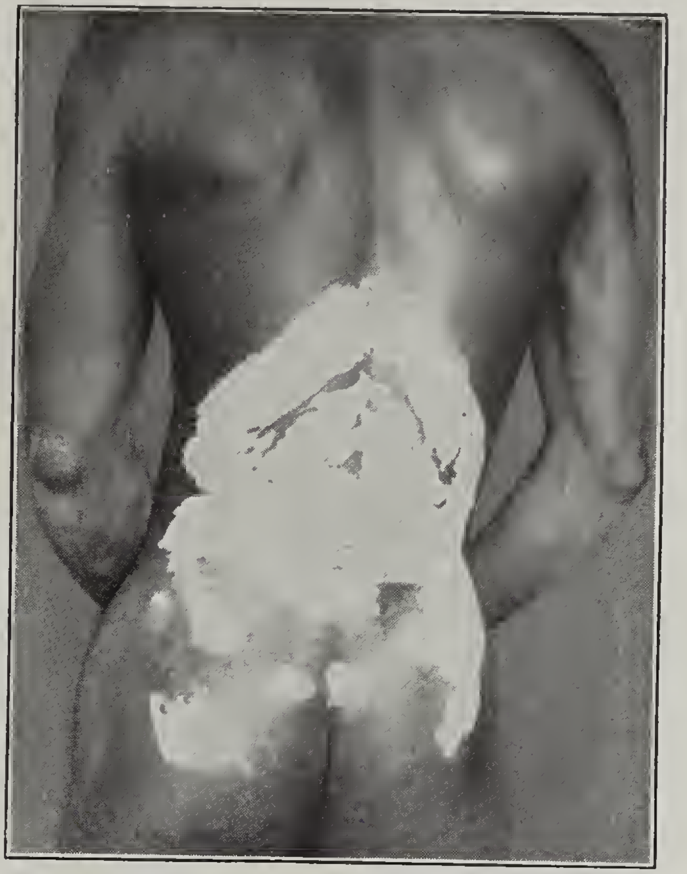

Fig. 8 (Case 9).—Depigmentation due to syphilis, the patient being a full-blooded negro; the islands are hyperpigmented; in the lower portion of the affected area repigmentation is gradually taking place.

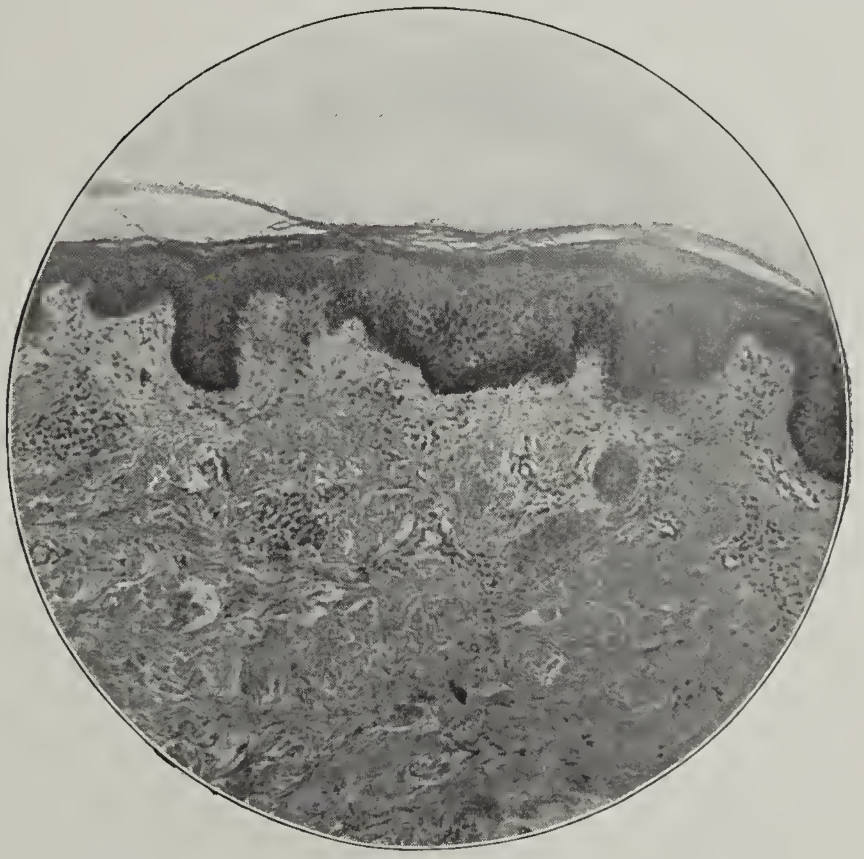

Fig. 9.—Section of normal skin in Case 9; the pigment granules are practically confined to the basal layer of the rete.

Case 9.—The specimens from the normal areas exhibited the structural characteristics of negro skin, although the vascular changes typical of late syphilis also were present. The pigment was confined to the basal layer of the epidermis and to the cells immediately overlying it. In the sections stained with hematoxylin-eosin, the pigment stood out plainly as golden brown particles within and between the cells.

In specimens from the leukodermatous areas, a few of the papillary bodies still persisted, although the seat of widespread plasma cell and round cell infiltration. The vascular changes in the derma of these specimens were very marked. Aside from the absence of pigment of any kind, the epidermis was but little changed. The skin excised from the islands exhibited some papular hypertrophy, together with the vascular changes which were so conspicuous a feature in all of the specimens from this case. The masses of pigment were not confined entirely to the basal layer of the epidermis, but extended upward, sometimes to a point immediately underlying the granular layer. The stratum corneum was slightly thickened, but no coloring matter was found in or above the stratum granulosum. In none of the specimens examined was pigment found in the corium. In a few instances in which the section had been cut obliquely, the specimens gave the appearance of pigment in the corium; but when the specimen was reconstructed it was invariably found that the particles of pigment were in reality confined to basal epidermal cells which had been cut off during the process of sectioning.

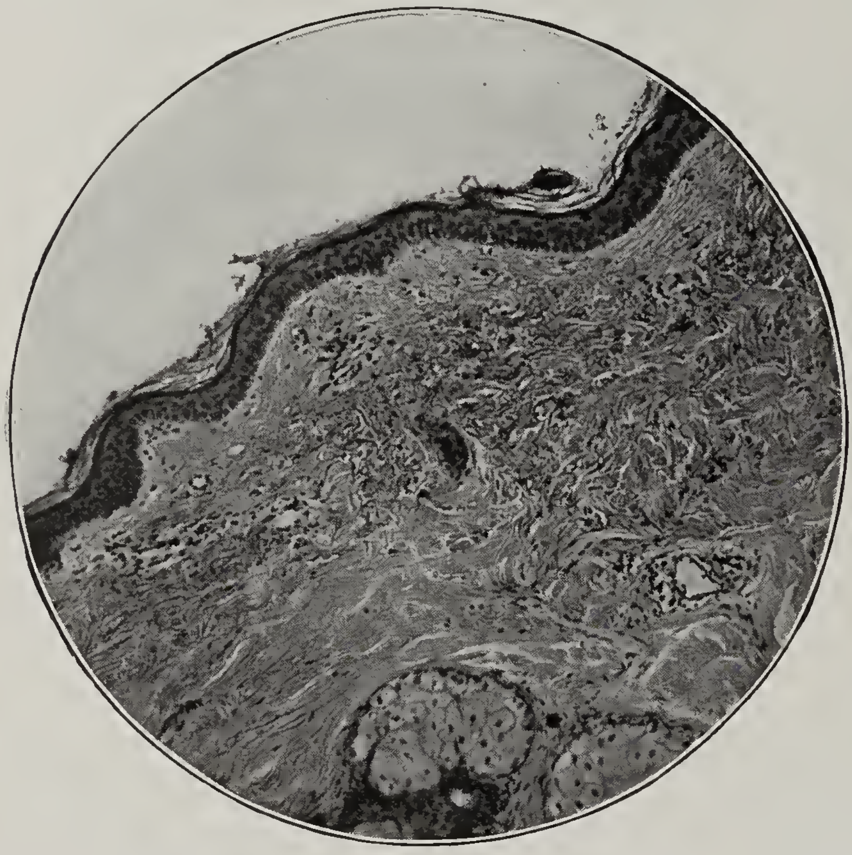

Fig. 10.—Section from a depigmented area in Case 9; the epidermis is absolutely free from coloring matter of any kind; a few of the papillae still remain; the vascular changes which are characteristic of syphilis are apparent throughout the derma.

COMMENT

The source of epidermal pigment is not definitely known. Hutchinson's[4] conclusion that pigmentary lesions of the neck are manifestations of suprarenal disturbance has not received general acceptance.

The present status of our knowledge of the subject has been admirably summarized by Meirowsky[5] in a few lines. Kolliker[6] and Caspary[7] conclude that all branched cells of the epidermis are wandering connective tissue cells. Ehrmann[8] asserts that the pigmented epidermal cells develop from mast cells, and have nothing to do with leukocytes, epithelial cells or connective tissue cells. Riehl,[9] Abby,[10] Meyerson[11] and Rabl[12] hold that they are in part emigrant leukocytes. Schwalbe,[13] Unna[14] and Kromayer[15] consider the branched pigment bodies as acellular structures, which, according to Kromayer,[15] Jarisch,[16] Post[17] and Grund,[18] develop from common or ordinary epithelial cells. The results of Hellmick's[19] researches also indicate that the coloring matter is a direct product of the epidermal cells, and not a hematogenetic substance which has been conveyed to the epidermis by chromatophores. Hellmick concludes that the epidermis has in itself the power of forming pigment, and that the nuclear substance is probably the mother substance of this pigment. Hooker[20] has experimentally shown that stellate pigment cells can be grown in plasma cultures of frog epidermis. Spiegler has demonstrated that none of the high chemical products of the coloring matter of hemoglobin can be obtained from the pigment of the hair, so that the origin of hair pigment from hematin seems impossible. Judging from the results of the work of other investigators as well as from my own experience in the cases herein reported, I believe that the pigment matter is entirely a product of epidermal metamorphosis, and that the plasma cells and connective tissue cells have little or nothing to do with its formation. The fact that in some instances repigmentation occurs following the development of leukodermatous areas would indi-

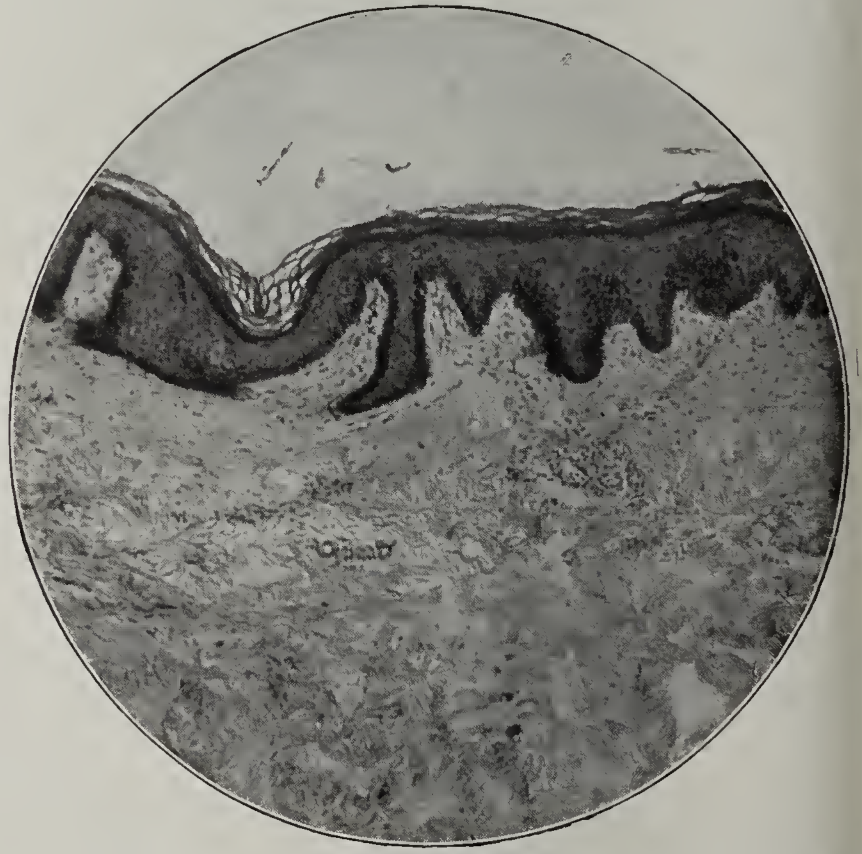

Fig. 11.—Section from one of the "islands" in Case 9 illustrating the papillary hypertrophy, the vascular changes in the derma, and the large amount of pigment scattered throughout the prickle layer.

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[4] Hutchinson: Syphilis, New York, 1913, p. 557.

[5] Meirowsky: Monatsh. f. prakt. Dermat., xlii, 151; ibid., xliii, 391; Ueber den Ursprung des melanotischen Pigments der Haut and des Auges, Leipzig, 1908.

[6] Kolliker: Ztschr. f. wissensch. Zool., 1883, p. 174.

[7] Caspary: Verhandl. a. d. X internat. med. Kong., Berlin, iv; Verhandl. d. deutsch. dermat. Gesellsch., Berlin, 1906; Mracek's Handbuch, ii, 571.

[8] Ehrmann: Bibliot. med., ii, No. 6, Cassel, 1896; Arch. f. Dermat. u. Syph., 1892, p. 397; Brit. Jour. Dermat., 1890, p. 280.

[9] Riehl: Vrtljschr. f. Dermat. u. Syph., 1884, p. 83.

[10] Abby, cited by Meirowsky, Footnote 5.

[11] Meyerson: Arch. path. Anat., 1889, cxviii, 197.

[12] Rabl: Ergeben. f. Anat. u. Entwcklngsgesellsch., vi, 493, Zt. nach Grund.

[13] Schwalbe: Wien. klin. Wchnschr., 1892, v, 13.

[14] Unna: Histopathology; Monatsh. f. prakt. Dermat., 1895, xxi, 1.

[15] Kromayer: Dermat. Ztschr., 1897, iv, 335.

[16] Jarisch: Verhandl. d. X internat. med. Kong., Berlin, iv.

[17] Post: Ueber normale und pathologische Pigmenterung der Oberhautgewebe, J. D., Konigsberg, 1893.

[18] Grund: Beitr. z. path. Anat. u. allg. Path., 7 Supplement.

[19] Hellmick: Monatsh. f. prakt. Dermat., xliv, 184 (good abstract in Brit. Jour. Dermat., 1908, p. 169).

[20] Hooker: Anat. Rec., 1914, viii, 103.

cate that, in at least a certain percentage of cases, the cellular changes are such that it is possible for pigment production to occur again.

The treatment of hyperpigmentation due to syphilis is that of chloasma and similar disorders. Frequent applications of a 1 per cent. solution of mercuric chlorid, in equal parts of alcohol and water, will usually give rise to sufficient desquamation of the epidermis to eliminate the excessive coloring matter, although recurrences are common. If there is too much resultant irritation, a soothing application of zinc oil may be substituted for a few days, when the mercurial preparation may again be resorted to. Constitutional remedies have no effect whatever on the lesions.

A CRITICAL STUDY OF ONE HUNDRED AND TWENTY CASES OF LATE SYPHILIS

WITH PARTICULAR REFERENCE TO EARLY TREATMENT *

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The occurrence of late accidents in syphilis depends on many factors. Among those which constitute predisposing factors in the causation of the so-called tertiary manifestations are trauma, a weak constitution and predisposition of the individual, and malignancy of the infection. Syphilographers of an earlier day and those of the present time agree that by far the most important factor is the lack of or inefficiency of treatment. Fournier, after an analysis of many thousand cases, states that this factor overshadows all others in importance. The efficacy of various mercurial preparations, particularly with regard to their protective value, has been made the subject of numerous studies. At present it seems to be agreed that calomel ranks first in the order of efficiency, and after that, in general, the insoluble preparations in the form of injections; that the soluble salts by injection and the inunctions are of about equal efficiency, and that the method of ingestion is by far the least efficient from the standpoint of immunity from late accident as well as from the standpoint of serologic cure. The ingestion of mercury at the present time is still used extensively by reputable physicians, and its convenience of administration still commends it highly to the patient.

With a view to establishing the relative importance of treatment in the prevention of late sequelae, and with the idea of possibly comparing the various forms of treatment with regard to their respective properties, we began the study four years ago of all late manifestations. During this time we have seen in the neighborhood of 200 cases of gummatous or nodular ulcerative syphilis. In 120 of these cases we have definite criteria as to the amount and type of treatment which was given.

The following points were studied in this group: first, the type of lesion; second, the situation of the lesion; third, the incidence of trauma as a possible factor; fourth, the history of a knowledge of an infection; fifth, the presence of syphilis in the consort; sixth, the length of time elapsing from the beginning of the infection, and seventh, the type and amount of treatment which had been instituted.

TYPE OF LESION PRESENT

Of the 120 cases, fifty-four were gummas or nodular ulcerative lesions in the skin. The position of these lesions is seen in Table 1. In twenty-nine cases the mucous membranes were involved (Table 2). The bones and joints were involved in twenty-five cases (Table 3). Visceral involvement was encountered in twenty-two cases (Table 4). Fifty cases presented themselves as gummatous nonulcerative tumors, and seventy as ulcerative lesions.

TABLE 1.—POSITION OF SKIN LESIONS *

Leg	12
Nose	9
Scalp	6
Cheek	5
Foot	4
Hand	4
Knee	2
Forearm	2
Buttock	2
Wrist	2
Toe	1
Abdomen	1
Elbow	3
Ankle	1
Total	54

* In the tables, a few cases in which lesions have appeared in two systems have been counted twice.

INCIDENCE OF TRAUMA

The history of trauma was elicited in thirteen cases, and of these ten occurred in or near the bony prominences as the result of direct violence, such as a blow or fall. In one case excessive smoking was considered as a traumatic factor. In another a slight injury to the testis was the predisposing cause for the subsequent gummatous involvement of the organ. Trauma, then, was a factor in only 10 per cent. of the total number of cases. As will be shown later, it can be considered only as a partial factor, as the question of inefficient treatment enters into this group as well as into other cases. From these figures it would seem that trauma is an important factor only when the later manifestations concern the skeletal structures.

TABLE 2.—POSITION OF LESIONS OF MUCOUS MEMBRANES

Pharynx	9
Soft palate	7
Larynx	5
Tongue	3
Lips	2
Urethra	2
Gum	1
Total	29

HISTORY OF INFECTION

In sixty-three cases there was a definite history of infection. Nineteen of these patients remembered a primary sore. Secondary manifestations were affirmed in sixteen cases, and both primary sore and secondary manifestations in twenty-eight cases. Twenty-four patients affirmed that their consorts had been infected, but, as only a limited number of these consorts could be serologically examined, these figures are of relatively little importance.

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* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

LENGTH OF TIME BEFORE MANIFESTATIONS

The study of the length of time elapsing between the period of the chancre and the manifestation of the gummatous lesions showed some interesting figures bearing out those of Fournier. At one extreme forty-four years had elapsed from the time of infection to the appearance of the late accident. At the other extreme but four months had elapsed. The average length of time elapsing for the entire group was ten years after infection. This figure, however, does not represent the fastigium, as over 33 per cent. of the cases developed the late sequelae in the fourth year. The fourth year after infection therefore represents the fastigium, or the year during which tertiary accidents are most likely to occur. The average time of ten years, it will be seen, is made longer by the sequelae in the nervous system which seem to develop at a considerably later period than do gummatous lesions elsewhere.

TABLE 3.—POSITION OF LESIONS OF THE BONES

Hard palate	9
Nasal septum	9
Tibia	4
Humerus	1
Rib	1
Clavicle	1
Total	25

INFLUENCE OF TREATMENT

A definite history of treatment with particular regard to time of inception and character was obtainable in all the cases studied. Fifty-five cases had absolutely no treatment whatever. In the remaining sixty-five treatment had been inefficient except in a single case. In other words, but one case of the entire group had had what would be deemed, under the accepted criteria of today, intensive treatment.

The last statement requires explanation and qualification. In order not to be too sharply critical of treatment, we took as a standard of efficient treatment prolonged mercurial medication in any form. Thirty-six of our cases had had pill treatment for periods varying from a few weeks to a few months. In ten cases inunctions or injections of mercury had been given for short courses of a few months, and in but eight cases had salvarsan injections been used. Of the last, but one or two injections had been given late in the course of the disease, and in only one of this group had there been subsequent mercurialization. In twelve cases there was a history of liquid medicine in some form taken in a desultory fashion. The one case in which treatment had been efficiently instituted was a precocious malignant syphilis in which three injections of arsenobenzol were given followed by mercurial inunctions. The patient who received this treatment returned four months after the appearance of his chancre with a large ulcerative gumma of the forearm.

To sum up these figures, almost 50 per cent. of the cases had received no treatment whatever, and of the remaining cases in which treatment had been administered, with the exception of a single case of precocious malignant syphilis, the treatment had been desultory and unintelligently carried out.

COMPARISON WITH CASES EFFICIENTLY TREATED

Inasmuch as it was found that over 30 per cent. of the cases occurred before the end of the fourth year, it seems fair to compare this series with a number of other cases which had been observed over the same period of time and in which treatment had been instituted at the outset and carried through intensively. Of such cases we have forty which we have been able to follow for the four years following their infection. These patients have all received repeated injections of salvarsan followed by vigorous mercurialization in the form either of inunctions or injections. Of this number, thirty-six, or 90 per cent., have reached the fourth year without any signs of recurrence, and the largest percentage of these cases are serologically cured. Of the four cases in which there has been recurrence, two patients have returned with central nervous system involvement in the nature of neural recurrences which yielded promptly to treatment. One patient had recurrent mucous patches, notwithstanding vigorous treatment, and the last was the precocious malignant syphilid mentioned before.

The analysis of our cases has convinced us of certain definite factors in the occurrence of late syphilitic accidents. We feel that the element of trauma must be regarded merely as an exciting cause, inasmuch as the more important element of lack of treatment enters into the traumatic cases as well as into those in which the lesions occurred spontaneously. From the large percentage of cases which developed without trauma, it is not unlikely that late sequelae might have developed spontaneously in the group in which there was a history of trauma. The predisposition of the traumatic cases to localize in or around bony structures is easily accounted for by the greater susceptibility of the bony parts to injury.

CONCLUSIONS

1. By far overshadowing all other causes of the appearance of late syphilitic sequelae, the lack of, or inefficiency of treatment during the early period stands out as the most important factor.

2. The inefficiency of treatment by the ingestion of pills is suggested by the fact that in those cases in which treatment was given the largest number had been treated in this fashion.

3. The tendency for late sequelae to appear increases up to the fourth year, which represents a fastigium after which there is a decrease in the probability.

TABLE 4.—POSITION OF LESIONS OF THE VISCERA

Testes	6
Liver	4
Stomach	3
Brain	2
Spleen	2
Aorta	2
Parotid	1
Visceral	1
Thyroid	1
Total	22

4. That no latent untreated cases are immune is suggested by the lapse of forty-four years after infection in one of our cases.

5. Trauma probably plays a smaller rôle in the production of active syphilis during the period of latency than is generally supposed. Where it occurs it is likely to influence the appearance of gummatous lesions in or around the skeletal structures.

6. Intensive treatment as accepted by modern methods (salvarsanization and thorough mercurialization during the early months) is protective in the largest percentage of cases.

7. In treated cases the occurrence of late sequelae, except for isolated and exceptional cases, must be regarded as an indictment against the method of treatment.

THE ADMINISTRATION OF ARSENOBENZOL BY MOUTH *

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In 1912, Drs. John A. Kolmer and Jay Frank Schamberg[1] published an article in which the following conclusions were drawn:

1. Salvarsan can be administered in pills, in capsules and in solution to lower animals in dosage of from 0.02 to 0.03 grain per kilogram of body weight, without producing toxic symptoms. A dog received 0.57 gm. of salvarsan in pill and capsule form in the course of twenty-nine days without disturbing effects.

2. After the oral administration of salvarsan, arsenic is found in the bile and urine at the end of twenty-four hours, but it disappears by the end of seventy-two hours.

3. Twenty-four hours after the oral administration of salvarsan to cats, the number of bacteria in the intestinal tract appears to be reduced, the reduction being most striking in the lower end of the ileum.

4. Salvarsan administered by mouth and likewise intravenously to rabbits in doses approximately those employed in human subjects does not produce, at least within ninety-six hours following its administration, any appreciable microscopic changes in the important viscera.

5. With the exception of a little vomiting and diarrhea in some cases, salvarsan can be given by mouth up to 0.6 grain to human subjects without producing toxic symptoms. Thus administered, the drug exerts a therapeutic influence, but this influence is too feeble to warrant its use by this route.

The present studies were undertaken to shed additional light on the possibility of employing the gastro-intestinal tract as an avenue of administration of salvarsan. In these studies our own product, arsenobenzol, was employed. The experiments carried out were of quite a different character from those detailed in our previous essay on the subject.

The first object of our investigations was to determine the effect of salvarsan administered by mouth on the parasites in the blood of animals infected with experimental trypanosomiasis. These parasites react chemotherapeutically in a similar manner to that of the *Spirochaeta pallida* and offer, therefore, a most excellent therapeutic criterion of the effect of various agents.

The *Trypanosoma equiperdum*, the organism which produces dourine, or horse syphilis, was the parasite chosen by us. The drug was administered to rats and rabbits in solution by means of a stomach tube, and also in the form of pills and in capsules.

Tables 1 and 2 show the results obtained by the administration of arsenobenzol in solution to 19 rats, in doses varying between 1 and 10 mg. per 100 gm., or between 10 and 100 mg. per kilogram. This would represent, for a man weighing 140 pounds, doses varying between 0.7 gm. and 7 gm. The rats were infected by intraperitoneal injection and the drug administered twenty-four hours later. Four control rats were employed; these animals were infected, but received no arsenobenzol.

TABLE 1.—INFLUENCE OF SINGLE AND REPEATED DOSES OF ARSENOBENZOL ADMINISTERED IN SOLUTION BY STOMACH TUBE ON EXPERIMENTAL TRYPANOSOMIASIS *

No.	Wt., Gm.	Dose per 100 Gm.	Results of Examination of Blood from Tail													
			1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.	8 da.	9 da.	10 da.	11 da.	12 da.	13 da.	14 da.	21 da.
1†	80	0.01	—	—	—	—	—	—	—	—	—	+	—	—	—	—	++++
2	74	0 01	—	—	—	—	—	—	—	—	—	—	—	—	—	D	
3	105	0.009	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4†	66	0.009	—	—	—	—	—	—	—	—	—	+	—	—	—	—	++++
5	75	0.008	—	—	—	D											
6	73	0.008	—	—	—	D											
7	100	0.007	—	—	—	—	—	—	—	—	—	—	—	—	few	++++	D
8†	92	0.007	—	—	—	—	—	—	—	few	++	++++	++++	++++	D		
9	80	0.006	—	—	—	—	—	—	—	few	++	++++	+	—	—	—	++++
10†	80	0.006	few	++	++++	++++	—	—	—	—	—	—	—	—	—	few	++++
11†	72	0.005	few	++	++++	++++	++++	++++	++++	D							
12†	79	0.005	few	++	+++	++++	++++	D									
13†	82	0.004	few	—	—	- -	—	—	—	—	+	++	++	++++	++++	++++	D
14†	82	0.004	few	few	few	—	—	few	few	+	++	++++	++++	++++	D		
15	63	0.003	few	few	+	++++	D										
16	76	0.002	few	+++	++++	++++	D										
17	89	0.002	few	+++	++++	++++	D										
18	78	0.001	few	+++	++++	++++	++++	D									
19	77	0.001	few	+	+++	++++	D										
20	107	Control	+	+++	++++	++++	++++	D									
21	128	Control	+	+++	++++	++++	D										
22	130	Control	few	+++	++++	++++	D										
23	80	Control	few	+++	++++	++++	D										

* Rats infected with 120,000 T. equiperdum twenty-four hours before the administration of arsenobenzol.
† Nos. 1, 4, 8, 13 and 14 received the same size dose again on the tenth day, No. 10 on the fourth day, No. 11 on the sixth day, and No. 12 on the fifth day.

As happens in most infections of this sort, the control animals were dead at the end of from five to six days, with trypanosomes in the blood stream in uncountable numbers. In those rats receiving the lower doses of arsenobenzol (10 to 40 mg. per kilogram) no appreciable effect was noticed, either as to the time when the trypanosomes first appeared in the blood or as to duration of life. It was only when the dose reached 60 mg. per kilogram that a distinct influence on the parasites was observed. In such animals the blood remained free of trypanosomes for one week, but at the end of this time, the restraining effect of the medicament had disappeared and the parasites appeared in the blood stream, rapidly proliferated, and in six days thereafter led to death. In doses of 90 and 100 mg. per kilogram the blood was kept free of trypanosomes for three weeks and in some rats even longer. In one instance a rat receiving 80 mg. per kilogram died on the twenty-third day without any trypanosomes appearing in the blood. This animal may have died as a result of the drug or from accidental causes, as so often happens with white rats.

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* From the Dermatological Research Laboratories of the Philadelphia Polyclinic.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Kolmer, John A., and Schamberg, Jay Frank: Experimental Studies of Administration of Salvarsan by Mouth to Animals and Man, Jour. Exper. Med., 1912, xv, No. 5.

In a number of animals a second dose was administered after trypanosomes had appeared in the blood; in most instances the parasites disappeared from the blood within twenty-four hours, but returned again in two or more days.

Table 3 shows the effect of the administration of arsenobenzol in enteric pills coated with salol and silver to prevent solution in the stomach. Twelve rats demonstrate that relatively little effect was exerted by the drug in this form. There can be little doubt that most of the drug remained unabsorbed.

In Table 4 the effect of the administration of arsenobenzol in capsules is well shown. In this experiment, ten rats received 5 mg. each of the drug, irrespective of their weight, although large rats were chosen in order to permit of the insertion of the capsules into the pharynx. The dose per weight varied from about 25 to 30 mg. per kilogram. The very interesting finding is here noted that this relatively small dose kept the blood sterile for from five to six days, whereas with the drug in solution, about twice this quantity was necessary to produce the same effect. After the sixth day trypanosomes appeared and all the rats perished by the end of two weeks.

Having demonstrated that arsenobenzol could with safety be administered by mouth to animals, and having observed that the best method of administration was in the form of capsules, we determined to employ this method of administration in the human subject.

During the course of four months, arsenobenzol in capsule form has been administered by us to about thirty patients in various stages of the disease. The drug was given at first in ordinary gelatin capsules, but later in enteric capsules, the gelatin having been previously treated with formaldehyd, in order to prevent the capsules being absorbed in the stomach.

We have been able to study the effects of arsenobenzol administered in capsules on the various lesions of syphilis. In a general way, it may be stated that the effect of the drug on the secondary eruption is much slower than after intravenous injection. Ordinarily it requires about three weeks to cause the disappearance of a macular or papular eruption with the doses administered by us. In one case, however, a large papular syphilid of the face disappeared in three or four days, with almost the degree of rapidity that it would after an infusion of the drug into the blood. Tertiary nodular lesions required from two to three weeks' administration to effect their disappearance.

Formula for administration: In order to prevent oxidation of the arsenobenzol in the capsule we incorporated with it a very remarkable reducing substance, sodium hydrosulphite, which is used in the production of salvarsan. The formula employed by us for each capsule was as follows:

		gm. or c.c.	
℞	Arsenobenzol	0.03	gr. ss
	Sodii hydrosulphitis	0.015	gr. ¼
	Bismuthi subgallatis	0.12	gr. ii

Sig. One after each meal with water.

The bismuth subgallate was incorporated to lessen the likelihood of inducing diarrhea.

Tolerance: In most patients these capsules were well borne and did not provoke any gastro-intestinal distress. Some patients were able to take the capsules continuously for a period of six weeks without complaint. In the course of a week a patient ingested more than 0.6 gm. of the drug. In some subjects the drug was not so well borne, the patients after a few days complaining of gastric uneasiness or a little diarrhea. When such symptoms developed, the administration of the capsules was interrupted. We have administered about 1,000 capsules of arsenobenzol and have never observed any harm to result therefrom.

Limitations of, and Indications for, the Use of Arsenobenzol (Salvarsan) by Mouth.—We wish emphatically to disclaim any intention of advocating the use of salvarsan by mouth as a substitute for intravenous or intramuscular administration. Where these avenues of introduction of the drug into the system can be employed they are far superior to oral ingestion. Syphilis should be treated with as massive doses of spirocheticides as can be given with complete safety to the patient. It is conceivable that the long-continued use of very small doses of salvarsan or mercury may produce a strain of parasites resistant to these drugs. It is not always possible, however, to administer salvarsan by intravenous or intramuscular injection. There are patients whose veins are inaccessible by reason of excessive adiposity; there are other patients whose veins have become thrombosed by repeated

TABLE 2.—INFLUENCE OF SINGLE AND REPEATED DOSES OF ARSENOBENZOL ADMINISTERED IN SOLUTION BY STOMACH TUBE ON EXPERIMENTAL TRYPANOSOMIASIS *

No.	Wt., Gm.	Dose per 100 Gm.	Results of Examination of Blood from Tail															
			1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.	8 da.	9 da.	10 da.	11 da.	12 da.	13 da.	14 da.	15 da.	16 da.
1	56	0.008	—	—	—	—	—	—	+	++++	D							
2‡	72	0.008	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3†	140	0.006	—	—	—	—	—	—	—	—	—	few	+	++++	++++	—	D	
4†	77	0 006	—	—	—	—	—	—	+	+++	++++	++++	++++	++++	D			
5†	140	0.004	—	—	—	—	—	—	—	—	+	+++	—	—	+++	++++	D	
6†	137	0.004	—	—	—	—	—	—	—	—	+	++	—	—	+	++	++++	++++
7	52	0.003	—	—	few	++++	++++	++++	D									
8	56	0.003	—	—	few	++++	++++	++++	++++	D								
9	83	0.002	—	D§														
10	50	0.002	—	few	+	++++	++++	++++	D									
11	72	0.001	—	+	+++	++++	++++	D										
12	48	Control	—	+	++++	++++	D											
13	42	Control	—	++	++++	D												
14	50	Control	—	++	++++	++++	D											
15	48	Control	few	++	++++	++++	D											

* Rats infected with 184,000 T. equiperdum twenty-four hours before the administration of arsenobenzol.

† Nos. 3, 4, 5 and 6 received the same size dose again on ninth and twelfth days.

‡ This animal died sterile on the twenty-third day.

§ Accidental.

injections. In other cases for one reason or another the intravenous route cannot be employed. Many patients object to intramuscular injections on account of the degree of pain induced. In such cases salvarsan may be administered in capsule form, for a period of from two to six weeks, after which its use should be interrupted for several weeks; its employment may be later resumed.

Another indication for the use of salvarsan capsules is as a supplementary treatment to intravenous administration. While the injection of the drug into the blood stream constitutes the most vigorous method of attacking the parasites of syphilis, it has the disadvantage that most of the drug is eliminated in a few days. A powerful impression is made, but an opportunity is given for the spirochetes that have not been destroyed to slowly proliferate again. If after a period of three days following an intravenous injection the capsules are administered, a continuous source of the drug may again be supplied to the blood. Our experiments in the treatment of experimental trypanosomiasis in animals demonstrate conclusively that absorption of the drug in the gastro-intestinal tract leads to a distinct influence on the parasites in the blood. Mercury has for many years been administered in pill form in fractional doses. While there can be no doubt that this is the feeblest method of administering the drug, we are not among those who would affirm that this method of treatment has no virtue. There are doubtless many thousands of persons who have been cured by mercury pills, although a much larger number has remained uncured.

If it becomes necessary for social reasons to administer for a time a drug by mouth in the treatment of syphilis, we would prefer salvarsan to mercury, first, because it is a more powerful spirocheticide, and second, because it has a more tonic and roborant influence than mercury. The cost of the drug might readily be a deterrent factor in prescribing salvarsan by mouth, as much larger doses are required to produce the same effect, in comparison with more efficient routes of administration. This method of treatment is to be reserved for special conditions and for particular cases.

It must be recognized that experimental trypanosomiasis is a more difficult disease to influence than syphilis. With pathogenic trypanosomes, such as the *T. equiperdum,* the parasites appear in the blood within one to two days after intraperitoneal infection. The number of parasites increases with tremendous rapidity and death results within five to seven days. At the time of death there are more trypanosomes in the blood stream than there are red blood corpuscles. We are dealing, therefore, with an acute, virulent, death-producing infection which overwhelms the animal within a week. Syphilis is essentially a chronic infection and its lesions are favorably influenced by much weaker parasiticides than experimental trypanosomiasis. Mercury, in the largest dose that it is possible to administer intravenously, has no demonstrable effect on trypanosomes in the blood. Salvarsan, on the other hand, kills these parasites readily. Salvarsan has a strong trypanotropic influence and a low affinity for the body cells. Rats tolerate arsenobenzol intravenously in the dose of 100 mg. per kilogram. According to our experiments with mercury, this drug is tolerated intravenously in the dose of 2 mg. per kilogram.

Mercury is therefore about fifty times as poisonous as arsenobenzol (salvarsan). Consequently, not sufficient mercury can be given to destroy trypanosomes; the host is killed before the parasites.

TABLE 3.—INFLUENCE OF ARSENOBENZOL ADMINISTERED IN SALOL AND SILVER COATED PILLS ON EXPERIMENTAL TRYPANOSOMIASIS *

Number	Weight, Gm.	Dose per 100 Gm.	Results of Examination of Blood from Tail											
			1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.	8 da.	9 da.	10 da.	11 da.	12 da.
1	82	0.005	—	—	—	D								
2	85	0.005	—	few	++	+++	++++	D						
3	72	0.005	—	few	++	D								
4	85	0.005	—	—	—	—	—	—	—	few	+	++	++++	D
5	75	0.005	—	few	++	++++	D							
6	60	0.005	—	—	—	few	++	++++	++++	D				
7	56	Control	—	few	+++	++++	++++	D						
8	55	Control	—	few	+++	++++	D							
9	70	Control	—	+	+++	++++	D							
10	65	Control	—	few	+++	++++	D							

* Rats infected with 80,000 T. equiperdum three hours before the administration of pills of arsenobenzol.

TABLE 4.—INFLUENCE OF ARSENOBENZOL ADMINISTERED IN CAPSULES ON EXPERIMENTAL TRYPANOSOMIASIS *

Number	Weight, Gm.	Dose,† Gm.	Results of Examination of Blood from Tail													
			1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.	8 da.	9 da.	10 da.	11 da.	12 da.	13 da.	14 da.
1	160	0.005	—	—	—	—	—	—	few	++++	++++	++++	D			
2	210	0.005	—	—	—	—	—	few	+++	++++	++++	D				
3	140	0.005	—	—	—	—	—	—	few	++++	++++	D				
4	204	0.005	—	—	—	—	—	—	few	++	++++	++++	D			
5	202	0.005	—	—	—	—	—	—	few	++++	D					
6	152	0.005	—	—	—	—	—	few	+	+++	++++	++++	D			
7	157	0.005	D‡													
8	206	0.005	—	—	—	—	—	—	—	few	+	++++	D			
9	163	.0.005	—	—	--	—	—	—	—	few	+	++++	++++	++++	++++	D
10	194	0.005	—	—	—	—	—	few	++	++++	D					
11	164	Control	—	++	++++	++++	++++	D								
12	170	Control	few	+	++++	++++	++++	D								
13	194	....	—	—	few	+	+	++	++++	D						
14	209	Control	—	++	++++	++++	++++	D								

* Rats infected with 140,000 T. equiperdum.
† Arsenobenzol administered twenty-four hours after infection (single dose).
‡ Accidental.

Comparison of Modes of Administration.—It may be of interest to compare briefly the effect on trypanosomes in the blood of arsenobenzol (salvarsan), administered by mouth and administered intravenously. We have no means of knowing how much of the drug given by mouth is actually absorbed, but that a considerable portion thereof reaches the circulation is evidenced by the destructive effect on the trypanosomes in the blood stream.

In numerous experiments carried out by us we have found that it requires about 15 to 20 mg. of arsenobenzol (salvarsan) per kilogram of body weight to sterilize a rat infected with *T. equiperdum.* Eight mg. per kilogram will keep the blood free of parasites for eight or nine days, and 11 mg. per kilogram for about three weeks.

Arsenobenzol administered in solution by stomach tube required 90 mg. per kilogram to keep the blood sterile for from ten to fourteen days. It requires, therefore, nine to ten times more of the drug in solution by mouth to produce the degree of sterilizing effect secured by intravenous administration.

TABLE 5.—INFLUENCE OF INTRAVENOUS INJECTIONS OF SALVARSAN, ARSENOBENZOL AND NEOSALVARSAN ON EXPERIMENTAL TRYPANOSOMIASIS; RATS INFECTED WITH INTRAPERITONEAL INJECTIONS OF 125,000 TRYPANOSOMA EQUIPERDUM

Substance	Rat No.	Wt., Gm.	Dose per 100 Gm.	Daily Examination of Blood																						
				2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Salvarsan	1	88	0.0057	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2	92	0.0043	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3	72	0.0042	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4	76	0.0028	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5	91	0.0011	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	++	+++	+++
	6	80	0.0008	—	—	—	—	—	—	—	+	++	+++	++++	++++	D										
Arsenobenzol	7	88	0.0058	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8	72	0.0055	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9	67	0.0045	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10	92	0.0022	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	D		
	11	71	0.0014	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	++
	12	74	0.0008	—	—	—	—	—	—	—	—	+	++	++	+++	++++	D									
Neosalvarsan	13	75	0.01	—	—	—	D																			
	14	66	0.009	D																						
	15	58	0.0077	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	16	65	0.0046	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	17	75	0.002	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	few	+	++	+++	D
	18	72	0.0012	—	—	—	few	few	+	++	D															
	19	72	0.0009	—	—	—	—	few	+	++++	++++	D														
	20	67	0.0006	—	—	—	—	few	+	++	+++	++++	D													
Control	21	56	0	few	++	++++	++++	+++	+++	D																
	22	51	0	few	+	+++	+++	+++	D																	
	23	51	0	few	++	+++	++++	++++	++++	D																
	24	52	0	few	++	++	++++	++++	D																	

Alimentary administration in capsules gives a more favorable comparison. In capsule form 25 to 30 mg. per kilogram renders the blood free of parasites for from five to six days. For some reason, perhaps because the drug remains longer in the upper intestine, capsules appear to give better results than the drug in solution. A single capsule containing 25 to 30 mg. per kilogram appears to have the same sterilizing effect as 12 mg. per kilogram of neosalvarsan administered intravenously. This dose of neosalvarsan keeps the animal sterile for from five to six days.

Effect of Continuous Administration of Arsenobenzol (Salvarsan) in Rabbits.—Arsenobenzol was administered to rabbits once a day by mouth in pills containing .01 gm. each, the pills being coated with salol and silver. This would be the equivalent of 0.3 gm., or 5 grains, for a person weighing 120 pounds.

Rabbit 78, weight 1,928 gm., received twenty-nine doses of 0.01 gm. each of arsenobenzol, or a total of 0.29 gm. over a period of thirty days (equivalent to about 8.7 gm. per 60 kilograms). After the tenth dose there was a loss in weight, and at the completion of the experiment the animal weighed 1,540 gm., or a loss of 388 gm. At no time were albumin and casts found in the urine. The rabbit was later killed and the important organs subjected to microscopic study. No gross inflammatory changes were noted in the stomach or intestines.

Rabbit 79, weight 2,340 gm., received thirty-one doses of 0.01 gm. each of arsenobenzol, or a total of 0.31 gm. over a period of thirty-one days (equivalent to about 9 gm. per 60 kilograms). On the sixth and eighteenth days traces of albumin were found in the urine, but no casts. At the completion of the experiment the urine was free of albumin. The animal lost about 100 gm. in weight, but otherwise appeared to be in a normal condition. It was later killed for histologic study of the important organs. The results of these studies will be published later.

In 1912 we administered to dogs salvarsan in pills and capsules in the dose of from 20 to 30 mg. a day. This would be the equivalent of over a gram a day for a man weighing 120 pounds. The drug was continued for twenty-nine days without any disturbing effects. From our more recent experiments, it is probable that much of the drug administered in pill form was not absorbed.

CONCLUSIONS

1. Experiments on animals have demonstrated that arsenobenzol (salvarsan) can be administered by mouth in solution or in capsules and become absorbed into the blood.

2. The proof that absorption takes place is evidenced by the fact that a distinct destructive influence on trypanosomes in the blood of experimentally infected animals is exerted.

3. In a general way it may be stated that about one ninth or one tenth of the dose required in solution by mouth produces an equivalent effect intravenously.

Arsenobenzol (salvarsan) by mouth[2] in capsules exerts, however, about 40 to 50 per cent. of the trypanocidal effect produced by neosalvarsan intravenously.

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[2] In capsule form, however, the therapeutic effect is distinctly better than when administered in solution by mouth.

4. Experimental studies on animals demonstrate that arsenobenzol (salvarsan) can be administered in capsule form over long periods of time without harmful results.

5. Clinically it has been found that the drug may be given in doses of 30 mg. (½ grain) three times a day for many weeks without producing disturbing symptoms except mild digestive distress, and this is only in a relatively small proportion of cases.

6. Administered by mouth, arsenobenzol (salvarsan) is capable of producing a curative influence on the lesions of syphilis. The effect, however, is much less vigorous than when the drug is administered intravenously.

7. We do not advise the use of arsenobenzol (salvarsan) by mouth as a routine, inasmuch as there are much more efficient avenues of administration. Its use is to be reserved for patients who for some reason cannot take the drug by intravenous infusion or intramuscular injection.

THE GEOGRAPHIC DISTRIBUTION OF AMEBIASIS [*]

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"Tropical dysentery" of amebic origin has for years been known as a troublesome disease in our Southern states. That it is not uncommon in regions with colder climates is not so well recognized, although sporadic cases have been reported in all parts of the world. To be sure, the disease is more severe, and more frequent in the tropics, and in subtropical climates, but a collection of cases reported in the north temperate zone leads us to state that amebiasis is a surprisingly widespread infection.

The classical report of Lösch[1] (1875) recorded the case of a patient with amebic dysentery at St. Petersburg, Russia. In England, Saundby and Miller[2] reported a case in the Birmingham district. The patient, who had never been away from that particular region, had ulcerative colitis, and a liver abscess in which amebas were found. Saundby and Miller believe that theirs is the first case reported in which the patient contracted the disease spontaneously in England, and are inclined to think that the organisms are being brought to the British Isles by soldiers from the tropics. They call attention in their paper to the report by Juergens in regard to the occurrence of the disease in Berlin, and also to the fact that Caussade and Joltrain recorded one case from Paris, and Kartulis (1906) stated that Scandinavia, Great Britain, Spain and Portugal were the only European countries from which amebic dysentery had not been reported. Low,[3] among others, has recently reported many patients coming to London from Gallipoli. In the Paris letter[4] to The Journal, dated March 24, 1914, it is stated that:

> Dean Landouzy of the Faculté de médecine de Paris drew the attention of the Académie de médecine to the importation into Europe, especially France, of amebic dysentery by carriers. He reported the case of a patient who died of a large abscess of the liver due to amebic dysentery which was unrecognized, partly because the symptoms were obscure, and partly because the patient had never left the north of France. This patient, therefore, had been infected in France in some as yet unknown manner. Other cases of the same kind have already been reported in France in the last ten years, and there is no doubt that amebic dysentery is being imported into the country.

Albu[5] reported true amebic dysentery in a young German woman after a trip to Silesia and Breslau.

On our own continent many interesting reports have been made of cases in temperate climates. In 1902, Dock[6] reported typical amebic dysentery in a patient who had never been out of the state of Michigan or in contact with a case from the South. In the discussion of this paper, Walsh reported two patients seen in New York City, and Libman, ten cases of amebic liver abscess at Mount Sinai Hospital. None of these patients had resided outside of New York City.

The disease is rather common in Maryland, which, of course, is in the zone in which it is commonly believed to occur. However, in discussing the cases of the previous fourteen years, which were observed in Johns Hopkins Hospital, Futcher[7] says " 'Tropical dysentery' is a misnomer. Amebic dysentery is not confined to the tropics, but often originates in the subtropical, even in the higher zones. Sporadic cases occur in New England."

The next year Tuttle[8] called attention to the fact that it should not be called a "tropical disease," and reported three patients who had never been more than 50 miles south of New York, and fifteen patients who had always resided north of 37 degrees of latitude.

Patterson,[9] in 1910, reported a case endemic in New York, and stated that he had had three others. He also reported fifteen from the literature. "A study of these cases does much to disabuse one of the idea that amebic dysentery is exclusively a tropical disease."

One of the most interesting reports is that of Axtell.[10] He had a patient who had been a mate on a government boat on the Tanana and Yukon rivers, Alaska. This man supposedly contracted amebic dysentery by drinking swamp water in the spring. "*Ameba coli*" was found, and amebic ulcerations were seen with the proctoscope. The man claimed that he knew of thirteen or fourteen others with the same trouble.

A large group of cases was reported by Rosenberger.[11] Examinations were made of the stools of the patients in a hospital for the insane in Philadelphia. Of 137 males, 112 had amebas, and of 141 females, eighty-six showed the parasites. The author calls them all "*Ameba coli,*" and says that the patients were constipated and not dysenteric.

It is scarcely necessary to quote other reports of sporadic cases in order to add weight to the statement that persons with this disease are not so uncommon in the Northern states.

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[*] From the Mayo Clinic.

[*] Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Lösch, F.: Massenhafte Entwickelung von Amöben im Dickdarm, Virchows Arch. f. path. Anat., 1875, lxv, 196.

[2] Saundby, R., and Miller, J.: Amoebic Dysentery with Abscess of the Liver, Brit. Med. Jour., 1909, i, 771.

[3] Low, G. C.: The Treatment of Amoebic Dysentery, Brit. Med. Jour., 1915, ii, 714.

[4] Paris letter, The Journal A. M. A., April 18, 1914, p. 1267.

[5] Albu, A.: Zur Kenntniss der sporadischen einheimischen Dysenteria, Ztschr. f. klin. Med., 1905, lvi, 432.

[6] Dock, George: Amebic Dysentery in Michigan, The Journal A. M. A., Sept. 13, 1902, p. 617.

[7] Futcher, T. B.: A Study of the Cases of Amebic Dysentery Occurring at the Johns Hopkins Hospital, The Journal A. M. A., Aug. 22, 1903, p. 480.

[8] Tuttle, J. P.: Amebic Dysentery: Its Local Lesions and Treatment, The Journal A. M. A., Oct. 8, 1904, p. 1022.

[9] Patterson, H. S.: Amebic Dysentery in New York, Med. Rec., New York, 1910, lxxvii, 835.

[10] Axtell, W. H.: Amebic Dysentery Contracted in the Arctics of Alaska: Report of a Case, Northwest Med., 1911, N. S. iii, 51.

[11] Rosenberger, R. C., and Terrell, T. C.: Amebiasis and the Results of Tests for the Determination of Occult Blood in the Feces, New York Med. Jour., 1913, xcvii, 62.

For several years at the Mayo Clinic the stools of patients with chronic diarrhea have been systematically examined. Sistrunk,[12] Giffin[13] and I[14] have all made reports of these findings. During the past five years there have been approximately 6,500 stool examinations. Repeated examinations, and examinations for occult blood, etc., reduce the number of patients examined for parasites to about 5,000. The same method has been used for all of these patients. One-half ounce to an ounce of Epsom salt is taken before breakfast. The patient eats his breakfast and comes to the laboratory for the passage of his stool. This is examined at once. A cover slip preparation is made and the slide kept at body temperature by means of a warm stage. It should be mentioned that after the administration of castor oil, stools are unsatisfactory for microscopic examination.

In classifying the amebas found in fresh specimens, we have followed Craig's[15] descriptions, noting especially the appearance of the ectoplasm, the nucleus, its position, etc., the motility and the pseudopodia, whether there is mere bulging of the ectoplasm, or lobose, and finger-like prolongations, and especially whether the organisms are ingesting and digesting red blood cells. The color, which at times is noticeably green in some organisms, is thought by some observers to be due to digestion of red blood cells.

In some instances we have stained specimens with iron hematoxylin, following in detail both in the preparation and in the study of the specimens the valuable monographs of James[16] and of Craig.[15] By this method we are able to examine especially the nuclear structures. In *Endamoeba histolytica* the beaded arrangement of chromatin around the outer portion of the nucleus, the reticulated nucleoplasm, and the sharp karyosome surrounded by a clear zone are all characteristic. In the nonpathogenic ameba, *Endamoeba coli,* the chromatin is seen as a heavily staining mass, forming the karyosome, and as a dense ring about the outer portion of the nucleus.

We have not been able to study as fully as we should like the various phases in the processes of reproduction of these organisms. Rather frequently, however, we see cysts with only four daughter cells — the *tetragena,* or *histolytica* cyst, and again those of *Endamoeba coli* with eight nuclear bodies. Many protozoologists claim that an absolute diagnosis can be made only by studying cysts. We have recognized fully the difficulties in attempting to classify types of amebas, and feel that in some instances errors in diagnosis readily occur.

There have been 284 patients from Northern states in whom we have reported *Endamoeba coli,* the supposedly nonpathogenic organism, and 535 patients from the same sections of the country who were infected with organisms classified as *Endamoeba histolytica.*[17] In all, there were 819 persons in whose stools we found some type of ameba. The majority of these patients were natives of the state in which they resided, and all of them became infected while living in the northern portions of the temperate zone.

CASES OF AMEBIASIS

	Northern States and Canada																													
	Minnesota	Iowa	South Dakota	North Dakota	Wisconsin	Illinois	Michigan	Indiana	Ohio	Kansas	Nebraska	Wyoming	Colorado	Montana	Idaho	Utah	Oregon	Washington	New York	Pennsylvania	Massachusetts	New Hampshire	Maine	Saskatchewan	Manitoba	Alberta	Ontario	Totals from North	Total Number of Patients, 1911-1916	Southern States and Tropics
Constant diarrhea:																														
Endamoeba histolytica........	51	41	30	25	16	8	6	1	2	1	9	1	1	8	1	0	1	2	1	1	0	0	1	8	5	3	1	224	20	
Endamoeba coli..................	34	10	8	5	3	1	0	1	1	1	2	1	0	3	1	1	0	0	0	1	1	0	0	0	1	0	0	75	4	
Intermittent diarrhea:																														
Endamoeba histolytica........	38	42	23	8	11	7	4	4	1	3	3	1	1	12	0	1	0	3	0	0	0	0	0	6	3	2	2	175	20	
Endamoeba coli..................	33	15	9	4	6	2	1	3	0	2	4	0	0	4	1	0	1	0	1	1	0	[illegible]	0	2	2	1	0	92	12	
Constipation:																														
Endamoeba histolytica........	44	30	5	10	8	9	1	2	1	0	4	0	0	7	1	0	0	1	2	1	0	1	0	4	2	3	0	136	25	
Endamoeba coli..................	29	27	15	12	4	8	4	0	1	2	3	2	1	3	0	0	0	0	1	0	0	0	0	2	2	1	0	117	14	
Total Endamoeba histolytica...	133	113	58	43	35	24	11	7	4	4	16	2	2	27	2	1	1	6	3	2	0	1	1	18	10	8	3	535	65	600
Total Endamoeba coli...........	96	52	32	21	13	11	5	4	2	5	9	3	1	10	2	1	1	0	2	2	1	0	0	4	5	2	0	284	30	314
Total amebas....................	229	165	90	64	48	35	16	11	6	9	25	5	3	37	4	2	2	6	5	4	1	1	1	22	15	10	3	819	95	914

It is also not conceivable that many, if any, of these patients could have contracted the disease by contact with persons from the South or tropics. A consideration of the number of patients with amebas from the various states is of interest (table and map). Besides the northern cases, we have as "controls" ninety-five patients from the South or the Orient in whom we have found amebas. Sixty-five of these have *Endamoeba histolytica,* and thirty, *Endamoeba coli,* so that in all the 5,000 patients examined for parasites, amebas of some sort were found in 18 per cent. It should be remembered, however, that the number having stool examinations was less than 5 per cent. of the total number of patients registered at the clinic during these five years.

Another false idea may be formed by comparing the great number of patients with amebas residing in Minnesota and Iowa with the relatively small number in the Far Western or Eastern states. As a matter of fact, the relative number of these patients is not great, as more than three tenths of the registration at the

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[12] Sistrunk, W. E.: Intestinal Parasites Found in Individuals Residing in the Northwest, The Journal A. M. A., Nov. 4, 1911, p. 1507.

[13] Giffin, H. Z.: Clinical Notes on Patients from the Middle Northwest Infected with Entamebas, The Journal A. M. A., Aug. 30, 1913, p. 675.

[14] Sanford, A. H.: Intestinal Parasites of Minnesota, Journal-Lancet, 1914, xxxiv, 335.

[15] Craig, C. F.: The Parasitic Amoebae of Man, Philadelphia, J. B. Lippincott Company, 1911.

[16] James, W. M.: A Study of the Entamoebae of Man in the Panama Canal Zone, Am. Trop. Med. and Parasitol., 1914, viii, 133.

[17] All organisms formerly reported as Endameba tetragena are now grouped with Endameba histolytica. (Craig, C. F.: The Differential Diagnosis of the Intestinal Entamebas of Man, Arch. Int. Med., June, 1914, p. 917. Darling, S. T.: Budding and Other Forms in Trophozoites of Entamoeba Tetragena, Arch. Int. Med., May, 1913, p. 495).

Mayo Clinic is of Minnesota patients, and nearly two tenths are patients from Iowa.

When the complaints of these persons are considered, interesting facts are brought forth regarding symptoms in patients infected with amebas in temperate climates. Forty-one per cent. have constant diarrhea, and 33 per cent. have intermittent diarrhea, often alternating with periods of constipation; while nearly 26 per cent. have never had any bowel trouble except constipation. Occasionally these patients have ulcerations that are seen with the proctoscope, but the majority of examinations of this sort are negative. In fact, the entire syndrome is not so severe in the average ameba-infected patient of the North as it is in those of the South or tropics.

The question arises as to the significance of pathogenic amebas in the stools of patients who have never had diarrhea. It would certainly seem that these atients were not in need of immediate treatment. Iowever, it must be remembered that in the South and ropics liver abscesses of amebic origin may occur in ust this type of patient. Jones[18] has said that "ameiasis may exist in a mild form or even advanced form vithout dysentery." He reports five cases of amebic bscess, in four of which no history of dysentery was iven.

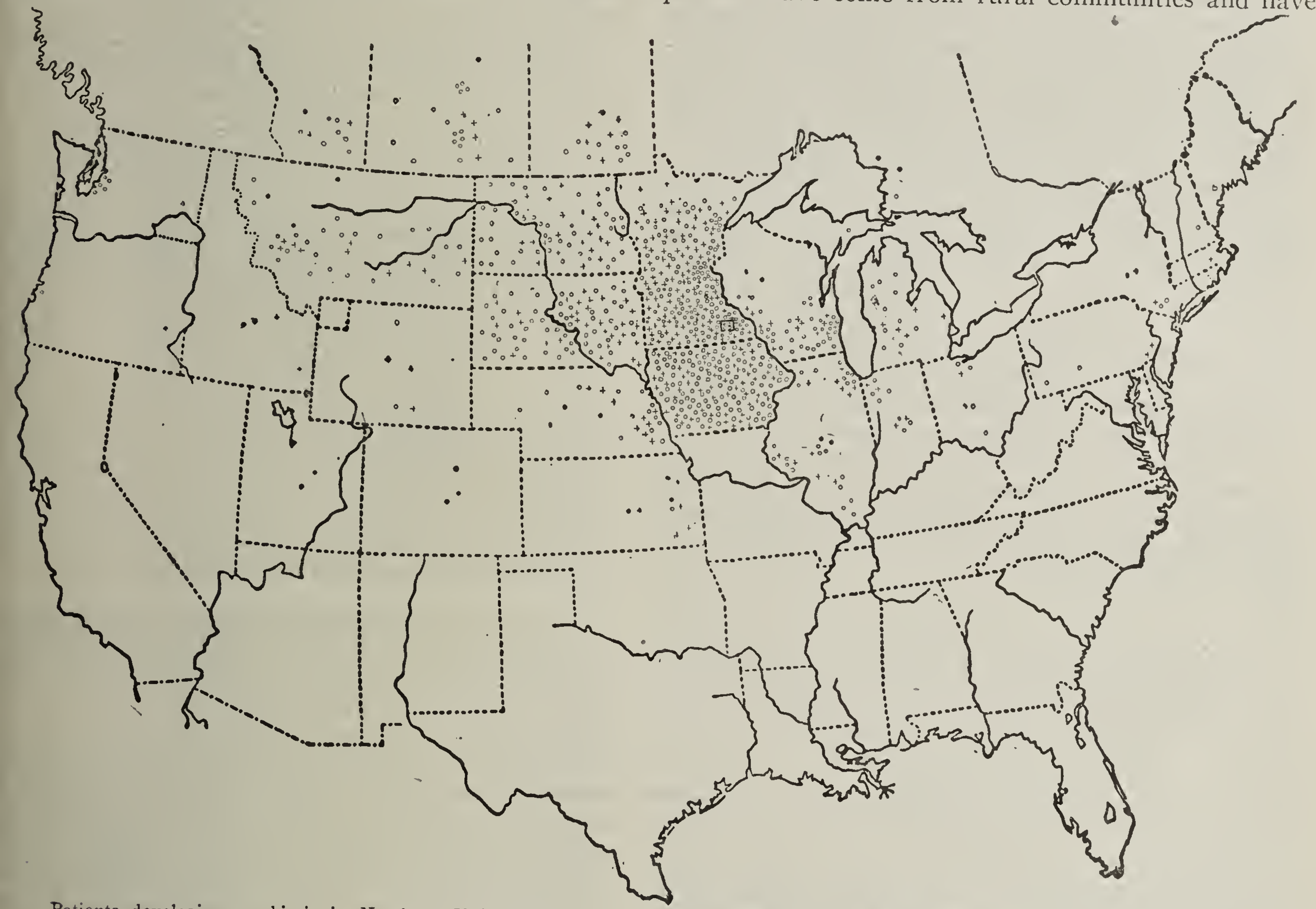
In a recent editorial[19] is found the following stateent:

> The recognized existence of unharmed or immune carriers f other types of organisms makes it seem less strange today an it might have seemed a few years ago to learn that there are some individuals apparently perfectly healthy who harbor amebas in large numbers for long periods without any unfavorable symptoms.

These carriers may be a source of danger to others, and in themselves may be considered potential dysentery patients. Regarding treatment of such patients, Phillips[20] has said, "All carriers, even though they may have never had dysenteric or other symptoms, are to be considered as cases of amebiasis and treated as such." Many of our patients of this kind, as well as those with active symptoms, have been treated with emetin hypodermically, ipecac by mouth, and kerosene enemas.[21]

We are often asked for an explanation of the source of the infection. The soldier returning from the tropics surely cannot be held entirely responsible for the spread of the disease, as the majority of our patients have come from rural communities and have never come in contact with persons with tropical infections.

We have considered the question of water supply in our series of more than 900 patients with endamebas, including those from the South and the Orient. Forty per cent. stated that their water supply was from a source that might be suspected, namely, shallow wells, lakes, springs, cisterns, reservoirs, streams, and in a few instances, even ditches. On the other hand, 60 per cent. of the patients harboring these parasites affirmed that the source of their water supply was good — deep wells, many of them of the artesian type.



Patients developing amebiasis in Northern United States and Canada examined at the Mayo Clinic, 1911-1916: O, Endamoeba histolytica; +, Endamoeba coli.

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18. Jones, G. I.: The Treatment of Intestinal Amebiasis, The Journal M. A., March 20, 1915, p. 982.
19. Craigiasis, editorial, The Journal A. M. A., Nov. 6, 1915, p. 1648.
20. Phillips, L.: Is Emetin Sufficient to Bring About a Radical Cure in Amoebiasis? Brit. Med. Jour., 1914, ii, 1061.
21. A more detailed study of symptomatology and the effects of treatment of amebiasis in Northern patients is to be undertaken at another time.

It has been suggested that fruits and green vegetables, shipped from the South and handled there by carriers of amebas, may be the means of spreading the disease northward. But here again we cannot imagine that the Northern farmer will indulge frequently his desire for out-of-season strawberries and lettuce when he himself may raise them for market. It is known that some of the domestic animals, horses, for instance, may be infected with amebas, and Lynch[22] has shown that the rat, *Mus norvegicus,* suffers from spontaneous amebic dysentery similar to that occurring in man, the amebas in its stools resembling *Endamoeba histolytica.* Furthermore, Lynch has proved definitely that typical dysentery can be produced experimentally in the rat with amebas from man. In conclusion, he states that the rat is a possible or probable disseminator of dysenteric amebas pathogenic for man.

We have undertaken the transmission of amebas from man to animals in a few instances. When old cats were used we did not meet with success. However, in a small series we have infected kittens, using the technic of Sellards and Baetjer[23] for intracecal injections. These animals developed dysentery in from six to ten days, with amebas in their stools.

It is not in the province of this paper to discuss the question of specific pathogenicity of amebas. It is agreed now that the parasitic types have never been cultivated even in mixed culture with bacteria. Accordingly, the first of Koch's postulates has not as yet been met. The question as to whether symbiosis plays a part in the disease is pertinent and difficult to answer. There are many problems yet to be solved in connection with this subject, and there is a field for study in the North as well as the tropics.

In conclusion, I would reiterate that it should be realized that this infection is general and that stool examinations are worth while for any patient with vague abdominal complaints or chronic diarrhea, no matter whence he comes.

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[22] Lynch, K. M.: The Rat a Carrier of a Dysenteric Ameba, The Journal A. M. A., Dec. 25, 1915, p. 2232.

[23] Baetjer, W. A., and Sellards, A. W.: Continuous Propagation of Amoebic Dysentery in Animals, Johns Hopkins Hosp. Bull., 1914, xxv, 165.

THE AMOUNT OF FAT IN THE BLOOD STREAM OF PERSONS WITH BROKEN BONES

A PRELIMINARY REPORT *

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Warthin[1] says:

> It is highly probable that in every case of amputation or fracture of the long bones some fat is set free from the ruptured fat cells and, either directly or by way of the lymphatics, enters the blood stream to cause fat embolism of the pulmonary capillaries, or, passing the lungs, in the capillaries of some other organ. . . . The amount of free fat liberated into the blood stream is often almost incredible, single sections of the various organs and tissues of the body showing, on microscopic examination, such numerous emboli that it would seem that the total amount of fat contained in the emboli must far exceed the fat content of the injured bone. In some of these cases when the entire circulatory system is apparently flooded with fat, the injury to the bone and bone marrow may apparently be very slight, although in severe cases one or more comminuted fractures are usually present.

Le Count and Gauss[2] made a microscopic study of the amounts of fat in tissues of persons dying with broken bones as compared with the amounts found in tissues from the body of a man dying of fat embolism, following fracture of both bones of a leg, who clinically had well pronounced symptoms of fat embolism. They found a remarkable dissemination of fat emboli in microscopic preparations of lung, heart muscle, kidney and liver from all of thirteen persons dying with broken bones, and also fat emboli in four brains examined microscopically. They say:

> We obtained no evidence that the amount of fat in the blood vessels at the time of death demonstrable by such methods as we employed was in any way proportionate to the severity of the symptoms; on the contrary, the evidence at hand indicates that the amount of fat in the blood as emboli in persons with fractured bones varies from time to time.

TABLE 1.—PERCENTAGE OF FAT RECOVERED FROM THE BLOOD ON DISCHARGE: ESTIMATIONS BY KUMAGAWA-SUTO METHOD OF THE FAT IN THE BLOOD OF PATIENTS ABOUT TO BE DISCHARGED—CONTROLS *

Conditions for Which Patients Were Treated Before Discharge as "Cured"				
Chronic Nephritis (12 Examinations, 12 Patients)	Lobar Pneumonia (9 Examinations, 9 Patients)	Acute Articular Rheumatism (5 Examinations, 5 Patients)	Chronic Arthritis (4 Examinations, 4 Patients)	Secondary Syphilis (1 Examination, 1 Patient)
0.24	0.38	0.19	0.4	0.31
0.31	0.4	0.38	0.43	
0.31	0.41	0.43	0.48	
0.33	0.45	0.52	0.56	
0.4	0.46	0.53		
0.4	0.47			
0.44	0.58			
0.48	0.58			
0.49	0.61			
0.56				
0.56				
0.56				
0.59				

* Thirty-one estimations, giving an average normal of 0.442.

Le Count and Gauss also emphasize the haphazard and loose way in which the conclusion is frequently arrived at that patients with fractured bones suffer and die from delirium tremens.

My work, an effort to obtain some idea of the amount of fat in the blood of persons with fractured bones, is also in some measure a protest against the diagnosis of delirium tremens under these conditions without due consideration of the possibility that fat embolism may play some rôle in causing the delirium.

In the quantitative determinations of the amounts of fat in the blood streams of persons with broken bones, I have employed the Kumagawa-Suto[3] saponification technic. On account of its rather elaborate details it will not be described here. References to it are quite generally accessible. I first made control tests with subcutaneous fat from the human abdominal wall.

Such fat was heated in a water bath, and the resultant oil in weighed amounts varying from 0.0462 to 2.1 gm. (in all, five portions), were taken and emulsions made in 20 c.c. of normal saline solution. These emulsions were saponified and extracted of fat as in the Kumagawa-Suto method, and in all instances the percentage of error was less than 0.1. While this error was relatively large, its constancy seemed to warrant application of the method in samples of blood with relatively high fat content at least.

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* From the Pathology Laboratory of Cook County Hospital.

[1] Warthin, A.: Traumatic Lipemia and Fatty Embolism, Internat. Clin., 1913, iv, 171.

[2] Le Count, E. R., and Gauss, H.: A Study of Fat Embolism Asso ciated with Fractures, Tr. Chicago Path. Soc., 1915, ix, 251.

[3] Kumagawa, M., and Suto, K.: Ztschr. f. Biochem., 1908, viii, 212

Accordingly, blood was taken from the arm veins of persons being discharged from the Cook County Hospital as "cured" from various maladies other than injuries or operations. In all, thirty-one such samples of approximately 20 c.c. each were examined. The patients from whom this blood was taken could not be considered "normal" individuals, as many had but recently recovered from the febrile state of acute infections and, in a measure perhaps, were "starved." In Table 1, these control estimates are given, and it is noticeable that the average percentage of fat in the blood is a little above that usually regarded as normal.

In Table 2 the pertinent clinical observations concerning the diagnosis of fat embolism associated with broken bones are arranged together with the percentages of fat recovered from the blood. One patient and her injuries, as well as the other circumstances, possess more than usual interest. She had suffered for several months from an ununited fracture of the shaft of the femur. Twenty-four hours previous to the time of taking blood for fat estimation, under ether anesthesia for eighty-five minutes, a large medullary bone peg was driven into the freshened broken ends of the femur. Whether anesthesia or nonunion had in any measure anything to do with the large amount of fat in the blood is not a part of this consideration. Similarly the seemingly incredible amount of fat recovered from the blood in Cases 2, 4, 6 and 7 form a problem for consideration not in the scope of this report.

The fat determinations expressed in Cases 6 and 7 were made on blood removed from dead bodies by allowing blood to run into a grease-free container from surfaces made by cutting the lungs. Examinations for fat from these two bodies offer additional evidence of the usefulness of the method, for in each instance the blood was divided into fractions after horoughly shaking, each fraction being subjected to at determination separately. Thus in Case 6, four ractions of the well shaken blood were saponified seprately, and the percentage of fat for each determined. he highest percentage found was 3.75, and the lowst 3.0, while the 3.4 per cent. in the table expresses he average.

TABLE 2.—SOME OF THE ESSENTIAL SYMPTOMS AND THE AMOUNTS OF FAT CONTAINED IN 20 C.C. OF BLOOD

Case Number	Sex and Age	Bone Fractured	Hour After Fracture	Delirium	Tremor	Respiration*	Cyanosis	Sputum†	Temperature	Pulse	Recovery or Death	Percentage of Fat in the Blood
1	F. 60	Femur......	24	+	++	Dys.	—	+	101	96	R	6.5
2	F. 28	Femur......	48	++	+	Dys.	++	—	104	140	D	4.3
3	F. 58	Femur......	48	—	+	Dys.	+	—	103	100	R	0.8
4	F. 37	Tib., fib. ...	40	+	—	Dys.	+	—	98	98	R	4.0
5	M. 58	Femur......	100	++	+	Dys.	++	+	101.6	120	D	2.1
6	M. 43	Rad., ulna, skull......	P.M.	Coma	—	Dys.	—	?	106.8	150	D	3.4
7	M.	Skull.......	P.M.	++	++	Dys.	?	?	101	76	D	3.0
8	M. 39	Fibula......	240	—	—	Dys.	—	?	98	110	R	0.4
9	M. 59	Humerus...	140	—	—	Dys.	—	?	98	100	R	0.2
0	M. 48	Skull.......	48	—	—	Dys.	—	?	100	80	R	0.7

* "Dys." for dyspnea.
† "Sputum +" for fat droplets in the sputum.

Several hours after removal from the dead body, lood from these lungs (Cases 6 and 7) contained so uch fat that it separated out in droplets on the sides f the bottles, and in microscopic preparations from the upper layers of this sedimented blood an almost incredible amount of fat was present.

It is with knowledge of the criticism of the Kumagawa-Suto method offered by Rosenthal and Trowbridge[4] that the results of this work are published. However, with the controls already given it would seem reasonable to conclude that in persons with broken bones there is frequently a remarkable amount of fat in the blood stream, and almost incredible amounts of fat may be in the blood and yet not kill. Further, it might be assumed that the amounts of fat free in the blood stream of persons with broken bones vary from time to time, and it is very essential for any interpretation of these results to remember that in no instance was the whole blood examined; that other similar amounts from the same patients (or dead bodies) might have shown a fat content either greater or less, since the fat is not emulsified but is in motion as free fat droplets, and no doubt these vary from time to time in their number and size as well as in their distribution, the blood in some places perhaps being rich in fat and in others poor or with no fat as emboli.

It is also to be remembered that, with the exception of Cases 6 and 7, the fat determinations were made on blood removed from a vein in the hollow of the elbow, the fat so recovered being fat which had passed through the capillaries of both the pulmonary and systemic blood vessels.

INFECTIOUS ENDOCARDITIS

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During the last few years the conception of the elemental functions of the heart muscle has undergone radical change, and a fuller comprehension of the causes of infections of the heart has resulted from the work of such observers as Poynton and Payne, Billings, Rosenow, Libman, Baehr, Schottmüller and others. The pathologic changes present in the heart in extracardial and cardiac infections have received attention at the hands of a number of writers, and the symptomatology of myocardial changes in heart affections of an inflammatory origin have been extensively elucidated, particularly by Mackenzie. But the pathology of the living heart and its changing symptomatology during the course of an inflammation are not yet thoroughly understood. On an intimate knowledge of the vital pathology of the inflamed heart depends naturally proper conception of treatment of its infections, and it certainly seems that attention to manifestations of the earliest lesions in bacterial endocarditis would many times prevent a simple inflammation from becoming a malignant one, and also that during convalescence from an endocarditis, painstaking attention to the state of repair in myocardial degeneration would result in fewer relapses, less ventricular hypertrophy, and a better ultimate outlook for the patient.

While the nature of the finer changes that the heart cell undergoes under the influence of bacterial toxins is imperfectly understood, changes that are not demonstrable, still observation of a number of cases of infectious endocarditis suggests that an analysis of the known pathology and its correlation with the symptoms of deficiency of the several myocardial functions may with profit be undertaken. Various bacteria may cause infectious endocarditis, chief of which is the viridans group, including Poynton's *Diplococcus rheumaticus;* also the pneumococcus, staphylococcus, streptococcus, gonococcus, meningococcus, bacillus of influenza and typhoid and a few others, unnecessary to mention, The severity and degree of the inflammation produced depends on several factors: the state of resistance of the patient, the virulence of the invading organism, the number of the organisms gaining access to the heart, as, for example, a continual infection from chronic tonsillitis or chronic alveolar abscess over an extended period of time. Up to a certain point in the development of an endocarditis, the removal of such a focus may lessen the cardiac inflammation; but when the latter has become well established, the removal of the original focus usually has little influence. In a boy, aged 14 years, an infectious endocarditis resulted from two large boils on the abdomen which were well within a week; but the endocardial inflammation was active for about eight months longer.

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[4] Rosenthal, H., and Trowbridge, P. E.: The Estimation of Fat, Jour. Biol. Chem., 1915, xx, 711.

Unless the original focus may be discovered, and often this is difficult, the nature of the bacteria involved in cases that terminate favorably remains in doubt, because with the rarest exceptions a positive blood culture means a hopeless prognosis.

Pathologic changes in infectious endocarditis as seen at necropsy do not by any means represent the entire pathologic picture. It has been well said by Mackenzie that inasmuch as the myocardium and pericardium are so often involved in inflammation of the endocardium, the term "carditis" is preferable to endocarditis. Particularly is this true if it be remembered that all of the symptoms present in endocarditis are due to abnormalities of the cardiac functions. In all fevers, particularly in continued fevers and more especially in certain classes of infections, as, for example, typhoid fever, the heart muscle undergoes a demonstrable change due to the action of bacterial poisons. There may be seen edema, cloudy swelling which may go on to fatty degeneration, resulting either in destruction and areas of fibrosis or resolution. Undoubtedly other changes occur which have not been demonstrated microscopically which nevertheless are seen in altered cardiac function. This is particularly true in carditis apparently on account of the proximity of the source of the toxins whereby the cardiac cells are subjected to comparatively much larger doses of the poison than if the inflammation were in some other part of the body. Parenthetically, it has been shown that particularly in rheumatic inflammations there may be found within the muscle small patches of round cell infiltration which may result in areas of sclerosis of varying size and account for the crippling of the heart in later years. Moreover, of importance in the aftermath of endocarditis are the scars left in the myocardium adjacent to the endocardial infection which may involve one or the other of the seats of the elemental functions of the muscle as, for example, the bundle of His. An analysis of abnormal heart functioning entails separate consideration of the special functions; that of the production reception of impulses, conductivity, contractility and tonicity. It appears that from the very beginning of cardiac inflammation until long after the active inflammatory process has disappeared, there is present a hyperexcitability of some of these functions. Why in a given case one function alone may be abnormal is a matter of conjecture; that it is not necessarily due to a focus of inflammation will be pointed out later.

In a girl, aged 7 years, observed on the second day with an acute endocarditis, only the pace-making function of the heart appeared to be involved as exemplified by a tachycardia of 120 beats a minute, regular rhythm and the heart not enlarged, the temperature being about 100 F. The following day the function of tonicity was markedly impaired, the heart being quite dilated and also there being numerous extrasystoles, the result evidently of hypersensibility of the ventricular node. Again, in a man, aged about 32, suffering from a chronic infectious endocarditis with considerable ulceration and numerous metastases and a plentiful growth of *Streptococcus viridans* in the blood culture, there was present on admission a well marked pulsus alternans which disappeared in the course of a few days. Interference of the function of contractility of the heart was again demonstrated in this man at a subsequent period following the operation of tonsillectomy, at which time the alternating pulse reappeared and persisted a number of days. That the interference of these functions is of a toxicant nature and not due to the presence of an inflammatory process in the heart muscle itself is demonstrated by the fact that Mackenzie reports increase of the a-c interval in cases of pneumonia with high fever without heart involvement. He also observes the onset of auricular fibrillation after pneumonic crisis.

After all evidence of inflammation in the heart has disappeared even for a considerable time, this hyperexcitability of the myocardium may readily be demonstrated. A few doses of digitalis in a convalescent patient may produce very readily a digitalis block; a little unusual excitement may cause tachycardia; unaccustomed exertion readily causes failure of tonicity and dilatation with the recurrence of murmurs. It may be assumed that the pathologic condition present, while not necesarily going to the extent of cloudy swelling or fatty degeneration, still probably tends in that direction, and it would appear that this irritability will persist until complete resolution of such myocardial changes has had time to take place.

In the treatment of cardiac inflammation, aside from the matter of complete rest until all possible inflammatory process has ceased, there is the necessity of observing the presence of myocardial excitability, as evidenced by the derangement of one or other of its functions, to the end that a sufficient degree of reserve strength of the heart shall have been attained to meet the strains which the careless patient may impose on it. Careful attention to the effect of massage, passive movements, additional pillows under the patient's head, sitting up in bed, and the first exertion that the patient is allowed to indulge in constitute a guide to the rapidity with which additional activities may be allowed. It is frequently observed that, with the increase of graduated exertions on the part of the patient, temporary dilatation or irregularities occur; and it must rest on the judgment of the physician to determine to what extent, if any, under these conditions, the work of the heart has been excessive, and how soon similar exertion may again be undertaken. It is by carefully increasing the amount of work within the limits indicated by interference with the various functions of the heart that the normal reserve force is gradually built up.

209 Post Street.

TREATMENT OF LOBAR PNEUMONIA WITH AUTOLYZED EXTRACTS OF PNEUMOCOCCI *

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One of us[1] has noted for some years the apparent beneficial effect from the early subcutaneous injection of large doses of partially autolyzed pneumococci in the treatment of lobar pneumonia, and Rosenow and Hektoen[2] have lowered the mortality rate in cases of lobar pneumonia in Cook County Hospital, Chicago, for three consecutive years, by the administration of partially autolyzed pneumococci to alternate patients. This was accomplished in spite of the fact that the average time of the first injection was four and one-half days after the onset, and that the type of cases treated was of the worst, one half of the patients being bad alcoholics.

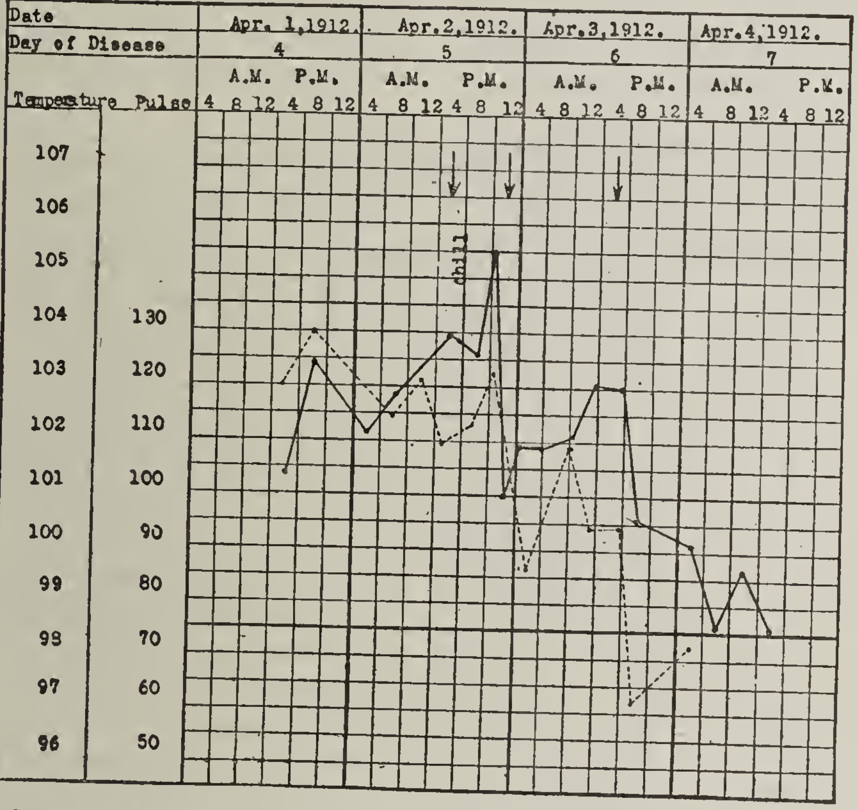

Chart 1.—F. S., a man, laborer; pneumonia of left lower lobe. Solid line, temperature curve; broken line, pulse curve.

April 1, 1912: Pneumonia began four days ago; general condition good. Pulse 108 to 122; respiration 36.

April 2, 5 p. m. Injected intravenously 18 c.c. of Extract 292. Severe chill thirty minutes later lasting ten minutes. Temperature went up to 105.6 and then dropped to 100.8 with profuse sweat by 10 p. m.; 10:30 p. m., injection repeated. Severe chill one hour later lasting twenty-five minutes.

April 3: Appears better. Pulse and respiration down nearly to normal. Not bothered with cough. Injected 10 c.c. intravenously. No chill.

April 4: Has had crisis. Appears much better. No cough or distress.

The results of the individual injections, however, unless the injections were given soon after the initial chill, were, as a rule, not striking, as measured by rapid defervescence of the temperature and amelioration of symptoms. One of us[3] had previously shown that while autolyzed extracts of pneumococci are extremely toxic at a certain stage of autolysis, they ose their toxicity on further autolization. In a former report,[1] it was stated that "intravenous njection of heat-killed pneumococci, of pneumococcus extracts during he toxic stage and after the toxicity has disappeared, of pneumococcus broth-culture filtrates and of autolyzed pneumococci render guinea-pigs resistant o subsequent injections of toxic autolysates in two, our, six, twenty-four and forty-eight hours, respecively. Salt solution, broth, and extracts of typhoid acilli, on the other hand, do not render guinea-pigs efractory to toxic pneumococcus autolysates. The eaction seems to be specific." It was found also that he protective power against experimental pneumococcus infection was greater with the antigens from which the toxic substance had been removed. We, therefore, felt that the intravenous injection of relatively nontoxic autolyzed extracts might be expected to give equally favorable or more favorable results than the subcutaneous administration of partially autolyzed pneumococci.

The clinical problem presented was to produce, if possible, artificial crises, to cause the disease to run a more favorable course, or to reduce the mortality rate. In order to make sure that no harm would come from the introduction of this foreign protein into the blood stream, the effect of the extracts used was tested in guinea-pigs, and very small doses were first used in order that we might become familiar with the nature of the reaction and govern our dosage accordingly. We had in mind particularly the danger of a severe chill and the subsequent shock, which in a weakened person might result in acute dilatation of the heart.

The patients treated were from the medical wards of the Cook County Hospital. There was no selection of cases. During the period of time covering this investigation (March 2, 1912, to May 1, 1912) every patient was injected as soon as the diagnosis of lobar pneumonia could be made clinically. One of us made rounds in all the medical wards of the hospital every day. Practically all the injections were made between the hours of 2 and 5 p. m. In a few cases a second injection was made about six hours after the primary injection, in the hope of prolonging the drop in temperature following the administration of the proper initial dose. The number, time and size of the injections were governed by our endeavors to produce certain effects, and also to a considerable extent by the stage of the disease and the general condition of the patient. Thus, in the first cases treated we used only 5 c.c., and, obtaining practically no reaction, we increased the dose to 10 c.c. Reactions were obtained with this amount, and several injections were made in order that we might study the reactions before increasing the dosage. Finally we used 20 c.c. as a dose in all cases unless there were contraindications, that is, prolonged high temperature, marked valvular or myocardial disease, or a late stage in the course of the disease when the natural crisis was to be expected. In these cases it was thought advisable to use the smaller dose of 10 c.c. The patients were seen every day until completely recovered or until death occurred. Physical examinations were made and notes taken in regard to the change of local and general findings.

When given intravenously, the antigen was injected into the median basilic vein. The skin was sterilized

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[1] Rosenow, E. C.: The Autolysis of Pneumococci and the Effect the Injection of Autolyzed Pneumococci, THE JOURNAL A. M. A., une 11, 1910, p. 1943; Immunization in Pneumococcus Injections, THE OURNAL A. M. A., Sept. 7, 1912, p. 795. Mechanism of Intoxication Pneumococcus Anaphylaxis and in Pneumococcus Infections, Tr. th Internat. Cong. Hyg. and Demog., 1912, ii, 338.

[2] Rosenow, E. C., and Hektoen, L.: Treatment of Pneumonia with artially Autolyzed Pneumococci, THE JOURNAL A. M. A., Dec. 20, 13, p. 2203.

[3] Rosenow, E. C.: On the Nature of the Toxic Substance from neumococci, Jour. Infect. Dis., 1912, xi, 235.

by prolonged rubbing with 95 per cent. alcohol, and the syringe and needle were boiled before each injection. In cases of patients receiving the antigen subcutaneously, the injections were made into the anterior surface of the upper abdomen.

A very conservative attitude as to the effect was adopted by the one giving the injection. Four extracts were used. The toxicity of two (292 and 304) had not yet entirely disappeared, as determined by intravenous injection into guinea-pigs. Injections of from 10 to 20 c.c. into patients were usually followed by a chill. Smaller doses usually failed to produce noticeable reaction. All but four of the patients were injected with these extracts. One of the extracts (301) had lost its toxicity from prolonged autolysis, so that 10 to 20 c.c. failed to produce a chill. One extract was rendered nontoxic by digestion with washed rabbit leukocytes. In only one of four cases injected with the nontoxic extracts was there a drop in temperature and a corresponding improvement in the patient.

A few rather striking facts stand out in a review of the thirty-five patients studied. In the majority there was a typical temperature reaction consisting of a slight rise in a few hours, followed by a marked fall of from 2 to 6 degrees F., which reached its low point about six hours after the injection. A secondary rise was then noted which frequently extended up to the former level; but in most cases the temperature ran along somewhat lower than it was before the injection.

In several instances a second injection was made about six hours after the first injection. The temperature curve at this time was at its lowest point, and it was hoped that a second injection might produce a still further drop or even a permanent crisis. This did not occur, however, and the temperature of most of the patients rose despite the second injection.

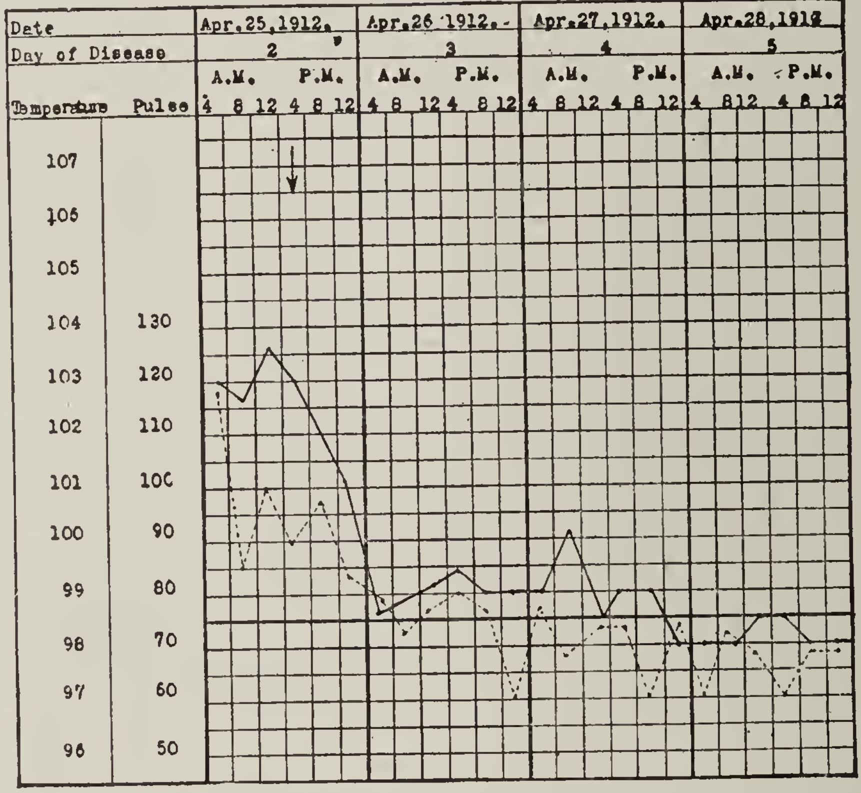

Chart 2.—P. N., male, aged 35, laborer; pneumonia right lower lobe, began two days before (April 23, 1912).

Solid line, temperature curve; broken line, pulse curve.

April 25, 1912: General condition good. Temperature 103, pulse 96, respiration 32, leukocytes 17,400. 20 c.c. Extract 301 injected intravenously. No chill.

April 26: Appears much better. Crisis last night. Leukocytes 15,900.

April 27: Appears normal.

Charts 1 and 2 illustrate the curves and facts in two cases — one patient with a chill, the other without.

A chill was noted in twelve cases. It came on usually from ten to twenty-five minutes after the injection, and lasted from a few minutes to half an hour or longer. In some instances the reaction was mild; in others it was severe, causing alarming symptoms such as dyspnea, cyanosis and mental disturbances (fear and confusion being most frequently complained of). In a few instances beneficial effects, as measured by lower temperature, pulse and respiration and the general appearance of the patient, were obtained without a chill following the injection. It was hoped that this could be brought about in all cases by properly regulating the dose and the extent of the autolysis of the extract. Occasionally when no chill followed the injection, no effect could be detected. Most of these patients were very toxic and apparently overwhelmed by the infection when the injection was given. In others it was shown by sputum or blood cultures that the infecting organism was the *Streptococcus mucosus.* One patient failed to react in the typical manner, and a positive diagnosis of tuberculosis was made from a sputum smear. Reactions were usually associated with a marked rise in leukocytes during or soon after the chill, which dropped to the former level or lower the next day. In patients showing no apparent effect, there was little or no change in the leukocyte count.

Six patients died. Five of these used alcohol to excess, and the one who did not use alcohol had a *Streptococcus mucosus* pneumonia. In the fatal cases no apparent effect followed the injection (10 c.c. of Extract 292 in all) in four, while in two, the usual effect was noted. The average age of the patients who died was 35 years; of those who recovered, 32. The average time of the first injection in the former was four and one-half days; that in the latter, five days.

We now mention a fact concerning this series of cases which it is impossible to demonstrate by tables or record sheets. It is a fact which we hesitate to incorporate in this report because of lack of confirmatory evidence. Nevertheless, the patients obtaining the antigen, and failing to react in a typical manner, apparently ran a more favorable course with less discomfort even when the disease ran its full course than when the pneumonia was not so treated.

The one bad feature in this method of treatment is the chill. This we were unable to avoid when giving doses sufficiently large to affect the course of the disease. The severity of the chill varied greatly in different persons even with the same dosage. Because of the apparent danger of chill, the fact that we were unable to foretell its severity, the apparently transient beneficial effect, and our inability to alter the course of the disease favorably in the more severe cases, this method was abandoned since it offered nothing that could not be more safely produced by the subcutaneous injection of partially autolyzed pneumococci.[4]

The treatment of disease by the intravenous injection of nonspecific substances which call forth severe chill and accompanying severe reaction, while of apparent benefit in some instances, as pointed out especially by Jobling and Petersen,[5] would for obvious reasons appear to be dangerous; therefore we warn against their indiscriminate use, especially in lobar pneumonia, until the nature and degree of the reaction are better understood and can be accurately controlled.

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[4] The results of this treatment during the past two years are soon to be published.

[5] Jobling, J. W., and Petersen, W.: The Nonspecific Factors in the Treatment of Disease, The Journal A. M. A., June 3, 1916, p. 1753.

EXPERIMENTAL SCURVY PRODUCED IN GUINEA-PIGS BY MILK AND MILK PRODUCTS [*]

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Much has been written during the last few years concerning the value of the different constituents of the diet in the maintenance, growth and reproduction of animals. When animals such as white rats are fed a diet consisting of mixtures of pure proteins, carbohydrates, certain fats, and salt mixture of appropriate composition, growth fails to take place after a short time.[1] Such a diet, although fulfilling all the energy and caloric requirements, is inadequate to maintain the normal growth of the rat. When such fats as butter fat,[2] egg yolk fat,[2] kidney fat,[2] cod liver oil[3] or beef fat[3] are added or replace such inefficient fats as lard or olive oil, growth is stimulated. McCollum and his co-workers, and Mendel and Osborne have repeatedly demonstrated that butter fat contains something essential for growth in addition to what may be needed for maintenance. The nature of this remarkable growth promoting substance is not known, although it is not destroyed by heating butter fat with live steam[3] or by saponification,[4] and by fractional crystallization it has been concentrated in the "oil" fractions.[5] However, the growth stimulating factor is much less stable when concentrated in the "oil" than in the butter fat.

In 1907, Holst and Fröhlich[6] produced a condition in guinea-pigs which resembles human scurvy by the feeding of oats, bread and unpeeled grains. In a more recent work,[7] they also observe that fresh vegetables have the property of preventing the disease, that is, that they are antiscorbutics. Funk[8] and others have made it clear that the feeding of isolated foodstuffs and polished rice induces polyneuritis or beriberi in birds, and that this is relieved by the introduction into the diet of water extracts of several natural foods, as yeast or oats. These substances, which act as antiieuritics and antiscorbutics, Funk has designated as 'vitamins," and the diseases which arise from their ack as deficiency diseases or "avitaminoses." More ecently it has been shown[9] that butter fat will not ure the symptoms of beriberi in pigeons. From these bservations it seems that in addition to the ordinary ood constituents, such as proteins, carbohydrates, fats nd inorganic salts, we have to consider two other ssential substances or groups of substances, one a fat oluble having the property of promoting or stimuating growth, and a second a water or alcohol soluble substance which is capable of preventing or relieving the so-called "diet deficiency" diseases.

Milk appears from a perusal of the literature to be well supplied with both of these substances, and at the same time to have the other food constituents in such appropriate proportions that it has long been recognized as an ideal food. Funk[8] states that raw milk is an antiscorbutic. He prevented the onset of scurvy and loss of weight by feeding guinea-pigs 50 c.c. of uncooked milk daily in addition to an oats diet.[10] Hopkins,[11] by introducing as small a quantity as 2 c.c. of milk to white mice on a diet of purified foodstuffs, promoted growth when with no milk the animals lost weight. Osborne and Mendel[1] say:

> In our numerous experiments milk has proved to be an adequate food, both for growth and maintenance. Young rats fed solely on milk food which we have been accustomed to use (milk powder 60 per cent., starch 12 per cent., lard 28 per cent.) not only have grown from infancy to full maturity, but have also given birth to litters of normal young which in turn have thriven on diets precisely like those furnished to their parents. One must conclude from these facts that the milk food contains all that is essential for growth and maintenance.

Likewise Keller[12] and Janet Claypon[13] could observe no difference in mice and rats fed on raw and cooked cow's milk. Peiper and Eichloff[14] observed, on the contrary, that dogs fed on raw and sterilized milk developed a fragility of the bone, and small hemorrhages were found around the epiphyseal borders. Rabbits succumb when fed on cow's or woman's milk, according to Moro.[15]

Bartenstein,[16] by feeding cooked and raw cow's milk to guinea-pigs, produced a condition having many features similar to infantile scurvy. Fröhlich[17] finds this to be true, but concludes that cooked milk produces more severe lesions. He likewise believes that raw milk contains more of the antiscorbutic substances than do pasteurized or cooked milk, finding that milk pasteurized (70 C., 158 F., for thirty minutes) preserves a large but uncertain portion of its antiscorbutic properties, while milk heated for ten minutes at 98 C. (208.4 F.) completely loses this property. After elimination of the caseinogen and other proteins, Funk[10] found that the milk still retained this preventive and curative property. An attempt by him[18] to isolate the antiscorbutic substance in milk was not successful.

AUTHOR'S EXPERIMENTS

Pasteurized Milk.—We at first fed guinea-pigs on pasteurized milk. This had been heated to 140 F. (60 C.) for from twenty-five to thirty minutes, and according to Fröhlich contains a large part of its antiscorbutic properties. The animals were given all the milk they could drink. Timothy hay was used for bedding in all our experiments. For the first two weeks the guinea-pigs so fed gained rapidly in weight, more rapidly than the control animals on a mixed vegetable diet. At about the end of the third week the wrist joints became painful to pressure followed by palpable swelling in the course of from twenty-four to forty-eight hours. Occasionally swelling is observed with the first signs of tenderness. The joints may continue to enlarge until they are two or three times their normal size. After two or three days the knee joints undergo similar changes, while occasionally the ankle, elbow and shoulder joints become affected in the order named. The swelling at the wrist joint is closely confined to the ends of the long bones, ulna and radius; that at the knee is about the heads of the tibia and fibula. Although the swelling may spread to encompass the entire joint and even into the tissues of the leg and calf, it is most persistent around the tibia, and it is here that subsequent changes are most frequent. An enlargement of the costochondral junctions, resembling a rachitic rosary, is in many instances palpable a week after the initial symptoms. As the disease progresses the acute swellings may be replaced by exostoses at the wrists and knees and fragility of the bones with fractures.

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[*] Read before the Section on Pathology and Physiology at the ixty-Seventh Annual Session of the American Medical Association, etroit, June, 1916.

[1] McCollum and Davis: Jour. Biol. Chem., 1913, xv, 166. Osborne d Mendel: Ibid., 1913, xv, 311. Hopkins: Jour. Physiol., 1912, xliv, 5.

[2] McCollum and Davis: Jour. Biol. Chem., 1915, xxi, 179.

[3] Osborne and Mendel: Jour. Biol. Chem., 1915, xx, 379.

[4] McCollum and Davis: Jour. Biol. Chem., 1914, xix, 245.

[5] Osborne and Mendel: Jour. Biol. Chem., 1916, xxiv, 37.

[6] Holst and Fröhlich: Jour. Hyg., 1907, vii, 634.

[7] Holst and Fröhlich: Ztschr. f. Hyg. u. Infektionskr., 1912, lxxii, 1.

[8] Funk: Die Vitamine, Wiesbaden, 1914.

[9] Funk and McCollum: Jour. Biol. Chem., 1915, xxiii, 413. cCollum and Kennedy: Ibid., 1916, xxiii, 491.

[10] Funk: Biochem. Jour., 1913, vii, 81.

[11] Hopkins: Jour. Physiol., 1912, xliv, 425.

[12] Keller: Ztschr. f. diät. Therap., 1904, vii, 90.

[13] Lane-Claypon, Janet: Jour. Hyg., 1909, iv, 233.

[14] Peiper and Eichloff, quoted from Funk, Die Vitamine, Wiesbaden, p. 87.

[15] Moro: München. med. Wchnschr., 1907, liv, 2223.

[16] Bartenstein: Jahrb. f. Kinderh., 1905, lxi, 22.

[17] Fröhlich: Ztschr. f. Hyg. u. Infektionskr., 1912, lxxii, 155.

[18] Funk: Biochem. Jour., 1913, vii, 211.

With the appearance of symptoms the animal loses weight, and if the disease progresses may die. However, of over thirty guinea-pigs fed on pasteurized milk, only four died of the disease. During the stage of acute symptoms there may be a marked loss of weight, or the weight may remain stationary for several weeks. If the animal is placed on a vegetable diet, it regains its health and the symptoms disappear. If continued on a pasteurized milk diet, it may have several exacerbations of the disease with marked deformities from exostoses and fractures, or may apparently recover and continue to grow, but more slowly than with normal diet.

Five of the guinea-pigs in this series did not have symptoms of scurvy, although fed on milk for from thirty to 146 days. It has been our experience that large pigs do not get as severe symptoms when fed on milk as younger animals, and this may account for the nonappearance of scurvy in these animals. In the majority of our experiments, guinea-pigs weighing from 80 to 150 gm. were used. The average time for the onset of symptoms was nineteen days; but this is variable, the earliest lesion appearing the tenth day and the latest the twenty-ninth in those having palpable lesions. A few animals presenting no clinical symptoms had small hemorrhages about the wrists and knee joints at necropsy. This leads to the possibility of unrecognized lesions in the large pigs previously mentioned.

The gross alterations vary considerably, dependent on the age and length of the feeding period. The most constant alteration at necropsy is hemorrhage. This may be the only lesion. The hemorrhages are most frequent around the wrist joints, over the knees, and in the muscles of the hind legs and in the bone marrow in the ends of the long bones. They may be few and small, or very large. Edema frequently accompanies the hemorrhage, and it alone or with the latter is apparently the cause of the primary swelling around the joints.

The lower ends of the ulna and radius are enlarged and yellowish white, with the consistency of cartilage. The upper ends of the tibia and fibula have a similar appearance. More rarely the lower ends of the tibia, fibula and femur enlarge. The bones become fragile, often being fractured during manipulation. Fractures at the epiphyseal junctions of the radius, ulna and tibia are not infrequent. Infractions are sometimes found with the periosteum holding the bone in place. The fractures produce various deformities which may entirely disappear after healing.

Enlargements of the costochondral junctions, with or without hemorrhage, are occasionally observed, producing a "rachitic rosary" comparable clinically to rickets in man. The lymph glands, especially the inguinal group, are enlarged in the majority of animals, and often hemorrhagic. The spleen was frequently enlarged. In general the viscera possess no important gross changes. We observed no loosening of the molar teeth or fragility of the maxillae as is usually found in animals having scurvy from diets of grains.

On microscopic examination, hemorrhage was present in all animals in which there was any alteration. They are widely distributed, being found in the muscles, bone marrow, especially at the ends of the diaphyses of the long bones, periosteum, tooth pulp and more rarely in the skin. They vary as to size and diameter. Small and well circumscribed hemorrhages occur early in the disease and in the milder forms. The larger hemorrhages occur more frequently in the severe and later forms of scurvy.

Lesions having the shape, location and characteristics of infarcts are found in the ends of the diaphyses of the long bones. These are more prominent in the severer forms of scurvy produced by oats. In the earliest lesions there is no change in the tissues at the site of hemorrhage. Necrosis is not a prominent feature until after the third week in milk-fed pigs. Necrosis then occurs at the costochondral junctions of the ribs and at the ends of the diaphyses of the long bones affecting chiefly the bone and bone marrow, to a less extent the cartilage, and is most marked at the periphery, where the compact bone is sometimes completely destroyed for a short distance. Fractures at these points are rather frequent.

The appearance observed in the process of healing largely depends on the extent of the earlier changes and the duration of the disease. If the alterations have been slight, there may simply be changes in the character of the bone marrow near the costochondral and epiphyseal junctions. Following the marked early changes, large hemorrhages, necrosis and fractures, there is more or less deformity. The reparative process in bone in this disease is by the formation of osteoid, cartilaginous and bony callus. One observes in the region of the epiphyseal cartilage a fibroid marrow, marked irregularity of the diaphyseal margin of the epiphyseal cartilage and at the periphery osteoid, cartilaginous or bony callus.

Degenerative processes in the muscles, particularly of the leg and thigh, were a characteristic feature. Certain portions of a muscle fiber would be entirely disintegrated, while surrounding fibers would appear unchanged. These lesions appear to be entirely independent of the hemorrhages.

It is of interest to note, in connection with the ease with which scurvy can be produced in guinea-pigs on a diet of pasteurized milk, the recent statement of Holt[19] that infantile scurvy has increased in New York City since the introduction of pasteurized milk, and in the experiments of Hess,[20] in which babies fed on Grade A milk which had been heated to 145 F. for thirty minutes developed a more or less marked form of scurvy, while others receiving orange juice were entirely free from the disorder.

Raw Milk.—With the possible exception of Bartenstein, all the authors previously referred to support the idea that raw milk is efficient in producing growth or contains antiscorbutic substances. Nine guinea-pigs, varying in size from 80 to 160 gm., were fed exclusively on raw certified milk. Seven had scurvy symptoms on the twelfth day, and two others by the twenty-second day. These lesions were identical with those described in the preceding group. All the animals had swollen wrists and costochondral junctions. Two had hyperemia, and one petechial hemorrhages at the base of the lower incisors. Five of the guinea-pigs died, death occurring as early as the seventeenth and as late as the forty-eighth day.

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[19] Holt, L. E.: Discussion on article by Hess, A. F.: Footnote 20.

[20] Hess, A. F.: Group Similarities of the Deficiency Diseases: A Study of Infantile Scurvy, abstr., The Journal A. M. A., May 20, 1916, p. 1654.

In a later experiment, three guinea-pigs, weighing from 270 to 350 gm., were fed with raw milk. They apparently did not care for the milk as do the younger animals, and gained less in weight. Two had swollen wrists and knees by the twelfth day. The third pig had no lesions after the thirtieth day. A fourth pig, weighing 160 gm., fed on the same milk, grew very rapidly, gaining 140 gm. in twenty-five days, but had no lesions of scurvy until the twenty-ninth day. Notwithstanding the prevalent idea that cow's milk is an ideal food, we wish to emphasize the important fact, as deduced from our experiments, that raw cow's milk does not act as an antiscorbutic for guinea-pigs, but on the contrary produces scurvy in these animals.

Such a statement appears to be in discord with the success of Osborne and Mendel[1] in feeding milk food to white rats, and of Hopkins[11] in stimulating growth in white mice with small amounts of milk. We believe that this variability of results is due to the difference in the species of the animals employed. A diet which is sufficient for growth and maintenance in one species may be either similarly adequate for another,[21] may be sufficient for maintenance, or may produce one of the so-called deficiency diseases. It is also apparent that conclusions based on dietary experiments on one species of animals can in all probability be applied only to that species. This feature will be considered again in the discussion of the proprietary baby foods.

Boiled Milk.—The effect of boiled milk was next tested. The milk was boiled for from ten to fifteen minutes. Thirteen animals were subjected to this diet. Ten had lesions of scurvy, these appearing at about seventeen days. Two large pigs did not develop symptoms, although being on the diet for sixty-six days. A third has no lesions after thirty days. We could distinguish no difference in the onset and extent of the lesions in the animals fed on raw, pasteurized or cooked cow's milk. The time of onset of the disease in individuals of all groups was variable.

It is to be noted that the time of onset of symptoms is not the same in all individuals. In fact, a small number of the animals in each group discussed have not developed symptoms of the disease, although fed on a diet for a considerable time. This ability of some animals to resist the disease is an individual characteristic. It is possible that the more resistant have some essential substance stored up in their tissues capable of combating the toxic substances that produce the disease. These essential substances may be rapidly used up in the animals which have early symptoms. McCollum and Davis[4] report a similar individual variation in their experiments:

> In our extensive experience with rations made up of purified casein, dextrin and salt mixtures from reagents we have observed a marked difference in the ability of individual rats to grow on such diets. Many fail entirely to grow, others grow at decidedly under the normal weight; and normal growth during a period of somewhat more than one hundred days can be attained only by exceptional rats.

Various Diets.—A large number of guinea-pigs were fed on carrots, cabbage, lettuce and other green vegetables with hay for long periods. These grew normally and had no symptoms of scurvy. This is the customary diet for our guinea-pigs, and we have never observed scurvy in animals on such a mixture of foods. Likewise no animals in our experience have had scurvy when fed on a mixture of carrots and oats.

Three guinea-pigs fed on milk, vegetables and oats developed mild symptoms of the disease after twenty-one and forty-one days. Several others on the same diet had no lesions. In a previous paper by Moore and Davis,[22] the occurrence of a scorbutic outbreak among guinea-pigs, which were fed in addition to oats and green vegetables milk from a cow with experimental streptococcal mastitis, is described. After the addition of the milk to the ordinary diet nearly all the young guinea-pigs had scurvy, the older ones rarely getting the disease. As the amount of milk taken by each animal was not ascertained, there is always the factor that those animals affected may have consumed more of the milk than the others. The point to be emphasized, however, is that milk when added to a diet of green vegetables considered to be preeminent as antiscorbutics will produce scurvy in some of the guinea-pigs thus fed.

The classical work of Holst and Fröhlich has conclusively demonstrated that when guinea-pigs are fed on an exclusive diet of oats they readily succumb to a very severe type of scurvy. Our experiments completely confirm their conclusions. In every instance looseness of the molar teeth with hemorrhages into the gums or muscles of the lower jaw, together with the symptoms previously described, were a constant feature. The animals gained little in weight preceding the onset of the disease, afterward rapidly became emaciated, and death occurred on an average after thirty-two days.

In our experiment in which pasteurized milk and oats were fed together, the animals grew rapidly, each gaining 80 gm. in comparison to the 20 gm. on the oats alone before the onset of symptoms. The symptoms appeared on the nineteenth to the twenty-sixth day and were very severe; but the animals lived for over two months on the mixed diet. In a second experiment in which raw certified milk was fed with oats, the animals showed a similar rapid growth, developed scurvy on about the twentieth day, and these lesions were slightly more marked than those on the raw milk diet alone but not so severe as those caused by the exclusive oats diet. We agree with Funk that unboiled milk in addition to oats will prevent loss of weight, but fail to find that it prevents scurvy.

We have produced scurvy in guinea-pigs by feeding exclusive diets of skim milk, condensed milk, and casein in water. The last two produce a severe type of the malady with looseness of the molar teeth and death. On cream diets the animals succumb in a few days to a type of fat constipation. No macroscopic lesions of scurvy were observed.

Counts of the leukocytes of several guinea-pigs made before and after the appearance of lesions show that there is no appreciable increase. There is likewise no rise in temperature during the disease.

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[21] Hart and McCollum: Jour. Biol. Chem., 1914, xix, 378.

[22] Moore and Davis: Tr. Chicago Path. Soc., 1914, ix, 185.

Our experiments with some of the proprietary infant foods, when compared with those of Wheeler and Biester,[23] well illustrate previous assertions that the nutrient value of different dietaries is applicable only to the animal species employed. These authors find that unmodified Horlick's malted milk and Nestlé's food, mixtures of milk and malted grain, appear to be a complete food for white mice, allowing for the maintenance of constant body weight, during relatively long periods. Mice fed on unmodified Mellin's food and Eskay's albuminized food, which are made from grains and contain no milk, had a steady loss in weight. These preparations were not capable of serving as an exclusive ration.

When guinea-pigs were fed exclusively on unmodified Horlick's malted milk, Nestlé's food and Mellin's food, some gained rapidly in weight but developed symptoms of scurvy by eleven days, and after a rapid loss of weight died on an average after eighteen days. At necropsy the lesions were found to be more general than on any of the milk diets, comparable in their severity to the condition caused by oats ration. There appeared to be no difference between those foods having milk in their composition, as the Horlick's malted milk and the Nestlé's food, and those composed solely of grains, as Mellin's food. Our results in this respect agree with facts well known among clinicians that the exclusive use of unmodified proprietary infant foods is apt to produce infantile scurvy.

SUMMARY

Scurvy has been produced experimentally in guinea-pigs by the exclusive diet of raw cow's milk. Pasteurized, boiled and skimmed cow's milk will cause a similar condition. A severe form of the disease has been produced in these animals by condensed milk, casein and water, and several proprietary infant foods. Raw cow's milk when added to oats was not found capable of preventing the onset of scurvy. In a few animals scurvy has developed when milk has been added to a general diet of green vegetables. The onset of symptoms in the individual animal is a very variable factor, some having a marked resistance, and others succumbing more rapidly. From our results we find that the older animals are more resistant.

From a comparison of our results with those of investigators using other animal species, it appears that a ration which may be entirely adequate in nutritive value for one species may be inadequate for another. While there is a marked individual variation toward diets in each species, the species variation is still greater.

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ABSTRACT OF DISCUSSION

Dr. Victor C. Vaughan, Ann Arbor, Mich.: This paper is interesting to me because many years ago I started to prove that formaldehyd when added to milk made the milk injurious. I took many batches of guinea-pigs, divided them into two sets each, and fed one on normal cow's milk, and the other on cow's milk with varying proportions of formaldehyd in it. I was going to prove that formaldehyd was a terrible poison which should not be added to the milk, and the conclusion I reached was that the milk that had no formaldehyd in it had just as injurious an effect and killed just as quickly as the milk with formaldehyd in it.

Dr. W. W. Ford, Baltimore: I am very much interested in this paper, in the first place, because of the apparent contradiction expressed by men in pediatrics in this country, and in the second place, it hinges on certain work which we have been doing in our laboratory for a number of years, and which I would like to explain briefly so far as it relates to this work.

At the present time pediatricians in this country are divided into two camps. In one are those individuals who have long maintained that pasteurized milk and boiled milk produce scurvy. In the other are a large group of individuals who say that it does not produce scurvy, and even if it does the scurvy is of no consequence inasmuch as it can be controlled with comparative ease by the addition of some substance like orange juice. Dr. Holt's statement that scurvy has increased in New York City as the result of the increase in the pasteurization of milk there is a matter of considerable importance. At the same time I want to emphasize the fact that there are cases of scurvy which are superinduced by the use of boiled milk, although they are very uncommon. We recently had one in Baltimore. Milk is a very treacherous substance. Milk in Baltimore is not what it is in New York or in Chicago. Baltimore milk properly pasteurized has lost its capacity of souring and curdling normally. Such milk has lost its lactic acid bacteria. The consequence of the development of the bacteria in such milk is the evolution of toxic products, the evolution of hemolytic substances which are clearly due to the development of the *Bacillus aerogenes-capsulatus*. Such milk if allowed to stand for any considerable period of time is distinctly poisonous to animals. It seems to bring on symptoms of protein intoxication, although our experiments are not sufficiently definite to make this a positive conclusion.

That milk is practically identical with boiled milk. From what I have heard of the conditions in New York City, the pasteurized milk there does acidify and clot, due to the development of lactic acid bacteria and the evolution of lactic acid, and apparently the same thing holds true in Washington. When, therefore, we come to consider the difference between raw milk and boiled milk we should not forget that we are using entirely different substances, and the different action which might be shown on animals may be explained by the fact that certain protective substances present in raw milk are destroyed in the act of boiling. But there is another explanation which we should not forget, and that is that in the boiling of milk we destroy all the bacteria which tend to inhibit the development of the spore-bearing organisms. Boiled milk, in our experience in Baltimore, always rots, and it rots with the production of noxious disagreeable substances, substances with a very disagreeable odor. I cannot help but think that the use of milk of that character, just as soon as the organisms have had time to develop to any extent, is an entirely different thing from the use of milk containing lactic acid organisms which in their evolution and their multiplying develop and cause the evolution of lactic acid and produce the acidification and clotting of the milk.

Dr. L. R. Williams, Albany, N. Y.: About a year ago we first heard of the work of Dr. Hess in Mount Sinai Hospital in New York who found that a number of children fed on pasteurized milk had developed scurvy; and during this winter Dr. Holt made the statement in New York that scurvy had been on the increase among the children in New York. Last year there were eight deaths from scurvy in New York; during the last ten years they averaged about nine, varying from seven to twelve in number. In New York, Boston and Chicago they have had pasteurized milk (perhaps 80 per cent. of the milk being pasteurized) for the past four or five years, and the number of deaths from scurvy had not increased. In these three cities infant mortality has steadily diminished, whether due to that reason alone or not I cannot say. We know that pasteurized milk may induce scurvy in children, but if, as often happens, the milk dealers in a city are opposed to pasteurization, they take that point from every scientific paper that is read and advertise it in the newspapers and herald it all through the state. I wish that those of you who are experimenting with the use of pasteurized milk would bear in mind the fact that there are infinitely more deaths caused among infants by the feeding of raw milk than by pasteurized milk, not only by the filth which is in the milk, but also by the infective organisms carried by milk, and that the amount of illness and death caused by pasteurized cow's milk is far less than the amount of illness and death caused by the use of raw milk. If we bear this in mind I think that many arguments against the use of pasteurized milk would be obviated.

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[23] Wheeler, Ruth, and Biester, Alice: A Study of the Nutritive Value of Some Proprietary Infant Foods, Am. Jour. Dis. Child., March, 1914, p. 170.

Dr. J. J. Moore, Chicago: I was very glad to learn of Dr. Vaughan's experience in feeding guinea-pigs on cow's milk. I believe that practically all the milk for large cities should be pasteurized. Raw milk causes scurvy in guinea-pigs as easily as pasteurized milk. We have fed more guinea-pigs on pasteurized milk than on raw milk, as the former is the milk most generally used in the city. In order to ascertain the effect of boiled and raw milk on guinea-pigs, we have recently undertaken a series of experiments in which three large and three small animals were fed raw milk, and three large and three small animals were fed milk from the same bottle but which had been boiled for fifteen minutes. The three large guinea-pigs fed on raw milk had lesions of scurvy earlier than any of the small animals. Two of the small guinea-pigs fed on raw milk did not develop scorbutic symptoms for thirty days. Of those fed on the boiled milk, one large animal has not shown symptoms of scurvy to date (thirty days); all the small pigs, however, have scurvy. It appears from the work of others that cow's milk is an efficient diet for rats and white mice. It does not seem to be an efficient diet for guinea-pigs. Whether it is a satisfactory diet for all babies is something which we shall have to learn from the pediatricians.

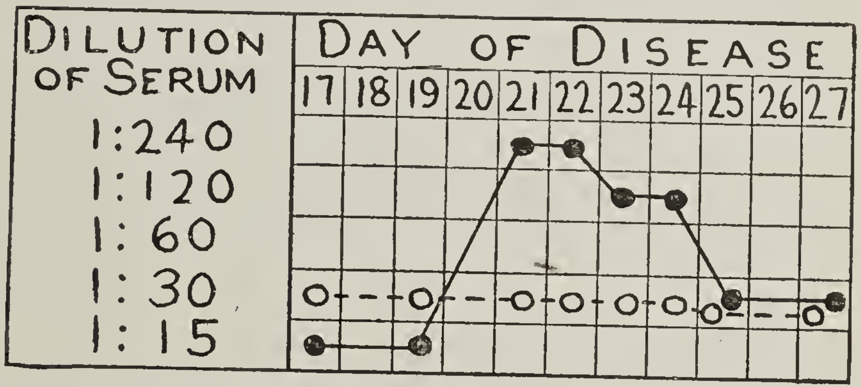
A REACTION OF IMMUNITY IN ACUTE POLIOMYELITIS *

GEORGE MATHERS, M.D.
AND
RUTH TUNNICLIFF, M.D.
CHICAGO

Epidemiologic and experimental investigations have added important facts to our knowledge of immunity in acute poliomyelitis. It has been observed that in widespread epidemics of this disease only a small percentage of the population in the infected area is attacked, and that age susceptibility plays an important rôle; that is, adults usually are immune, and young children are susceptible. Furthermore, as in many other acute infectious diseases, one attack of acute poliomyelitis, whether mild or severe, seems to protect the individual against subsequent infection. These facts have been demonstrated experimentally by many investigators, especially Landsteiner, Flexner, and their associates, and it has been proved that the serum of recovered persons or monkeys contains antibodies which, when the proper experimental conditions are fulfilled, will neutralize fatal doses of poliomyelitis virus. This neutralization occurs when virus and immune serum remain in contact for two hours at 37 C., and for twenty-four hours at refrigerator temperature before inoculation. It has also been noted that the serum of normal adults often exhibits a high antibody content for the infectious agent of acute poliomyelitis — a condition which might well be explained as the result of unrecognized abortive attacks of the disease. The experiments thus far reported indicate that protective substances develop in the blood of persons suffering from acute poliomyelitis which play an important part in their recovery and subsequent immunity.

In a recent communication,[1] Mathers described a peculiar streptococcus-like organism obtained in cultures of the tissues of the central nervous system of patients dead of acute poliomyelitis. Apparently the same organism was also described independently about the same time by Rosenow, Towne and Wheeler,[2] and by Nuzum and Herzog.[3] The complete relationship of the coccus-like organism to poliomyelitis has not been determined as yet, but animal and cultural experiments indicate that this organism, which in many ways resembles the virus described by Flexner and Noguchi,[4] bears a definite relation to the causation of the disease. In view of the fact that protective substances develop in the serum of persons suffering from acute poliomyelitis, it seems a matter of interest to determine whether any definite antibody reaction against this coccus could be demonstrated during the course of the infection. Accordingly estimations have been made of the opsonic power of the blood of patients with acute poliomyelitis.

In this work the dilution method as first recommended by Klein[5] was used, the normal and immune serums being diluted with physiologic sodium chlorid solution in order that it might be determined at what point induced phagocytosis recognizably exceeded spontaneous phagocytosis. Spontaneous phagocytosis was estimated by the amount of phagocytosis in specimens containing salt solution instead of serum. Normal adult human leukocytes were used. The serum of a normal infant 2 years of age was employed as a control when the blood of young children was examined. It is known that the normal opsonic content of infants' blood is less than that of adults.[6] The organisms used in these experiments were typical strains of the poliomyelitis coccus isolated from the brains or cords in fatal cases of acute poliomyelitis. Three different strains of this organism were used at different times, and the results were always similar. A strain of *Streptococcus pyogenes* isolated from a patient with erysipelas, and one of *Streptococcus viridans* from a tonsil were also studied to determine to what extent, if any, the opsonic action might be specific. The suspensions of bacteria were prepared from twenty-four-hour blood-agar-slant cultures, each suspension containing approximately the same number of organisms. The specimens were incubated at 37 C. for thirty minutes, and the phagocytosis in fifty polymorphonuclear leukocytes determined. Both heated and unheated serums were studied in several instances, with similar results.



Opsonic content of the serum of a patient with acute poliomyelitis for the poliomyelitic coccus and Streptococcus pyogenes; Solid line, poliomyelitic coccus; broken line, Streptococcus pyogenes.

The serums of nine patients were examined. Five of these patients were under 2½ years of age, one was

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* From the Memorial Institute for Infectious Diseases.

[1] Mathers, George: Some Bacteriologic Observations on Epidemic Poliomyelitis, The Journal A. M. A., Sept. 30, 1916, p. 1019.

[2] Rosenow, E. C.: Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1202.

[3] Nuzum, J. W., and Herzog, Maximilian: Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1205.

[4] Flexner and Noguchi: Jour. Exper. Med., 1913, xviii, 461.

[5] Klein: Bull. Johns Hopkins Hosp., 1907, xviii, 245.

[6] Tunnicliff, Ruth: Jour. Infect. Dis., 1910, vii, 698.

4 years, another 2 years, 9 months, and two were adults. All had a mild form of poliomyelitis, only one having any fever during the time in which the serum was examined. A so-called "negative phase" was observed in only two cases, probably because the serum in no case could be examined before the sixth day of the disease. A distinct increase in opsonins for the poliomyelitis coccus, lasting from one to ten days, was observed in seven patients, studied between the sixth and twenty-first days of the disease. Two adult patients, examined once each in the third and fourth weeks of the disease, revealed no change in opsonin. The point of opsonic extinction for the normal infant serum and the poliomyelitis coccus was 1 : 30 in every instance; for three cases of acute poliomyelitis it was 1 : 120; for three others 1 : 240, and for the patient most severely ill, 1 : 480. The last-mentioned patient retained a high opsonic content for ten days. As the opsonin in question in normal adult serum does not disappear until a dilution of 1 : 120 is reached, little idea of the opsonic power of the blood of infant patients could have been gained if the serums of normal infants had not been used for controls. There were no changes in the opsonin for *Streptococcus pyogenes* or *Streptococcus viridans* in any of the serums examined. Furthermore, the serum of a patient with scarlet fever gave a high opsonic content (1 : 480) for *Streptococcus pyogenes,* but no increase above normal for the poliomyelitis organism.

The opsonic curve in the case reported below shows a low content on the seventeenth and nineteenth days of the attack, followed by a definite rise for four days, as indicated in the chart. There was nothing in the history to explain why the rise should occur so late in the course.

E. J., a white girl, aged 2½ years, was admitted to the Cook County Hospital, Oct. 10, 1916, with a flaccid paralysis of the left leg. The child became ill, Oct. 2, 1916; at that time she had some fever and a headache. Paralysis of the left leg was noticed, October 5. Examination revealed nothing abnormal except a marked paresis of all the muscles of the left leg. During her stay in the hospital this paralysis gradually improved.

These results indicate that specific opsonin for the poliomyelitis coccus found in the brains and cords of patients dead of acute poliomyelitis develops during the course of the attack. This opsonin usually appears in the blood during the second week of the disease. That it is specific seems likely, since no change was observed in the opsonin for *Streptococcus pyogenes* or *Streptococcus viridans.* Further work is in progress on this point. The increase in opsonin for the poliomyelitis coccus during the course of an attack of acute poliomyelitis suggests strongly that the organism is of importance in the causation of the disease.

Furthermore, in conjunction with Dr. Katharine Howell, we have found that the serum of rabbits immunized against different strains of poliomyelitic cocci contains antibodies in high concentration, especially opsonin, which are apparently specific for the poliomyelitis organisms. If these results, the details of which will be published soon, are verified, the outlook for the development of a specific immune serum will seem encouraging.

Radium.—During October the United States Bureau of Standards received, for testing, radium to the value of $77,000, which was the largest quantity ever received in one month. More than $1,000,000 worth of radium has been tested by the bureau up to date.

REPORT OF A CASE OF TABETIC OCULAR CRISIS *

J. C. Michael, B.S., M.D., St. Paul

Spiller[1] of Philadelphia, in March, 1916, reviewed the three cases of tabetic ocular crises previously reported in the literature, and cited a case of his own. These cases have not been fully recognized, and he makes a plea that they be made known.

A flour packer, aged 42, came under my observation, March 1, 1916, in my neurologic service of the City and County Hospital. The previous history was unimportant except for an attack of a manic psychosis of two weeks' duration, two years before. He gave a history of the present complaint almost classically typical of tabes. During the last ten years he had been suffering from a stiffness in the knees, uncertain gait, disturbed urination, lost sexual power, lightning pains in the legs, etc. The serologic and clinical findings were those most commonly found in tabes. The eyegrounds, examined by Dr. C. W. Fogarty, showed double primary atrophy. The patient said that since February, he had been having attacks of sharp, stabbing pains in his left eye, coming on at irregular intervals and lasting several seconds. During these attacks, he saw momentary flashes of light before the affected eye, and also felt irritation in the eye resembling that caused by a hair. The conjunctival mucous membranes became reddened during the attack, and the eye became moistened with tears. This was the story given by him when he entered the hospital. Three weeks later, he gave the following account: "Yesterday morning, on awakening, my left eye felt as though it had swollen the size of a baseball." The skin (over an area from the vertical midline of the face laterally as far as the external border of the left eyebrow and down as far as the mustache) seemed to prickle and feel warm. Pain continued to be felt in the face all day, and numbness in that side of the face continued the following day. There were no visual disturbances.

April 20, the patient stated that he had attacks of numbness and stiffness on the left side of the face, lasting from several minutes to several hours. The gums felt as though they were swollen. These times there were no pains, and no photophobic or lacrimal gland disturbances.

May 1, the patient said that the day before he had the feeling that the left side of his face was coming out, especially the cheek bone. There was burning sensation in the eyeball, lasting about half an hour, with an increase in the flow of tears, and also several momentary attacks of pain and flashes of light before the eye. This syndrome recurred occasionally thereafter. The patient left the hospital, June 27, and died at home in early July.

1019 Lowry Building.

REPORT OF A CASE OF BANTI'S DISEASE, WITH NECROPSY FINDINGS

Morris Joseph, M.D., Panama, R. P.
Resident Physician, Santo Tomas Hospital

Because of the rarity of cases of true Banti's disease, and because of the unusual opportunity afforded in this case of following up in detail all the clinical manifestations from the onset of the first symptom, and then to necropsy, it was thought a report of this kind would be of interest.

History.—C. H., man, aged 28, single, barber, Venezuelan, was transferred from Colon Hospital with a diagnosis of gastric ulcer, Jan. 2, 1916. The patient complained of having vomited large quantities of blood. The family history was negative. No other member was ever affected with the same condition. The patient denied any disease of childhood, and had since always been well. Until fifteen months before, the patient had had malaria almost constantly for two years. For the last six months he had felt fairly well. Other than slight dizziness and vomiting associated with his malarial attacks, the patient had never had any gastro-intestinal trouble. He denied venereal troubles.

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* Read before the Ramsey County Medical Society, March 27, 1916.

[1] Spiller, W. G.: Tabetic Ocular Crises, The Journal A. M. A., March 18, 1916, p. 855.

The present illness began Friday night, Dec. 31, 1915, at 10:15, when the patient vomited the food ingested at 7 in the evening. Fifteen minutes later he vomited blood for the first time in his life. The blood was at first dark, but later bright red. Thirty minutes and an hour later, respectively, he vomited blood again. The entire quantity of blood estimated was very large. The patient left the hospital, Jan. 24, 1916, against advice, and returned, March 28, with a history of having had three hemorrhages in the intervening two months. His condition was very poor.

Physical Examination.—At the first admission the patient was fairly well nourished, not very ill, of slightly muddy complexion, anemic, with white pearly sclerae. The spleen reached 4 fingers' breadths below the costal margin and was only slightly tender on deep pressure. Otherwise the examination was negative.

At the second admission the patient had apparently been failing rapidly. The anemia was more marked and he was very weak. The heart was enlarged, with a systolic puff, probably hemic, over the entire precordium. The splenic edge was now definitely higher than during the last admission. Otherwise the physical examination was negative.

Laboratory Findings.—First Admission: Jan. 5, 1916, the blood was negative for malaria; anisocytosis was present; there was no poikilocytosis or nucleated red blood cells. Hemoglobin, from 55 to 60 per cent.; red blood cells, 2,240,000; white blood cells, 3,000. The differential count revealed polymorphonuclears, 41 per cent.; small mononuclears, 57 per cent.; large mononuclears, 1 per cent.; eosinophils, 1 per cent.

Jan. 21, 1916, the blood was negative for malaria; anisocytosis and low hemoglobin content were evident. Hemoglobin, 40 per cent.; red blood cells, 2,168,000; white blood cells, 2,400. The differential count revealed: polymorphonuclears, 43 per cent.; small mononuclears, 43 per cent.; large mononuclears, 12 per cent.; transitionals, 20 per cent. The Wassermann reaction was negative.

Jan. 22, 1916, the differential count revealed: polymorphonuclears, 39 per cent.; small mononuclears, 44 per cent.; large mononuclears, 10 per cent.; transitionals, 6 per cent.; eosinophils, 1 per cent.

Second Admission: The urine showed a faint trace of albumin, and some epithelial and pus cells. The stool was negative. The blood was negative for malaria; a smear showed grave anemia. Red blood cells 1,004,800; hemoglobin, 25 per cent.; white blood cells, 1,850. The differential count revealed polymorphonuclears, 44 per cent.; small mononuclears, 46 per cent.; large mononuclears, 1 per cent.; transitionals, 4 per cent.; eosinophils, 2 per cent.

Course and Termination.—During his first stay in the hospital the patient grew progressively worse even during only a few weeks' observation, and during this time the liver showed evidence of enlargement with some ascites. Some edema of the legs also developed.

He refused operation at this time, and was thought to be in no shape for operation on his second admission, during which his course was rapidly downward. He vomited and passed large quantities of blood by rectum and grew extremely weak. No roentgenoscopy was possible.

On the afternoon of April 3 he complained of a very sharp pain in the abdomen, and died a short time afterward.

Necropsy Report.—The body was that of a well developed and well nourished white man. The skin was very pale, and showed a slight jaundice. The subcutaneous tissues showed marked anemia and a fair amount of fat.

The lungs were collapsed. The left showed a small area of beginning bronchopneumonia at the base.

The pericardium contained 1 ounce of straw-colored fluid. The heart was normal in size and not dilated. The valves were normal. The muscle was very pale and the endocardium had a mottled appearance, the so-called "tiger lily" heart. The aorta was slightly yellower than normal.

The stomach was normal, but the esophagus showed many small varices, one of which had ruptured. The stomach contained 6 ounces of partly clotted blood. The intestines were filled with decomposed blood. The color at the cecum showed chronic follicular colitis, probably of uncinariasis.

The liver weighed 1,575 gm. The surface had numerous grayish nodules, slightly raised and in some places umbilicated. The cut surfaces of these looked like metastases of some malignant tumor. Some of them showed bright yellow areas of bile staining.

The spleen weighed 765 gm. There were very few adhesions to the capsule. The cut surface presented a grayish-white translucent appearance. No trabeculae or bands of fibers were present.

There were few adhesions around the gallbladder; otherwise the peritoneum was normal. Some of the retroperitoneal lymph nodes were larger than normal, and showed hemorrhage into their substance.

The kidneys were very pale; the capsule stripped easily. There was no contraction of the cortex. At the base of the right kidney there was a nodule, the size of a pea, that was white and fairly firm.

The bladder wall was slightly thickened; the mucosa was normal.

The cause of death was secondary anemia following hemorrhages from ruptured esophageal varices.

Microscopic Findings.—Spleen: The capsule and trabeculae showed fibrosis, and the malpighian corpuscles were atrophic, some being almost obliterated. Proliferation of the endothelium was a prominent feature. Infrequent focal areas of necrosis were noted both in the pulp and malpighian bodies. Some yellow-brown pigment as well as an abundance of greenish-black pigment was present. The latter was believed to be malarial pigment.

Liver: There was marked thickening of the capsule. A moderate degree of interstitial cirrhosis also was noted. An advanced stage of passive congestion was present, in some portions representing the "nutmeg" liver. Central and middle zone pressure atrophy of the liver cells was marked. Some of the areas which more nearly approached normal liver tissue revealed phagocyted pigment believed to be of malarial origin. No malignant or large inflammatory areas were found.

Kidney: A moderate degree of parenchymatous nephritis was present. The nodule noted on gross inspection of the kidney specimen received proved on further examination to be a wedge-shaped lesion of fatty tissue with a border of chronic inflammatory process. This lesion from its shape and its location in the cortex suggested an old infarct that had undergone a fatty metamorphosis.

Lymph Nodes: The follicles were atrophic and the reticulum thickened. The venous channels were dilated and filled with blood. A moderate amount of pigment was present in this tissue also.

Physical Impairment

Some figures from the reported experience of the Germania Life in the health service it is carrying on among its own policyholders have an interest. Eighteen months ago, the company offered them the privilege of periodic examinations and of advice on sanitary living and the like, and to last September, 3,482 had applied for this service. A study of a group of examinations made in 1915 by the Life Extension Institute covers a group of 1,154 insured persons of varying ages, averaging 42.6, and having policies that had been in force three years or more. Of this group of persons only fourteen, or 1.21 per cent., passed "perfect" in their physical reexamination; that is, no physical impairment was discovered, and no advice for correcting habits of living was needed. The other 1,140, or 98.79 per cent., did need advice, and in case of 789 of them, or 68.37 per cent. of the whole number, that advice was to seek medical treatment. Of the 1,140 persons who were in some need, either in their physical condition or their mode of living, forty-nine (4.25 per cent.) were "seriously affected"; 740 (64.12 per cent.) were moderately affected, and 351 (30.42 per cent.) were slightly affected, and out of the 789, or 68.37 per cent., who were advised to go to physicians for treatment, only 160 were aware that any impairment existed.—*Insurance*, Nov. 3, 1916.

New Instruments and Suggestions

ARTIFICIAL PNEUMOTHORAX

A SIMPLE APPARATUS FOR ITS INDUCTION

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A number of appliances for the induction of artificial pneumothorax have been devised. Some are complicated both in design and construction; some are difficult to operate without assistance; a few are in some respects inefficient, while others are unduly expensive. I have endeavored to construct an apparatus, simple in design and construction, easy to operate without assistance, efficient in the chief essentials, and at the same time very inexpensive.

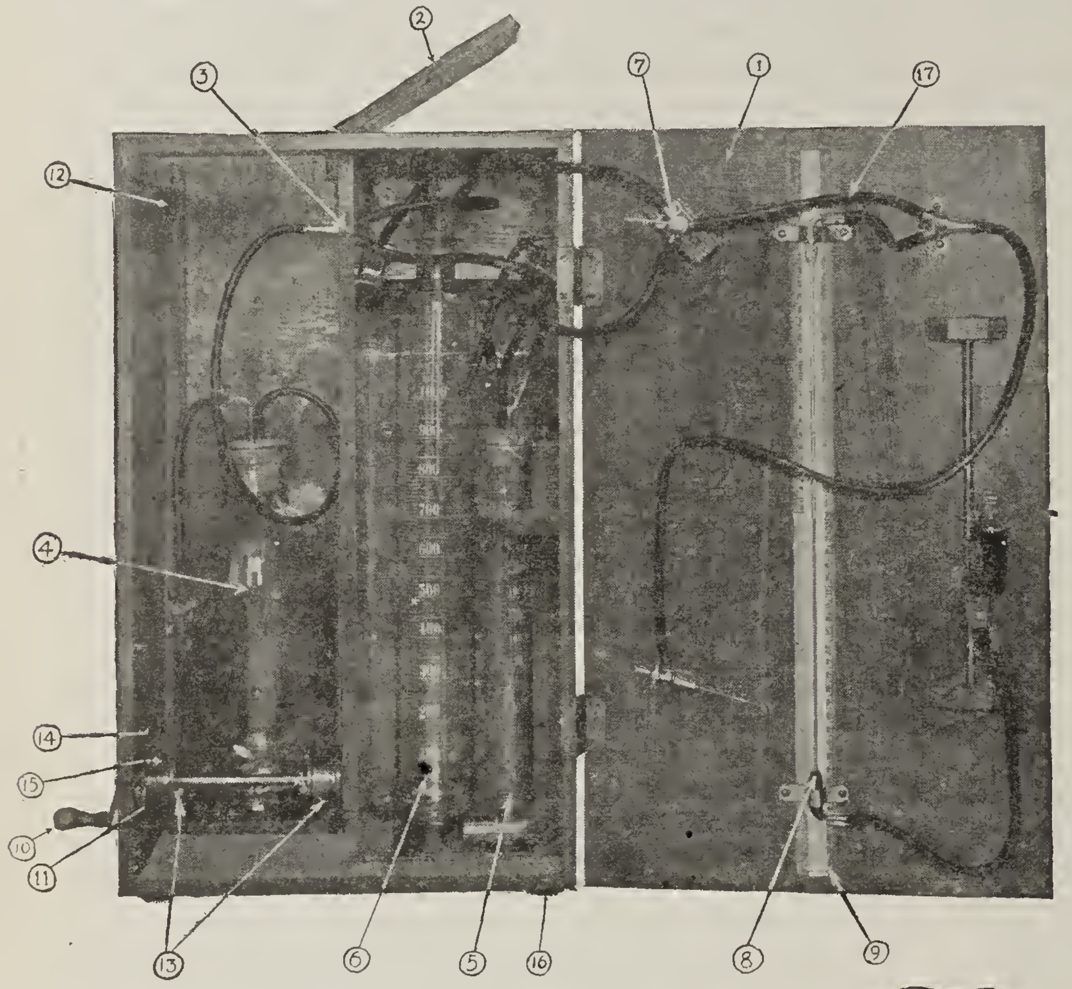

Fig. 1.—Apparatus for induction of artificial pneumothorax, with the water bottle at the lowest point.

The illustrations with the accompanying description may serve to explain the construction and make the advantages clear.

The case, which is simple in design, should be made of material that will not warp. It should not be too large or heavy, so that it may be conveniently portable. There is one large door (Fig. 1, 1) at the front, and on the inside a central partition (3). An important addition is a small trap door (2) at the top.

There are three bottles. The largest (4) is for water. It has a capacity of about 1,500 c.c. The mouth and neck are about 2 inches in diameter. What is known as a candy bottle answers admirably. The smallest (5) is for oxygen, and has a capacity of about 250 c.c. The third (6) is for nitrogen. It has a capacity of 1,000 c.c. Each of these gas containers is set in a circular depression in the floor of the case, and the top of each container is held securely by means of a simple guard, illustrated in Figure 3 *A*.

There is a manometer (8) similar in style to that used in the Parry Morgan apparatus.

For the scale (9), two ordinary millimeter rules are used. The central portion of the scale is painted white to facilitate reading.

There is a three-way tap (7) connecting with the nitrogen and oxygen containers, and with the needle, in such a way, however, that the needle is always in communication with the manometer.

For raising and lowering the water bottle by uniform degrees there is a crank (10), a ratchet wheel (11) and a pulley (12). This appliance is made of metal and consists merely of two spools (13) on an axle connected to the ratchet wheel. The whole is operated by a crank (10) at the side of the case, and controlled by a simple metal brake (14), which also has a release lever (15). The details of the construction of this portion of the apparatus are shown in Figure 3 *B*.

Four small rubber shoes (16) are added on the bottom of the case. These prevent the case sliding when the crank is operating.

If a filter or a heating device should be desired, it may be introduced at the point 17.

The water bottle and the gas containers have rubber stoppers, drilled and fitted with glass tubing in the ordinary way, except that in each of the gas containers, the gas tube is a Y (Fig. 3 *C*), one leg (*D*) being used for delivery to the needle, and the other (*E*) for filling the container with gas. The latter is closed with an ordinary rubber tube and clamp.

Figure 1 shows the apparatus with the water bottle at the lowest point, while Figure 2 shows the water bottle at the highest point.

ADVANTAGES OF THE APPARATUS

1. The whole apparatus, aside from the needle, can be operated by the left hand without assistance.

2. The water bottle can be raised by uniform degrees by means of the crank handle operating the ratchet wheel and pulley.

3. The trap door in the top of the case allows the water container to be raised until the bottom of it is on a level with the top of the nitrogen container, thus making it possible to use the whole of the nitrogen in the container.

4. The manometer can readily be adjusted to stand at zero by the use of the flexible tube connecting the manometer tube with the glass reservoir.

5. Readings of the nitrogen and oxygen containers can be more easily

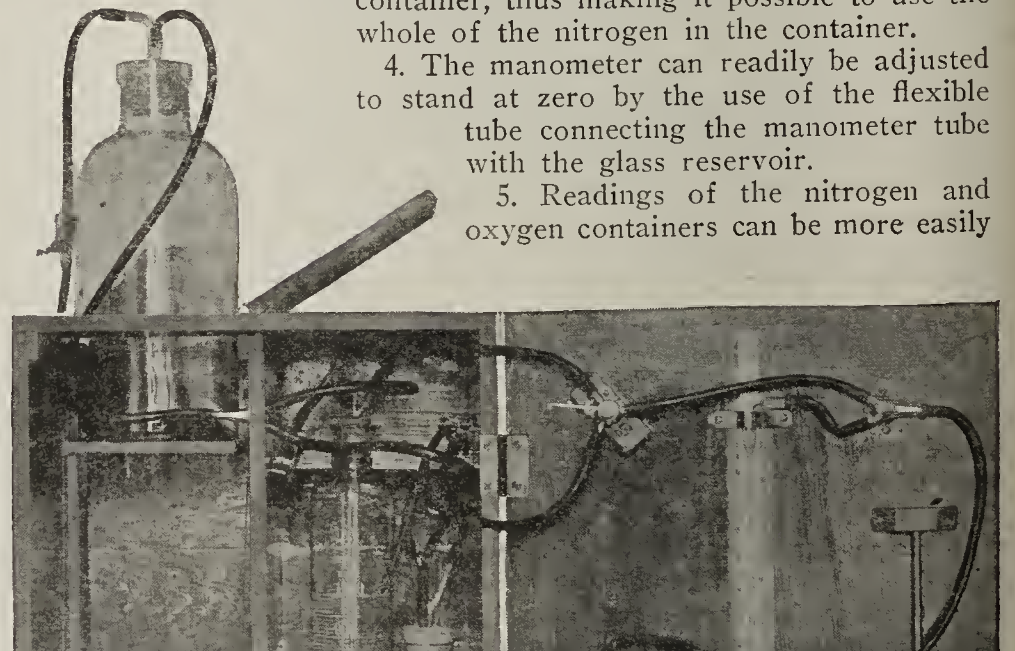

Fig. 2.—Apparatus with the water bottle at the highest point.

taken, since these vessels are of small diameter and greater height.

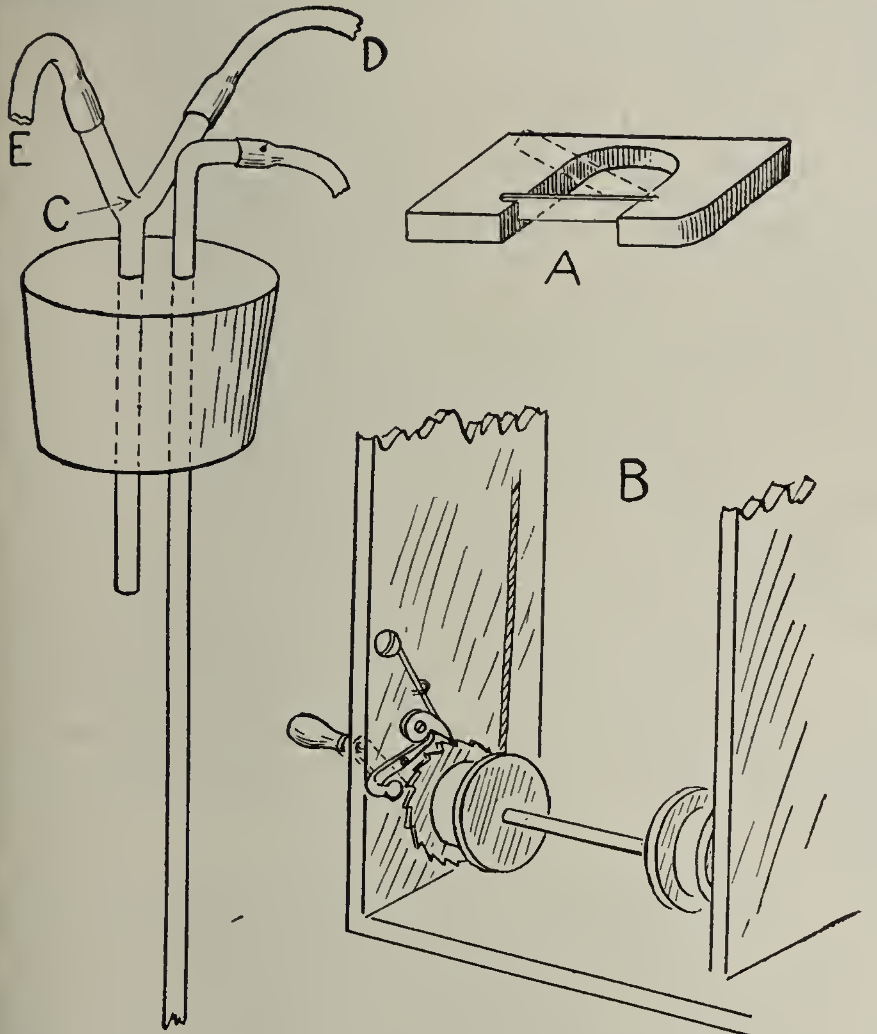

Fig. 3.—Details of apparatus: *A*, guard for top of containers; *B*, mechanism for raising and lowering the water bottle; *C*, Y of gas tube; *D*, leg for delivery to needle; *E*, leg for filling container with gas.

6. The use of the Y tubes on the gas containers obviates the necessity of disturbing any of the rubber tube connections when filling the containers with gas.

A PNEUMOTHORAX NEEDLE

William N. Beggs, A.B., M.D., and Arnold S. Taussig, M.D., Denver

The needle used in the performance of induced pneumothorax should be provided with a stylet, or obturator which may be used to remove obstructions in the needle without permitting the introduction of unfiltered air into the pleural cavity. While the danger of infection from this source is slight, it is present, and it is impossible to hold either the operator or the technic entirely blameless in case pleural exudate does occur in the course of the treatment unless this has been adequately guarded against. As is well known to all experienced operators, this is a frequent complication and one not without danger to the patient.

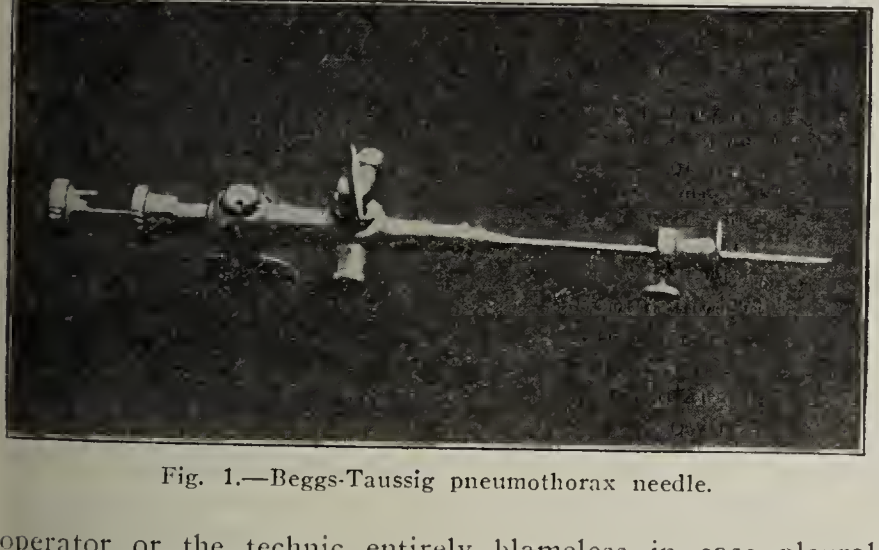

Fig. 1.—Beggs-Taussig pneumothorax needle.

For these reasons, and because none of the needles with which we were acquainted proved satisfactory to us in practice, we have devised the needle herewith illustrated, which has been made for us by the Durbin-Muckle Surgical Instrument Company of this city.

One of the side nipples is provided with a standard thread so that a hypodermic or record syringe may be attached for aspiration if desirable for diagnostic purposes, or a connection may be made with the larger aspirator for the removal of fluid.

The adjustable safety guard or stop is of considerable advantage. It prevents the needle from plunging too deep as a result of the sudden loss of resistance on puncturing the pleura, and from gradually working down during the introduction of the gas. It also furnishes a convenient support for the hand holding the needle.

About nine months' use of the needle shows that it possesses the following practical advantages:

1. The obturator cannot be unintentionally disconnected during the operation, but is easily removable for purposes of cleansing.

2. The needle is not top-heavy, thus obviating a serious and constant annoyance connected with the use of some of the best-known needles.

3. The needle is well balanced laterally, and hence more easily manipulated.

4. In case an exudate is present, the needle conveniently permits the alternate withdrawal of fluid and introduction of gas, if such procedure is desirable, both in measured quantities, without alternate disconnection and connection of the apparatus and without interference with the manometric readings, during the introduction of the gas, owing to fluid in the needle.

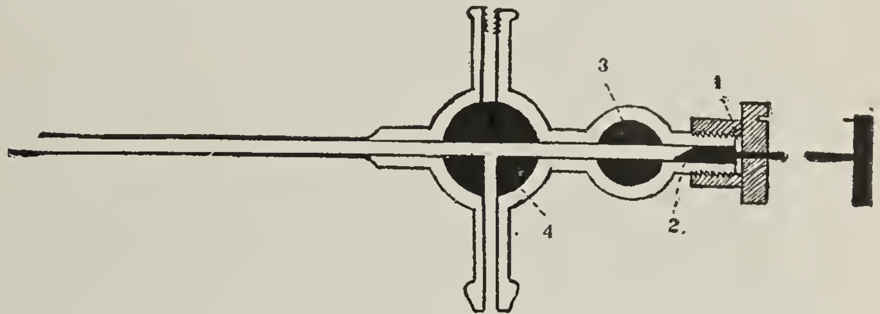

Fig. 2.—Working drawing (not made to scale): 1, felt washer for filtering any air that may pass during the manipulation of the stylet; 2, obturator, or stylet, withdrawn to permit the passage of the gas; 3, quarter-turn, two-way cock for cutting off the air from the stylet during the passage of the gas; 4, half-turn, three-way cock for the alternate use of the gas pressure apparatus and the aspirator.

5. It is cheaper than any needle in the market approaching it in completeness or convenience of manipulation.

A NONPLUGGING ASPIRATOR FOR EMPTYING THE GALLBLADDER

David C. Straus, M.D., Chicago

Emptying the gallbladder with a trocar when the bile is thick and viscid is not readily accomplished by means of the ingenious Ochsner trocar, unless some form of suction apparatus is attached to the lateral arm of this instrument. In case suction is thus made, the cannula tends to become plugged by the gallbladder mucosa being drawn up against the end of the tube, and further aspiration is prevented until the gallbladder wall is released by making a little positive pressure to force the mucosa away again.

Some time ago Dr. L. L. McArthur remarked to me that an aspirator with one or more holes, so protected that the gallbladder mucosa would be prevented from being drawn up against them, would be a desirable instrument.

It occurred to me that if one constructed a cannula in the form of a fluted metal tube with closed end and multiple openings placed laterally in the depressed longitudinal folds, the difficulty would be overcome, as the mucosa would be held away from the holes by the longitudinal ridges.

I had such a cannula constructed, similar to an Anglin irrigating urethral catheter, but having fewer openings and these considerably larger and extending for a shorter distance from the distal end of the tube. This cannula is connected to a large aseptic glass and metal syringe by means of a piece of firm rubber tubing. A few trials sufficed to show that the gallbladder mucosa would not obstruct this tube. As the end of the cannula is closed and smooth, one can move it about freely without fear of injuring the gallbladder mucosa; and, owing to the curve in the instrument, one can reach well down into the neck of the gallbladder, or even down into the bile ducts, in case these are dilated.

As regards technic, in emptying the gallbladder, a few words may be helpful. The gallbladder wall is grasped by two Kocher artery forceps placed rather closely together near the fundus of the gallbladder. These are used as tractors to hold up the gallbladder as high as possible. A purse-string suture of catgut is now introduced in the area between the two forceps, and a single provisional knot is made, but left loose. Finally, a small stab incision is made into the gallbladder, at the center of the purse-string, the aspirator is quickly introduced, and the purse-string drawn tight to prevent leakage. After the gallbladder has been emptied, and examined, the purse-string may be used to close the opening in the gallbladder, in case cholecystectomy is found necessary, whereas, in case one decides to perform cholecystostomy, it may be used as the first suture to close the gallbladder wall about the drainage tube which is inserted.

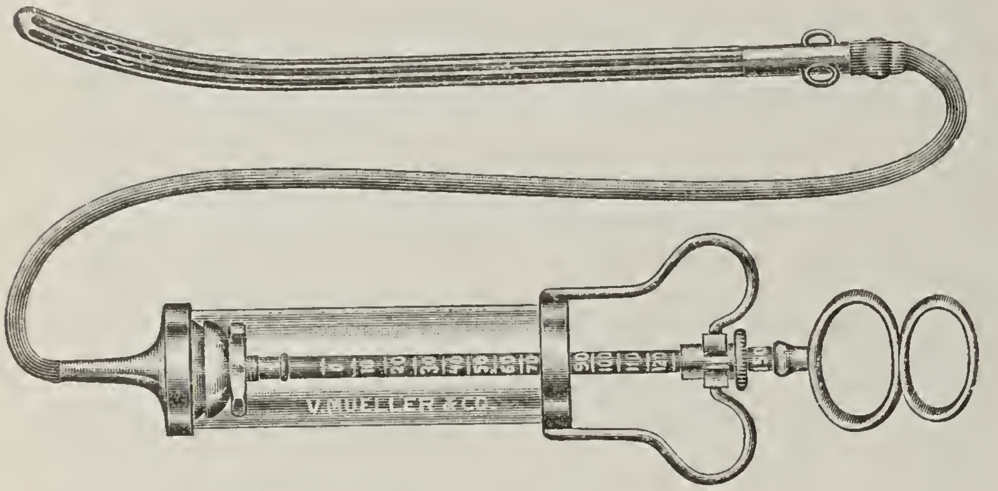

Fig. 1.—Nonplugging aspirator for emptying the gallbladder.

The instrument has been used for some months at the Michael Reese Hospital, not only to empty the gallbladder, but also to aspirate the contents of the dilated bile passages, the cystic, hepatic and common ducts. It may also be used to empty other hollow viscera, as for example, the stomach.

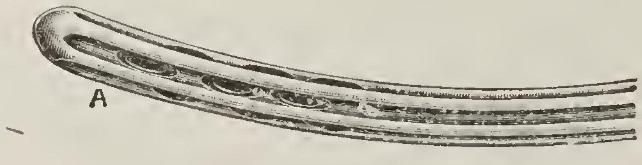

Fig. 2.—Details of cannula: *A*, holes in flutings.

5 South Wabash Avenue.

Rheumatism and Exposure.—The reports which from time to time are available from the medical authorities at the base hospitals are always of absorbing interest, and the figures which have been published last year and this are of no small moment, as they tend in many instances, to upset the most well founded theories as to the causation of certain forms of disease. The comparatively small number of cases of rheumatism which have been reported from the trenches is somewhat surprising, in view of the conditions which are well known to obtain there. The average opinion as to the result of long immersion in mud and water is that it would most certainly incline to a serious rheumatic attack, but the fact that such has not been the general findings is a help in the rather confused state of our ideas on the point. The protagonists of the microbic theory of acute rheumatism will find plenty of evidence to support their view, for no greater occasion for the general spread of this crippling disease could be found than in the winter conditions which all combatants must suffer in this unnatural war, if the climatic theory be true.—*Medical Press and Circular,* Nov. 15, 1916.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1851)

INCREASED ACIDITY OF THE URINE

A hyperacidity of the urine may have no relation to the amount of uric acid excretion, but it is generally associated with a diminished bulk of urine, with high specific gravity, with a tendency to deposit, on standing, the amorphous urates with perhaps uric acid and oxalates. A deposit of "brick dust," so called, does not prove that such a sediment is largely uric acid.

An increased acidity of the urine and a too concentrated urine may cause backache; slight ureteral stinging pains, with or without the passage of an actual concretion; bladder irritability, due to irritation at the neck of the bladder, and an increased frequency of urination, with the passage of a small amount of urine. Such urine with the mucus and bacterial conditions right may deposit calculi in the kidney pelvis, or at times in the bladder.

Patients suffering from this disease should avoid meat (including fish and fowl), purin substances (tea, coffee, fish roe, etc.), and alcohol, and drink daily a large amount of pure water. Haskins[1] has recently shown the value of diluted urine, in rendering uric acid as well as salts more soluble. This should be included in the treatment as well as some alkaline drug, as sodium carbonate, or perhaps better, sodium or potassium citrate in 2 gm. doses, three times a day. All mineral acids should be avoided, and all drugs that render the urine acid.

A modification of the foregoing intensive treatment may often be sufficient for relief and for temporary cure at least, but patients who have suffered from this increased acidity of the urine must for some time modify their diet and water drinking to prevent recurrence.

OXALURIA

The term "oxaluria" has been applied to the condition in which calcium oxalate crystals are deposited in urine after standing. This salt is largely held in solution by the acid phosphate of sodium, the amount of this substance varying with the diet. Where large amounts of food are taken and the metabolism is increased, the amount of calcium oxalate may be increased. In certain acid irritations in the genito-urinary tract, calcium oxalate may be increased in amount and the crystals deposited, sometimes forming calculi. They are particularly liable to form the nucleus of deposits of urates and phospates.

The daily output of oxalic acid is normally about 10 mg., depending on the kind of food ingested, although a small amount of this acid may be excreted on an absolutely oxalate-free diet. When large amounts of this acid are excreted for some time, certain nervous symptoms are likely to be present, as occurs in neurasthenia and hypochondriasis.

Deposits of calcium oxalate may occur in the pelvis of the kidney and irritate the ureter and cause bleeding, as they are likely to be of irregular contour.

Oxalic acid may come directly from the food, may be produced from foodstuff in the body, or may occur in small amounts from some metabolism of the body tissues. While certain vegetable substances are probably most frequently the source of oxalic acid, such as rhubarb and spinach, it has been shown that oxalic acid may come from gastric fermentation of carbohydrates.[2] Proteins do not seem to cause the production of oxalic acid,[3] so that probably most of the calcium oxalate in urine comes more or less directly from preformed oxalic acid in the food. Consequently, the amount of calcium oxalate may be reduced to a minimum by a careful selection of the diet.

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[1] Haskins: Jour. Biol. Chem., 1916, xxvi, 205.

When calcium oxalate crystals are found in any amount in the urine, especially if the urine has not been standing long, preventive treatment of such deposits is essential. Although the danger of the formation of calculi is probably small, prevention by arranging the diet is so simple that this precaution should be taken. Besides the arrangement of the diet and the drinking of more pure water, the bowels should be regulated. The foods to be avoided, besides spinach and rhubarb, are cranberries, asparagus, radishes, horseradish, and many of the acid fruits, as grapes, currants and persimmons. Medicinal treatment should consist in the administration of acid sodium phosphate or some alkali, as sodium or potassium citrate.

URIC ACID

Uric acid is an end-product of nucleoprotein metabolism. The amount excreted in the urine varies from 0.4 to 1 gm. a day, and on a purin-free diet the normal individual excretes by the urine about the same amount of uric acid daily, that is, endogenous uric acid, or that which comes from systemic metabolism. Above 0.6 gm. of endogenous uric acid is considered a large amount. Between 1 and 2 per cent. of the total nitrogen of the urine comes from uric acid. In gout the uric acid may vary — it may be decreased, or, after an acute attack, it may be increased. A patient suffering rom gout, given a known amount of purin-containing oods, will often excrete this exogenous uric acid more lowly than a normal patient; normally the whole of uch exogenous uric acid is excreted in forty-eight hours. Patients with gout have shown more uric acid n the blood than normal persons, but this has also been ound in other conditions. Uric acid in the blood is mostly in the form of monosodium urate. The amount f uric acid is increased in leukemia, whenever there s a breakdown of the white cells, when there is bsorption of any blood or white cell exudate, and fter active muscular exercise.

An increased amount of uric acid in the blood, o-called uricacidemia, is therefore found in most cases f gout, in severe nephritis, in leukemia, in resolving xudates such as pneumonia, in wasting diseases, and fter Roentgen treatment, especially when the long ones or spleen are rayed.

Before it is decided that the uric acid output is icreased, a twenty-four hour specimen of the urine hould be examined, the patient continuing his regular iet and taking no drug. If it is found that the uric cid output is increased and there are uric acid and rate deposits, the treatment should be the same as iat described for hyperacidity. The purins, such as eats, coffee and tea, should be removed from the diet, mporarily, at least.

The theory often advanced that an increased uric cid production is due to suboxidation is not tenable.[4]

The retention of uric acid seems to be of more interest than an increased excretion. That at times the uric acid excretion is retarded and uric acid derivatives or by-products can be stored in the body in the joints seems unquestionable. That symptoms such as headache, indigestion, imperfect liver activity (perhaps an imperfect detoxication of toxins, or other absorbed products), constipation, myalgias, and joint pains may follow or accompany such retention seems to be a fact. The term "uricacidemia" should not be used too frequently, as uric acid is probably not frequently increased in the blood. An increased production and increased output of uric acid, or, in certain individuals, an increased production and retention of uric acid may at times be caused by drinking alcohol with a meat and purin meal, the alcohol causing a disturbance of the liver function and a greater mobilization of uric acid. Anything that removes this retained uric acid or limits the production will remove the symptoms described above.

Uric acid mistakes are not gout, and gout is not caused by uric acid malmetabolism. On the other hand, there is no question that in gout the uric acid metabolism is disturbed, that the metabolism of purins is often abnormal, that uric acid may be increased in amount, and that frequent attacks of uric acid retention occur in the general disturbance termed gout. Acute gout can occur without apparent retention of uric acid.

In uric acid retention there should be an elimination of meat purins, alcohol, and tea or coffee from the diet, and an increase in the amount of pure water consumed. Tobacco should be prohibited, or at least the amount used should be greatly diminished.

Salicylic acid will generally increase the uric acid excretion; alkalies may have the same effect. There is no good physiologic reason for administering lithium in any form, and the only value that lithium waters may have is due to the bulk of water drunk. Colchicum is not as valuable as a salicylate preparation, and its only value consists in a dosage sufficient to cause purging. Atophan (phenyl-quinolin-carboxylic acid) increases greatly the elimination of endogenous uric acid, both in persons suffering from gout and in normal persons. This increased elimination soon diminishes.

It has not been shown that uric acid causes a high blood pressure, although the intestinal disturbance accompanying uric acid retention may often allow resorption of intestinal substances which will raise the blood pressure. In gout also the blood pressure may be high, and there may be an increased suprarenal secretion. Some as yet unknown disturbance of internal secretion may be the cause of the apparently noninfectious chronic disturbance of metabolism which is termed gout. In the acute form of this disease, there may be nitrogen retention in the blood which will raise the blood pressure.

(To be continued)

A Vacation Hint.—At the request of the Panama Canal authorities, Gatun Lake has been stocked with fish by the United States Bureau of Fisheries. According to the report of Julius D. Dreher, consul at Colon (*Commerce Reports*, December 1), large numbers of rock bass, black bass, catfish and sunfish have been released in the lake to determine whether they will thrive in these tropical waters. If the experiment succeeds it is said that the lake may furnish a considerable part of the demand for fresh fish in the Canal Zone.

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[2] Baldwin: Jour. Exper. Med., 1900, v, 27.

[3] Wegrzynowski: Ztschr. f. physiol. Chem., 1913, lxxxiii, 112.

[4] Goodridge, F. G., and Foster, N. B.: The Relation of Uricolysis Suboxidation, Arch. Int. Med., December, 1912, p. 585.

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SATURDAY, DECEMBER 23, 1916

> ***"Blow, bugles of battle, the marches of peace;***
> ***East, west, north and south let the long quarrel cease;***
> ***Sing the song of great joy that the angels began,***
> ***Sing of glory to God and of good-will to man!"***

To Our Readers: A Merry Christmas and A Happy and Prosperous New Year

THE RED BLOOD CORPUSCLES — ARE THEY DISK-SHAPED OR BELL-SHAPED?

The classic description of the red blood corpuscles, or erythrocytes, of man and mammals refers to them as minute circular disks with biconcave surfaces and rounded or convex edges. These cells apparently exist within the blood, floating in the plasma, in a state of osmotic stability; that is, the plasma is an isotonic solution in relation to the red corpuscles. From time to time one hears of the bell-shaped or cup-shaped red corpuscles in mammalian blood; and the contention has now and then been made that this is in fact the normal or natural form of the blood cell and represents the type which actually circulates in the intact blood stream. This is the conclusion derived from statements of Weidenreich[1] and of Lewis.[1] It has been claimed that blood examined immediately after withdrawal on a warm slide is favorable for the demonstration of cups. According to this view, the assumption of the familiar disk-shape depends on an almost instantaneous change due to the evaporation and concentration of plasma before the preparation can be made and examined.

Cup-shaped erythrocytes can unquestionably be found in microscopic preparations of the blood under certain conditions. The problem narrows itself to the inquiry as to which of the two known forms actually represents the true or normal shape of these formed blood elements. Jordan has presented evidence in refutation of the new teaching that the normal shape of the mammalian red blood corpuscles is cup-form.[2] This evidence includes data derived from an examination of the capillaries in the omentum of an anesthetized animal, sections of variously fixed tissues, and hanging drop preparations of fresh blood. The latter, sealed and kept at body temperature, were thought to simulate closely actual conditions in the blood vessels of the living animal. The free central corpuscles of such a drop preparation are almost exclusively of the circular biconcave disk form. In view of all the evidence there seemed to be no escape from the conclusion that the biconcave disk-shape is the normal, the cup-shape the derived, form of the mammalian erythroplastid.

More recently Arey,[3] of the Northwestern University Medical School in Chicago, has added further proofs of the correctness of this assumption by examining human blood collected for microscopic examination directly into human serum instead of any "foreign" diluent or fixative. If evaporation and temperature changes are prevented, such preparations are stated to show usually a few cups, whereas quantities of disks are seen in every field inspected. In diluted serum, however, typical cups may be found in large numbers. Since the form of a corpuscle thus depends on the concentration of its medium, how, asks Arey, can the cup-shape be normal when human serum must be diluted to produce this type?

The blood vessel of a living animal ought to offer a theoretically more favorable condition for the observation of the natural form of the corpuscles. It has been objected that pressure caused in the manipulation of tissues, like the mesentery, which are suitable for microscopic observation in life, might alter the normal shapes. Arey has succeeded in averting this alleged difficulty. The erythrocytes were nevertheless almost all of the disk-shaped type. When anesthetics are employed, however, cup-shapes may be found in abundance; they may also be produced in microscopic preparations by treatment with traces of volatile substances like ether and chloroform. They represent the abnormal; and it is easy to conceive that the delicately constructed and highly flexible erythrocytes should be subject to ready distortion through the action of reagents.

Arey admits that a limited number of cup-shaped erythrocytes undoubtedly exist in normal blood. Possibly they represent corpuscles whose structure is such that unequal tensions with respect to the osmotic balance exist; perhaps they are old (or young?) corpuscles. In anemias the presence of many cups has been reported, and in fevers it is said crenation may occur. Thus the evidence now available from the examination of drawn blood, diluted in human serum, and from the study of circulating blood in non-anesthetized living mammals justifies, in Arey's belief, the conclusion that the biconcave disk represents the normal shape of the mammalian erythrocyte — the concavo-convex cup being merely an occasional modification.

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[1] Weidenreich, F.: Arch. f. mik. Anat., 1902, lxi, 459; Ergebn. d. Anat. u. Entwcklngsgeschichte, 1910, xiii, 1. Lewis, F. T.: Jour. Med. Research, 1904, x, 513.

[2] Jordan, H. E.: Anat. Anz., 1909, xxxiv, 16; The Shape of the Human Red Blood Corpuscle, Proc. Soc. Exper. Biol. and Med., 1915, xii, 167.

[3] Arey, L. B.: The Mammalian Erythrocyte — a Biconcave Disk, Science, 1916, xliv, 392.

LEGAL STATUS OF THE ASSOCIATION SUSTAINED

Many of our readers will recall that, at the time of he St. Louis session of the Association in 1910, it vas rumored that an injunction would be served on he members of the House of Delegates to prevent the lection of officers, on the ground that such election vas illegal when held outside of the state of Illinois. No injunction was served, and the election proceeded s usual. During the later months of the year, efforts vere made to induce the state's attorney for Cook County to start a "quo warranto" suit against the Association, on the ground that the law was being iolated by the holding of the annual meetings and the lection of officers outside of Illinois. This the state's ttorney refused to do, holding that the Illinois law id not require corporations not for profit to hold their nnual meetings and elections in the state and that here was, therefore, no justification for such a suit. The attorney general of the state was then asked to ake up the matter, but he also refused to authorize a uit. Jan. 5, 1911, a petition was filed in the circuit ourt of Cook County against the state's attorney, sking that he be compelled to bring suit against the rustees of the Association. From this time until ec. 20, 1915, nearly five years, the issue was between he parties asking for the injunction and the state's torney of Cook County, the point at issue being hether the state's attorney could be compelled to itiate such a suit against his judgment.

Various statements regarding the progress of the se have appeared in THE JOURNAL from time to me.[1] The matter went to the appellate court twice nd finally to the supreme court of Illinois, which, ec. 20, 1915, just a year ago, refused to hear argu-ents on the merits of the case and ordered the rcuit court to take up the original question, namely, hether or not corporations not for profit incor-rated in Illinois were compelled under the law hold their meetings in the state. Here for the st time the American Medical Association, techni-lly, came into the case. The matter was argued last eek before Judge Heard, who, on Saturday, Decem-r 16, rendered a decision which appears elsewhere this issue of THE JOURNAL.[2] The legal situation is that the attorneys for the Association filed a demurrer (that is, argued that even if all the statements made by the plaintiff were true, there would still remain no ground for action), in which they claimed that, under the Illinois law, corporations not for profit, such as the American Medical Association, were not required to elect officers or hold their annual meetings in the state, but could meet wherever they saw fit. This position Judge Heard sustained, implying in his ruling that it is in the interest of public policy that organizations, such as the American Medical Association, the American Bar Association and other similar national bodies, should be allowed the largest liberty in carrying on their activities. Such restrictions as are necessarily applied to commercial corporations organized for profit could work no good, but rather harm, if they were applied to such associations.

Let it again be emphasized that the questions at issue in this suit have no specific application to the American Medical Association; that is, they apply to all other organizations similarly incorporated under the laws of Illinois. The point at issue is the purely legal question whether or not the Illinois laws require corporations not for financial profit to hold their annual meetings and elect officers within the state. No injury could possibly result to any individual through the Association holding its meetings and electing its officers in other states than Illinois; it is conceivable, however, that injury might result to the best interests of the Association itself were it compelled to hold all its meetings in one state.

A POSSIBLE SOURCE OF FOOD-POISONING BACTERIA

Within recent years the bacillary white diarrhea of young chicks has assumed an unanticipated prominence among poultry scourges. It is caused by a specific organism, *Bacterium pullorum,* and is transmitted directly from the mother hen to the chick, through the infected egg. This newly emphasized disease of the domestic animals presents a somewhat exceptional type of carrier problem.[1] The hen which has acquired the infection with the organism either early in her existence, or after full maturity, becomes a permanent source of danger to the species. It has now been clearly demonstrated that the permanent seat of infection is the ovary, which in many instances becomes so greatly involved that the ova are discolored and misshapen, and the ovary presents a decidedly pathologic appearance. The ova harbor the disease organism. Furthermore, ova which develop into apparently normal yolks frequently carry the organism, *Bacterium pullorum,* to the time of full formation of the egg.

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1. The Alleged Decision Against the American Medical Association, rrent Comment, THE JOURNAL A. M. A., Nov. 22, 1913, p. 1906; Asso-ion News, ibid., p. 1920. The Incorporation of the American dical Association, Current Comment, Dec. 25, 1915, p. 2247. Quo rranto Proceedings Against the Association, July 1, 1916, p. 42.

2. Court Rules Corporations Not for Profit May Elect Trustees or ectors Outside of State, THE JOURNAL A. M. A., this issue, p. 1962.

1. Rettger, L. F., and Stoneburn, F. H.: Bull. Storrs Agricultural Experiment Station, 1909, No. 60; 1911, No. 68; Rettger, L. F.: Kirkpatrick, W. F., and Stoneburn, F. H.: 1912, No. 74; Rettger, L. F.; Kirkpatrick, W. F., and Jones, R. E.: 1914, No. 77.

Infected eggs produce infected chicks, and although chicks succumb frequently before their embryonic development is completed, a large percentage emerge from the shell apparently sound and well. However, they soon acquire the disease and many of them fall a prey to the organism which they carried for a long time in their yolk. Those which survive often become permanent bacillus carriers, and thus the cycle of infection is completed. Furthermore, these chicks are a constant source of infection to other chicks and mature stock as well.

Some idea of the magnitude of the distribution of the organism involved in this infection can be gained from the statistics collected in a campaign put into operation by the Connecticut Storrs Agricultural Experiment Station to eradicate the disease.[2] In a single year out of nearly 14,000 hens examined in the state, 1,417, or over 10 per cent., gave evidence by macroscopic agglutination tests of being carriers of the *B. pullorum*. Obviously this ovarian infection of fowls is somewhat common throughout this country. Hence a large proportion of the marketed eggs are infected with *Bacterium pullorum*. When such eggs are allowed to remain in nests under broody hens, or in warm storage places, for comparatively few hours, they contain large numbers of the organism.

One naturally asks whether micro-organisms known to afford a severe menace to the life of young chicks render infected eggs unsafe as an article of diet for man, and especially for young children and infants. Experiments conducted in the laboratories of Yale University by Rettger, Hull and Sturges[3] have shown that eggs which harbor *Bacterium pullorum* in the yolk in large numbers may produce abnormal conditions, when fed, not only in young chicks, but in adult fowls, young rabbits, guinea-pigs and kittens. The toxicity for young rabbits is most pronounced, the infection usually resulting in the death of the animals. In kittens the most prominent symptoms are those of severe food-poisoning with members of the paratyphoid group of bacteria.

Eggs for human consumption are usually served after some sort of cooking procedure, though this is by no means always the case. Can the treatment with heat in the kitchen be depended on to destroy the micro-organism in question? The Yale tests indicate that the common methods of boiling or frying infected eggs for the table do not necessarily render the eggs sterile, so far as *Bacterium pullorum* is concerned. It was found that soft boiling, coddling, and frying on one side only do not necessarily render the yolks free from viable bacteria; therefore, eggs which have gone through these processes may, like raw eggs, be the cause of serious disturbances in persons who are particularly susceptible to such influences, and especially to infants.

In view of this report, the possibility of including the *B. pullorum* among the so-called "food-poisoning micro-organisms" must be taken into consideration. A bacteriologist may be pardoned if he is always "looking for trouble." Experience has fortified him in the appreciation of such quests. Rettger, Hull and Sturges present the situation without undue exaggeration as follows:

> That no well authenticated instances of egg-poisoning of this kind are on record does not warrant the assumption that there have been no cases. The etiology of infantile stomach and intestinal disturbances is as yet too little understood; in fact, it may be said that many of these disorders have no known cause, and almost as much may be said regarding gastro-intestinal diseases in later life. Furthermore, since the ailments caused by infected eggs would not make themselves felt presumably until several days after their ingestion, little or no suspicion would fall on the eggs. It may be said, too, that the wide distribution of ovarian infection in the domestic fowl has come about only in the last few years, hence its possible danger to man is one of recent development.

THE EPIDEMIOLOGY OF LOBAR PNEUMONIA

Now that the death rate from pneumonia has overtaken that of tuberculosis, pneumonia has become the most serious and fatal of the acute infectious diseases. This alone is sufficient to direct attention to the problem of combating it, since it has shown little tendency recently to a spontaneous decrease in its morbidity. Although its dependence on bacteria was clearly suspected long before the true etiologic agents were ascertained, the discovery of the actual cause was made doubly difficult owing to the abundant bacterial flora found in the upper respiratory passages even in healthy persons. In speaking of the swarm of applicants for the honor of discovering the cause of pneumonia, a popular writer has remarked that at one time "almost every self-respecting bacteriologist seemed to think it his duty to discover at least one real criminal germ." An added complication has been introduced by the now recognized possible participation of more than one variety of micro-organism in the genesis of pneumonias.

The ultimate victory over great scourges has almost always rested with preventive medicine rather than with therapeutics. Stillman[1] has presented the situation clearly by remarking that scientific investigation of pneumonia has dealt largely with methods of therapy, and little or no effort has been expended in the elaboration of means of prevention. Recently, the study of the bacteriology of lobar pneumonia has developed new facts which make it advisable to study the epidemiology of the disease, in the hope that such investigation may reveal important factors concerned in its transmission.

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[2] Rettger, L. F.; Kirkpatrick, W. F., and Jones, R. E.: Bacillary White Diarrhea of Young Chicks: Its Eradication by the Elimination of Infected Breeding Stock, Bull. Storrs Agricultural Experiment Station, 1915, No. 85.

[3] Rettger, L. F.; Hull, T. G., and Sturges, W. S.: Feeding Experiments with Bacterium Pullorum. The Toxicity of Infected Eggs, Jour. Exper. Med., 1916, xxiii, 475.

[1] Stillman, E. G.: A Contribution to the Epidemiology of Lobar Pneumonia, Jour. Exper. Med., Dec. 1, 1916, xxiv, 651.

Pneumococci are present in the mouths of nearly two out of three normal persons; but the organisms present are now clearly distinguishable from the highly parasitic types of pneumococcus which cause the severe forms of lobar penumonia. This disease is due in 65 per cent. of cases to specific types of pneumococci possessed of high pathogenicity, which do not occur in the buccal secretions of normal persons, except in instances in which there has been intimate association with persons suffering from the disease.

The organisms found in normal mouths occasion not more than a relatively small percentage of the total cases of lobar pneumonia. It is highly important to realize, however, that healthy persons who have been in contact with patients having the disease not infrequently carry in their mouth organisms of the same type as that causing the infection.[2] The carrier problem is thus promptly presented. For example, from a total of forty-one cases of lobar pneumonia due to severe types of pneumococci in which the patients were examined at the Hospital of the Rockefeller Institute, five gave rise to a carrier condition in at least one of the immediate associates of the patients. Six per cent. of the eighty-four contacts examined showed the virulent pneumococci in their sputum. Stillman concludes, therefore, that the occurrence of this type of the etiologic micro-organisms in the mouths of persons associated with lobar pneumonia patients is to be expected. It seems logical that infection with the virulent types must be regarded as dependent on contact with a previous case of lobar pneumonia due to the same type of organism. These types of infection are acquired either by direct contact with an active case of pneumonia or by association with a healthy carrier of one of these now recognizable types of pneumococcus or with a convalescent from lobar pneumonia who still harbors in his mouth secretions the organism esponsible for the disease. It should be recognized hat such convalescents may for a considerable period of time carry the virulent organism with which they were infected. Infection with the familiar nonvirulent putum types of pneumococci may be autogenic in haracter or due to the acquisition by the individual of given race of one of these types to which he is specially susceptible.

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[2] Dochez, A. R., and Avery, O. T.: Jour. Exper. Med., 1915, xxii, 5.

The "Popular" Surgeon and the Hospital.—A surgeon whose rivate practice is so large as to exhaust his time and energy annot be expected to be punctual in his attendance on the ards, or to be deliberate, careful and thorough in examining ard patients. This is the type of surgeon who sees his atients for the first time in the operating room, and who is ontent to leave diagnosis and other preliminaries in the ands of the house staff. Such a surgeon may be entirely illing to give his best service to the hospital, but he is not a position to do so.—S. S. Goldwater, M.D., *Modern Hostal,* November, 1916.

Current Comment

SOME RULINGS ON THE HARRISON LAW

In a recent discussion on the Harrison Narcotic Law, Mr. Kane,[1] considering the law from the standpoint of the federal prosecuting attorney, pointed out that the Federal Court of the Southern District of Ohio held that the phrase "in the course of his professional practice only" limited the physician to the prescription of opium and cocain to "legitimate and professional" uses. The Federal Court of the Northern District of New York held that prescribing these drugs in an amount so large as to be unreasonable is a violation of the law, and that the druggist filling such a prescription is also guilty. In Virginia, the judge held that prescribing was the same as selling or dispensing, and that a prescription is not a protection to a druggist, unless it is for legitimate purposes. Mr. Kane suggested that the law should be so amended as to exempt specifically morphin addicts suffering from chronic or incurable diseases and to allow physicians to furnish such patients with necessary drugs, provided each case be reported to the state board of health. He also thought that the sale of hypodermic syringes should be restricted by amendment to the law. The medical discussion centered largely around the question of immediate or gradual withdrawal of the drug. The Philadelphia County Medical Society is wisely considering this question with a view to participating in the formulation of a state law to supplement the Harrison act. The time to influence legislation is before bills are drafted, and not after they are introduced. If our county and state medical societies will give careful and judicial consideration to the regulation of the use of habit-forming drugs by adequate state laws, and will secure the insertion of proper provisions while the bills are in a formative stage, much embarrassment and difficulty may be spared physicians in the future.

POISONOUS PROPERTIES OF THE MARSH MARIGOLD

The marsh marigold (*Caltha palustris*), which brightens our northern marshes and stream banks with its yellow flowers and dark green foliage in early spring, generally before the snow has entirely melted, is familiar to most of us. The stems and leaves are extensively gathered in early spring and cooked for greens, making one of the best pot herbs. The plant belongs to the Ranunculaceae or crowfoot family. Statements in the literature concerning the poisonous properties of the marsh marigold are confusing. Some writers state that it is poisonous in a green state, but that its poisonous principles are dissipated by heat; others that it contains an alkaloid identical with nicotin, though this has been disputed; a few that it contains an acrid substance identical with the oil of ranunculus; still others that if fed to stock with hay it causes diarrhea and stoppage of the flow of milk. A recent investigation of the fresh plant by Poulsson[1] shows the presence of anemonin, already known in many other members of the crowfoot family, and of cholin. Anemonin is a camphor-like, poisonous substance, having the formula $C_{15}H_{12}O_6$. It was evidently the volatile, mildly toxic base cholin which in earlier examinations was mistaken for nicotin. Alkaloids were not found. From the results of the chemical investigation as well as from past experience in the use of the plant, it is evident that there is little danger in using the marsh marigold for greens, at least if precautions are taken to insure its thorough cooking.

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[1] Kane, F. F.: The Legal Aspect of the Drug Habit Problem, abstr., The Journal A. M. A., this issue, p. 1964.

THE RELATION OF ALCOHOL TO MORTALITY

We have received a bulletin issued by the antiprohibition interests commenting on the fall of the death rate during the past five years, and noting that during the same period the sale of liquors has greatly increased. It concludes:

> Sane people who are honest with themselves will draw the conclusion that the nation is going along under constantly improving conditions of sanitation and sobriety, and while using liquors more freely, it is using but not abusing.

The circular then goes on to discuss the death rate among the colored race, which is higher, and states that it is undoubtedly due to their "wretched habitations." It says finally:

> Every statement and all the figures . . . tend to refute the prohibition asseveration that the increased use of liquor is the cause of increased mortality.

Statistics or the figures themselves never lie; but compared with some of the interpretations which are made from them by the advocates of personal liberty in drinking, Baron Munchausen was a second George Washington.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARIZONA

Personal.—Dr. Mary Lawson Neff, Phoenix, delivered an address at the last meeting of the state bar association on "The Relation Between Mental Defectives and Crime."——Dr. Alfred G. Murrieta has resigned as chief of staff at the United Verde Mining Company's hospital, Jerome.

Journals Consolidated.—The *Arizona Medical Journal,* and the *New Mexico State Journal of Medicine* and the *El Paso Medical Bulletin* are to be merged in a new publication to be published in El Paso under the name of *Southwestern Medicine.* The state medical societies of Arizona and New Mexico and the El Paso County Medical Society finance the new publication. This will be the official organ of the El Paso Medical Society and of the Southwestern Medical and Surgical Association.

CALIFORNIA

Clinic Building Presented.—Mr. F. O. Johnson, Los Angeles, has presented the board of education with a deed to the free clinic building erected by his father, C. T. Johnson, at a cost of $45,000. During the six years of the existence of this clinic, 100,000 patients have been treated in its various departments.

Personal.—Dr. Samuel A. Silk, Duarte, has accepted a position on the staff of St. Elizabeth's Hospital, Washington, D. C.——Dr. May Elizabeth Walker, Oakland, has been appointed resident surgeon in the Royal Infirmary for Sick Children, Edinburgh.——Dr. John P. Gilmer has succeeded Dr. Edwin H. Wiley as police surgeon of Los Angeles and has appointed as his assistants Drs. Clayton G. Stadfield, George A. Zorb, Byron P. Stookey and Karl L. Dieterle.——Drs. Howard J. Wright, San Francisco, and Fred Cozelman, Los Angeles, have been appointed members of the medical staff of the Stockton State Hospital.—Dr. Fred W. Hatch, Sacramento, general superintendent of state hospitals, has been reappointed for a term of four years.

Tuberculosis Conference.—The San Francisco Association for the Study and Prevention of Tuberculosis will hold a joint, all-day conference with state organizations at San Francisco, Jan. 25, 1917. The phases of the campaign to be discussed include "The Tuberculosis Bureau of the Board of Health," "The Clinic and Tuberculosis," "The Open Air School," "The Importance of the Visiting Nurse in the Campaign," "Physical Examination of Employees," "Health Insurance and Relation to the Control of Tuberculosis" and "The Need of the Country Sanitarium for San Francisco." Features of the day are to be the round table discussions at the luncheon and the annual dinner. The public is invited to attend the meeting.

DISTRICT OF COLUMBIA

Birth Control.—The Birth Control League of the District of Columbia has authorized its executive committee to take action looking toward the introduction into Congress of a bill to legalize birth control in the District.

Conviction Under the Harrison Narcotic Act.—In the Supreme Court of the District of Columbia, December 15, Thurman Burck, alias the "Baltimore Kid," was sentenced to the penitentiary for three years for violation of the Harrison Narcotic Act. In imposing sentence Justice McCoy gave warning that future offenders should expect no leniency.

Oppose Location of Municipal Hospital.—Organizations of citizens residing in the vicinity of the site purchased by the government about sixteen years ago for a municipal hospital have renewed their fight against its use for that purpose. The matter assumes definite shape just now because of the recommendation of the board of charities and of the board of commissioners that an appropriation be made for carrying out the project, which must be acted on at the present session of Congress.

ILLINOIS

Certificate for Infants of Record.—The Illinois State Board of Health has arranged to send to the mother of each child in the state whose birth is recorded an engraved certificate of birth, and also a copy of a booklet entitled, "Our Babies: How to Keep Them Well and Happy."

The Year at Cook County Hospital.—During the last year, according to the report of Warden Clayton F. Smith, 81,102 patients were handled at the Cook County Hospital; 31,261 were admitted as bed patients and were under treatment; 17,806 had wounds or injuries treated, and were then released; 4,750 applied for and were given medicine; 24,177 persons asked for admission and were rejected; 1,384 patients had Roentgen-ray examinations, and there were, on December 1, 1,724 patients in the hospital.

New Officers.—At the forty-third annual meeting of the North Central Illinois Medical Association, held in Pontiac, December 6, the following officers were elected; president, Dr. Fred W. Wilcox, Minonk; vice presidents, Drs. David S. Conley, Streator, and Otho B. Will, Peoria, and secretary-treasurer, Dr. George A. Dicus, Streator (reelected).——The thirteenth annual meeting of the Iroquois-Ford Counties Medical Society was held at Watseka, December 5, and the following officers were elected: president, Dr. Omar O. Hall, Milford; vice president, Dr. Frank B. Lovell, Gibson City, and secretary-treasurer, Dr. Spencer S. Fuller, Paxton.

Personal.—Dr. Frank M. Barker, Waukegan, was operated on for appendicitis, December 12.——Dr. Gideon H. Hoffman has been elected president; Dr. Peter J. McDermott, vice president, and Dr. Ira M. Miller, secretary-treasurer, of the Kewanee Physicians' Club.——Dr. Hugh Q. Allison, Grayville, who has been ill with pneumonia in a hospital in Olney, is convalescent.——Dr. Jacob I. Krebbs, Polo, is under treatment at a sanatorium in Freeport.——Dr. John H. Rice, Quincy, who recently underwent operation in Cleveland, is improving.——Dr. Charles A. Alden was elected president and Mrs. J. F. Percy, vice president of the newly organized Galesburg Chapter of the American National Red Cross.

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[1] Poulsson: Tidsskrift for kemi, farmaci og terapi; through Schweiz. apoth. Ztg., 1916, liv, 578.

Chicago

Kingsley Resigns.—Mr. Sherman C. Kingsley announces his resignation from the directorship of the Elizabeth McCormick Memorial Fund, to become executive officer of the Cleveland (Ohio) Welfare Federation. He will assume his new duties January 15.

Personal.—Dr. Ralph Henry Kuhns, who has been for eight months one of the surgeons at the base hospital in Deutsch-Eylau, Germany, is returning to spend the holidays at home.——Dr. John L. Porter conducted an orthopedic clinic at the Blodgett Memorial Hospital, Grand Rapids, December 6.

Robert Koch Society.—The twenty-fourth meeting of the Robert Koch Society for the Study of Tuberculosis was held at the Hotel Morrison, December 21. Dr. Roswell T. Pettit, Ottawa, spoke on "The Importance of Mixed Infection and Pulmonary Tuberculosis," the discussion being led by Dr. James L. Anderson of the Chicago Winfield Sanatorium.

Fenger Memorial Fund.—The directors of the Fenger Memorial Fund announce that the sum of $500 has been set aside for investigations in medicine or surgery in 1917. The noney will be used to pay all or part of the salary of a vorker, the work to be done under direction in an established nstitution, which will furnish the necessary facilities and supplies free of cost. It is desirable that the work underaken should have a direct clinical bearing. Applications giving full particulars should be sent to L. Hektoen, 629 South Wood Street, Chicago, before Jan. 15, 1917.

The Venereally Diseased.—A dinner discussion under the oint auspices of the Central States Division of the Social Hygiene Association of the Chicago Woman's Club and Woman's City Club, and the committee on vice conditions f the City Club of Chicago, was held at the City Club, December 14, under the presidency of Dr. William T. Belfield. Subjects discussed were, "What a City of the Size and Character of Chicago Should Do for Venereally Diseased," y Dr. William A. Pusey; "What the Chicago Health Department is Doing for the Venereally Diseased," by Dr. Frederick D. Tonney; a discussion on "The Status of Chicago's Hosital and Clinical Facilities for Diagnosis and Treatment of Venereal Disease" led by Drs. B. Newton Novy, Oliver S. Ormsby and Lewis Wine Bremerman, and a general disussion of the topic by Drs. B. Newton Novy, Anna Blount, achelle S. Yarros and others.

INDIANA

Health Survey at South Bend.—Surgeon Carroll Fox, . S. P. H. S., is in charge of a sanitary survey of South end, for which $2,000 has been appropriated by the city ouncil. Dr. Fox was the guest of honor at a dinner given Dr. Charles S. Bosenbury, city health officer, at the Indiana lub House, November 29.

Personal.—Dr. Frank C. Robinson, Martinsville, has been ommissioned major in the Medical Corps and assigned to ity with the First Indiana Infantry at Llano Grande, Texas, cceeding Major Frank W. Foxworthy (resigned).——The fice of Dr. J. W. Henry Ranke, Fort Wayne, was seriously maged by fire, December 11.—Dr. Clarence P. Hinchman, dianapolis, has been seriously ill with diphtheria.

Medical School Damaged by Fire.—December 7, the build- g of the Indiana University School of Medicine, Indianap- s, caught fire, resulting in the total loss of the laboratories cated on the third and fourth floors, with a damage esti- ated at $35,000. Classes are being held at the Shortridge gh School and the Indiana Dental College temporarily, and rangements are being made for the construction of a new ilding which will probably be located on the grounds of Robert Long Hospital.

School Inspection to be Extended.—At the meeting of the liana Township Trustees in Indianapolis, December 7, Dr. illiam F. King, Indianapolis, assistant state health com- ssioner, announced that the next legislature will be asked make school inspection compulsory in every township, and establish a department of school hygiene under super- ion of the state superintendent's department. Dr. King lared that 90 to 95 per cent. of the children of school age Indiana are physically defective, including those with bad th.

Problems of Mental Defectives.—The commission appointed Governor Ralston more than a year ago to study the problem of mental defectiveness in the state has completed its work. It states that at least one thousand insane persons are deprived of proper treatment on account of a lack of accommodations in the hospitals, and makes the following recommendations: the addition of new buildings to the hospitals, using the farm colony system as a model; additional provisions for care of women at the village of epileptics; enlargement of the village of epileptics to accommodate 1,200 patients. Its capacity at present is only 305; a department for treatment and observation of incipient mental cases should be established at the Robert Long Hospital; all general hospitals in the state should maintain wards for detention and observation pending commitment and admission to a state insane hospital; no person suffering from mental disease should be placed in a jail; there should be a law providing for voluntary admission to insane hospitals; the school for feebleminded youth at Fort Wayne should be enlarged by a colony in the southern part of the state on not fewer than 1,000 acres of land, with inexpensive buildings; the law should provide for commitment of patients to the school for feebleminded youth and for admission of feebleminded male adults the same as female adults; there should be a mental examination of schoolchildren, and separate schools or rooms should be provided for the mentally defective pupils.

IOWA

Personal.—Dr. Henry Matthey, Davenport, who recently returned after service in German war hospitals, has been unanimously elected an honorary member of the Kriegerverein.——Dr. Joseph G. Henderson, West Chester, was thrown from his car recently and suffered a fracture of the arm at the elbow.——Dr. James S. Gaumer, Fairfield, has returned from service with the Iowa troops on the southern frontier and resumed practice.

Housing Supervision.—The supervision of housing conditions in cities of the state is recommended by Dr. Guilford H. Sumner, secretary of the state board of health, in his annual report. A measure is to be introduced during the coming session of the legislature which will give cities the power to inspect tenement houses, dwellings and other structures with a view of making them sanitary and healthy dwelling places. Dr. Sumner also recommends the adoption of a vital statistics law; an increase in appropriations for the state board of health from $5,000 to $15,000; prohibition of the pollution of streams; the adoption of a schoolhouse building law; the adoption of a law providing for the medical inspection of children; the adoption of a morbidity law providing for the reporting of diseases, and provision of a health car for the proper carrying on of a sanitary campaign in the state.

MARYLAND

Give Ambulance for France.—Through the generosity of Dr. and Mrs. Hugh Hampton Young, an ambulance will be equipped and sent forward to France as soon as possible. The inspiration for this gift came through a lecture given recently by Leslie Buswell, of the American Ambulance Corps, who made an eloquent appeal for an ambulance.

Isolation Hospital Closed.—The Children's Hospital School, Baltimore, has been closed as a place for the isolation of children afflicted with infantile paralysis, and five of the eight remaining victims of the disease have been returned to their homes. The others, who have not yet sufficiently recovered, will be sent to Sydenham, the city's hospital for infectious and contagious diseases. The contract which the city made with the directors of the Children's Hospital School expired, December 1, and was extended for two weeks.

Personal.—Major J. Harry Ullrich, M. C., Field Hospital No. 1, who recently returned from Eagle Pass, Texas, on furlough, was seriously injured a few hours after he arrived in Baltimore, when he was struck by a crank handle while starting his automobile. The cheek bone was depressed, and he received a severe cut across the eye. It was feared at first that his eye had been crushed, but it is now believed that it is not permanently injured.——Dr. William Royal Stokes, bacteriologist of the city health department, is ill at his home with influenza.——Dr. Alan C. Woods, secretary to Dr. John D. Blake, commissioner of health, is ill at his home.——Dr. Harry L. Kolseth has been appointed one of the health wardens of Baltimore, to succeed Dr. J. H. Von Dreele, who resigned several months ago.——Dr. Simon Flexner of the Rockefeller Institute for Scientific Research, at the request of the Women's Civic League and the Johns Hopkins University, spoke on infantile paralysis at a public meeting in Baltimore, December 13.

Sanatoriums for Negroes Proposed.—United States Senator John Walter Smith has launched a movement to have the state make some provision for the care and cure of the thousands of tuberculous colored people in Maryland. Senator Smith, to whom is mainly due the establishment of the state sanatorium at Sabillasville, strongly urged that, in the interest of both races, the state should take prompt steps to care for the colored tuberculous victims, and he will try to have the next legislature make an appropriation for this purpose. The Sabillasville sanatorium was established exclusively for white patients and has been in operation nearly ten years. Its work has been helpful to thousands, and the taxpayers have cheerfully supported it. Possibly the study of the tuberculosis problem among the colored population made by Dr. Louis Hamman, formerly of the Phipps Tuberculosis Dispensary, and Dr. Victor F. Cullen, superintendent of the state sanatorium, has developed the best suggestions so far. Their plan is for the establishment of a number of small sanatoriums by the state, distributed near the larger colored centers; these sanatoriums, whenever possible, to be affiliated with the existing state-aided hospitals and under the general direction of a central body.

MASSACHUSETTS

Paralysis Clinic.—November 21, the first clinic for the benefit of children paralyzed as the result of poliomyelitis was held at the Boston Children's Hospital. The clinic is being conducted by the state department of health and the Harvard Medical School Infantile Paralysis Commission. The hospital had sent out workers to round up the victims of the disease. The clinic will be held at the hospital three times a week.——Dr. William Hall Coon, Springfield, has been named as executive officer of the commission created by Harvard University to work in cooperation with the state department of health in the study of infantile paralysis. Dr. Coon's recent work has been to institute a department of industrial hygiene in a manufacturing company in Chicopee.

Rat Extermination Campaign.—The Women's Municipal League proposes to conduct a rat extermination campaign in Boston, in cooperation with the city officials. The league recommends to the mayor that he proclaim a rat extermination period; that ten stations be named, to which dead rats may be brought; that the department provide for the reception and disposal of the dead rats; that antirat circulars be distributed through the city departments; that posters be placed around city property; that the free use of the municipal buildings be allowed for antirat meetings; that the school committee be requested to allow the distribution of antirat circulars among public school pupils and that an antirat ordinance be passed similar to those in force in New Orleans and other cities.

Personal.—Dr. Hugh Cabot, Boston, surgeon-in-chief of the Harvard Unit at General Hospital, No. 22, western front, France, from June to September, will return to France in February and will retain his place as chief surgeon of the unit until the close of the war.——Dr. Samuel A. Levine, house physician of the Peter Bent Brigham Hospital, Boston, has gone to New York, where he will work in connection with the Rockefeller Institute, and in the spring will use the traveling scholarship of $1,750 awarded him by the Harvard Medical School to prosecute studies in London and Berlin.——Dr. George Burgess Magrath, Boston, has been made an instructor in legal medicine in Harvard Medical School.——Drs. Allen Greenwood and Morton Prince, who recently returned from the western war front as members of the Harvard Unit, delivered two lectures in aid of the work of the social service department of the Massachusetts General Hospital, November 28 and December 5, respectively.

Vaccination of Schoolchildren.—The state department of health has asked the opinion of the attorney general on certain phases of the compulsory vaccination law relating to children in the public schools. The section of the law relating to schoolchildren provides that "A child who has not been vaccinated shall not be admitted to a public school except upon presentation of a certificate granted for cause stated therein, signed by a regular practicing physician, that he is not a fit subject for vaccination." The health department sought an opinion as to whether the physician signing the certificate must make a personal examination of the child, whether the certificate must be so worded as to show that it is the opinion of the examining and signing physician that the cause stated is sufficient, or so worded that it gives as the opinion of the physician who signs the certificate that the child is not a fit subject for vaccination. The attorney-general gives it as his opinion that when the child presents a certificate signed by a regular practicing physician that he is not a fit subject for vaccination, with the cause stated therein, the statute is complied with, and that a personal examination by a physician is not necessary; nor, in the opinion of the attorney-general, does it seem necessary to require the physician further to emphasize his opinion by asserting that it is also his opinion that the cause stated is sufficient to justify the physician's statement. The cause stated, however, must be an adequate and lawful one to give the certificate validity. A cause absurd on its face, showing a deliberate intent to evade the statute, would not be considered a compliance with it.

MINNESOTA

Personal.—Dr. Leonard C. Weeks, Detroit, has been appointed a member of the state medical board, succeeding Dr. Theodore Bratrud, removed from the state.——Dr. Wilhelm S. Anderson, Warren, has resigned as chairman of the Tri-County Tuberculosis Sanatorium Commission.

The Saving of Infant's Eyes.—A regulation against infant blindness, which was recently adopted by the state board of health, has been signed by the attorney-general and will have the effect of a law. Its provisions require that all physicians or other attendants at births treat the eyes of newborn children with 1 per cent. solution of silver nitrate. Minnesota is the thirty-fifth state to put in force regulations against ophthalmia neonatorum.

State Health Organizations.—The Minnesota State Board of Health has issued a statement to the health officers throughout the state relative to the Minnesota Public Health Association. The latter is a voluntary organization supported by the sale of Red Cross seals and membership dues, and has no authority whatever in the administration of public health laws. There has been more or less confusion throughout Minnesota during the past few years relative to the relationship of this association to the state board of health. There is no relationship whatever between these two organizations.

New Society Officers.—At the annual meeting of the Southern Minnesota Medical Association, held in Mankato, December 4 and 5, under the presidency of Dr. E. Starr Judd, Rochester, Faribault was decided on as the place for the midsummer meeting of 1917, and the following officers were elected: president, Dr. Aaron F. Schmitt, Mankato; vice presidents, Drs. William F. C. Heise, Winona, and Reinhart G. Olson, Nicollet; secretary, Dr. William T. Adams, Elgin (reelected), and treasurer, Dr. George F. Merritt, St. Peter (reelected). On the morning of the second day a portion of the session was devoted to a memorial of Dr. Emil Hess Beckman.——At the twenty-eighth annual meeting of the Southwestern Minnesota Medical Society, held in Worthington, the following officers were elected: president, Dr. Henry Wiedow, Worthington; vice president, Dr. William A. Piper, Mountain Lake, and secretary-treasurer, Dr. Emil King, Fulda.

Health Board Changes Recommended.—The commission named by the governor to propose legislation on public health, of which Dean E. P. Lyon of the University of Minnesota Medical School is chairman, has made the following recommendations: that the state board of health be reorganized with five instead of nine members; be given broad general powers instead of specifying in detail in the law the limit of its duties and activities; should be empowered to appoint a commissioner of public health; should be assigned the functions of the advisory committee on tuberculosis sanatoriums, discontinuance of which is recommended, to be performed by a new division under a man specially trained in tuberculosis work; the transfer from the state department of labor of duties in connection with industrial hygiene; should be delegated organization of all existing state finance activities relating to public health and should be provided with large appropriations. Limitations of the general powers of the board are declared to be dangerous in the changing and sometimes emergency conditions arising in public health administration. In the selection of a commissioner the country should be searched and a man trained in sanitary science and public health administration chosen after a critical analysis of all candidates, and after the right man is found, the salary necessary to secure him should be paid. Other recommendations are made and discussed in the report.

NEW YORK

Personal.—Dr. Edward W. Archibald, Montreal, spoke before the Saranac Lake Medical Society, November 29 detailing his experiences with the McGill University Unit on the western war front in France.

Poliomyelitis.—Quarantine on account of poliomyelitis was lifted at Oswego, December 5. From August 12 to October 24, Oswego had 60 cases, 11 deaths, 29 patients suffering from paralysis and 20 who completely recovered; 35 patients were between 1 and 5 years of age, 10 between 5 and 10, 5 between 10 and 15, and the remainder between 15 and 35 years.

Suggest State Milk Control.—The Wicks Investigating Committee, which is investigating the milk industry in this state, has developed plans for the state supervision of milk distribution in New York City, which will be embodied in the report of the committee to be submitted to Governor Whitman. The plan suggested would divide the city into districts and license one distributor to a district. This committee in the course of its investigations has brought out the information that some drivers of milk wagons are making from $20 to $25 a week skimming cream from bottles and selling it for their own profit.

New York City

Hospital Must Pay Taxes.—The appellate division of the supreme court has decided that the Manhattan Maternity Hospital must pay taxes on its real estate from 1902 to 1907, because Moses Taylor, who established the hospital, kept the property in his own name instead of transfering it to the hospital corporation.

Personal.—At the last meeting of the medical board of the Union Hospital, Borough of the Bronx, a division of occupational diseases was established and Dr. Frederick L. Loughran was designated as attending physician in charge.——Dr. Joseph Sailer, Philadelphia, delivered an address before the New York Academy of Medicine, December 21, on "The Clinical Aspects of Diseases of the Ductless Glands."

Ruling on Sanatoriums.—At its regular meeting, December 5, the board of appeals fixed the status under the building zone reslutions, of buildings to be used for physician's offices. Such buildings, when arranged for and devoted to use as offices, patients' rooms and laboratories used in connection with physicians' offices, are deemed to be sanatoriums, provided they are not used for other purposes than those specified. A single apartment for the use of a caretaker, however, is permitted in such buildings.

OKLAHOMA

Personal.—Dr. Arthur S. Risser, Blackwell, is convalescent after an attack of typhoid fever.——Dr. Fred H. Clark, El Reno, is recovering from a severe infected wound of the hand.——Dr. John P. Sudderth, Nowata, was thrown from a horse recently and was severely injured.——Dr. Welcome B. Tilton, Clinton, has been appointed physician for the Uintah and Ouray Indian agencies, Duchesne, Utah.

Sanitarium Opened.—The Choctaw-Chickasaw Sanitarium, at Talihina, was opened November 17. The institution, which has been erected at a cost of $50,000, is thoroughly equipped and now available for twenty patients. Only tuberculosis cases will be treated during the first year, but afterward it is expected that sufferers from various diseases will be admitted. The institution is under the superintendency of Dr. W. Edgar Van Cleave, U. S. I. S.

Health Officers Organize.—At a meeting of the health officers of Oklahoma, held in Guthrie, November 16, a permanent association was formed under the name of the Oklahoma State Health Association and the following officers were elected: president, Dr. George W. Stewart, Hobart; vice presidents, Drs. Claude A. Thompson, Muskogee, Lloyd T. Lancaster, Cherokee and Herbert P. Wilson, Wynnewood; and secretary-treasurer, Dr. Lewis E. Emanuel, Chickasha.

PENNSYLVANIA

Improvement in Hospital Methods.—In a report made to Governor Brumbaugh, Dr. John M. Baldy, president of the State Department of Medical Education and Licensure, who has just completed a second inspection of the hospitals of the state, stated that they are generally complying with the requirements of the act of the last legislature relative to laboratory and anesthetic departments.

Personal.—A silver loving cup was presented at the Erie Antituberculosis Society, to its president, Dr. George B. Kalb, who has given up practice and is about to move to California.——Dr. Frank Gamon, Erie, is reported to be critically ill.——Dr. Clarence W. Prevost, Pittston, underwent operation at the Pittston Hospital, for the removal of a tumor.——Major William C. Hogan, Bradford, chief medical officer of the Sixteenth Pennsylvania Infantry, who has been on furlough, left on December 3, on his return to Camp Stewart. December 1, fellow members of the McKean County Medical Society gave a banquet in his honor, over which Dr. James Johnston, chief medical officer of the organization during the War with Spain, presided as toastmaster.

Philadelphia

Personal.—Dr. William J. Baumgartner is under treatment at the Samaritan Hospital, suffering from a fracture of the leg and of several ribs.——Dr. W. Wayne Babcock was operated on for appendicitis, December 15.

Hospital Notes.—A contract has been awarded for alterations and additions to the Women's Hospital.——Builders are now making estimates on plans for the completion of the surgical pavilion of the hospital of the University of Pennsylvania.——Contracts aggregating $681,585 for the erection and equipment of buildings for the new home for the feebleminded at Byberry have been awarded recently.

Health Department to Control Nurseries.—A bill will be introduced in the next legislature to place all day nurseries in this city under the supervision of the department of health and will be supported by all local organizations interested in baby saving and the care of children. The bill provides that no license for a day nursery shall be issued until the person applying for it has been investigated and found qualified to conduct such a place.

Extension Fund for Women's College.—Headquarters were opened, December 4, in the Bellevue-Stratford Hotel for a $200,000 extension fund campaign for the Women's Medical College of Pennsylvania. The funds of the college amount to $490,000, but the time has come for it to extend its efforts to make increasing demands for laboratory equipment and research work, and it is hoped that the endowment fund will be increased to $1,000,000. Up to December 10, the amount collected reached $57,817.94. Ten thousand dollars was given by Mrs. Clarence Clark to establish a scholarship in honor of Mrs. Emily W. Taylor, the donor's mother.

SOUTH CAROLINA

Hospital Chartered.—The Clinton Hospital has been incorporated at Clinton with a capital stock of $15,000 by Dr. Leslie St. C. Hays, M. S. Bailey, and J. D. Bell.

Medical School to Admit Women.—At a meeting of the trustees of the Medical College of South Carolina, Charleston, held at the office of the governor, Columbia, November 22, a petition from the South Carolina Federation of Woman's Clubs, requesting that women be admitted to the college, was read. Dr. Robert Wilson, Jr., dean of the college, recommended that this be done and the board unanimously approved the action. The question of establishing a chair of public health was also discussed by the trustees.

Personal.—Dr. William C. Sandy, medical director of the State Hospital for the Insane, Columbia, has been granted a two months' leave of absence to conduct, under the auspices of the Public Charities Association of Pennsylvania, a survey of the county institutions for the insane in that state.——Dr. Fred L. Potts, Spartanburg, has returned to North Carolina and located at Vanceboro.——Dr. Luther A. Riser, Columbia, has been appointed assistant in field work, U. S. Public Health Service.——Dr. Julius H. Taylor, Columbia, has been elected president of the Association of Surgeons of the Atlantic Coast Line.

WASHINGTON

Appeal for New Health Code.—At a meeting of the members of the legislation from Pierce County, held December 2, in Seattle, a plan was proposed for the state control of all serum used in the state for the tuberculosis tests of cattle, and for the appropriation of more money to be used in the eradication of bovine tuberculosis.

Medical Board Reappointed.—Governor Lister, December 8, announced the reappointment of the following members of the State Board of Medical Examiners, the new terms to expire Nov. 15, 1919: Drs. Daniel M. Stone and Andrew J. Nelson, Seattle; Royal A. Gove, Tacoma; Conrad N. Suttner, Walla Walla; Elmer D. Olmsted and Jesse J. Tilton, Toppenish; James A. MacLachlan, Dayton, and two members who are osteopaths.

WISCONSIN

State Cooperative Laboratory.—The second state cooperative laboratory, organized by joint action of the municipality and the State Board of Health, has been opened at Fond du Lac, with Dr. Frederick M. Harris, La Crosse, as director.

Hospital Notes.—A campaign for a general hospital for Ashland has commenced and Mr. and Mrs. E. R. Currier of New York City have been placed in charge of the arrangements for the collection of funds. A formal organization has been effected, and Dr. John M. Dodd has been elected president, Dr. Adellon P. Andrus, vice president; James W. Good, secretary and treasurer, and Dr. Carl O. Hertzman and W. T. Copple, directors.——A site for the new Portage hospital, on Prospect Hill, has been donated by a former mayor, Alois Zenert. The hospital will cost $25,000, will be known as St. Joseph's Hospital and will be under the charge of the Sisters of the Divine Saviour.

Personal.—Dr. William E. Buschman, Milwaukee, is reported to be critically ill as the result of a cerebral hemorrhage.——Dr. Frederick B. Bentley, Portage, is reported to be seriously ill.——Dr. John Van de Erve, dean of Marquette University, Milwaukee, has been elected president of the Wycliffe Club.——Dr. Bernard H. Oberembt, Milwaukee, who recently returned after seven months' service in the hospitals of Germany and Austria, delivered an address on "The Efficiency of Medical Care in the German and Austrian Service," before the Milwaukee Medical Society, at its last meeting.——Dr. Julius J. Bellin, Green Bay, is convalescent after an operation for appendicitis.

CANADA

Vaughan on Protein Poison.—At the meeting of the Academy of Medicine, Toronto, December 5, Dr. Victor C. Vaughan, Ann Arbor, Mich., was the guest of the evening and was given a dinner by Dr. John Ferguson, the president of the academy, at the York Club. The subject of his address was "The Protein Poison and Its Relation to Immunity and Disease."

Society News.—The Executive Council of the Canadian Public Health Association met in Toronto December 23, and elected the following executive committee: Drs. Joseph D. Page, Quebec, president; John G. Fitzgerald, Toronto, secretary; George D. Porter, Toronto, treasurer; and John W. S. McCullough, Toronto, Maurice M. Seymour, Regina, and William H. Hattie Halifax.

Hospital News.—Returned soldiers will be brought from England in greater numbers than heretofore; the Canadian Military Hospitals Commission has asked Winnipeg to provide hospital accommodation for 1,000 wounded western Canadians. Additions will be made to the Winnipeg General Hospital at a cost of $600,000 to $800,000, and the Dominion Government will pay one-half the maximum cost. The city of Winnipeg and the province will likely combine to pay the other half.——All the hospitals of Ontario are seeking an increase in the annual grant from the Ontario government. A large delegation will wait on the government in the immediate future. The high cost of living and the treatment of returned soldiers necessitate this demand.

University News.—The University of Toronto, through the antitoxin laboratory in the department of hygiene has recently been the recipient of a gift from Col. A. E. Gooderham, Toronto, of a farm of 50 acres on which have been erected model stables and laboratories for the work of the laboratory. The value of the gift exceeds $60,000, and the farm is situated within 20 miles of Toronto. It prepares all the public health biologic products, supplied free by the Ontario government, through its board of health, including diphtheria and tetanus antitoxin, antimeningitis serum, the Pasteur treatment and smallpox vaccine. The laboratory also prepares all the tetanus antitoxin and typhoid vaccine used by the Canadian Expeditionary Forces. The director of the laboratory is Dr. John G. Fitzgerald, Toronto.

Personal.—Dr. Robert D. Rudolf, Toronto, professor of therapeutics at the university, has returned to the front.——Lieut.-Col. D. King Smith, Toronto, has sailed for England and will return to the University Base Hospital at Saloniki.——Dr. Robert E. Clapp has been appointed registrar of the surrogate and county courts of Bruce County, Ont.——Lieut.-Col. Clarence L. Starr, Toronto, is now at the special Canadian hospital at Ramsgate to study orthopedics in connection with Canadian soldiers. On his return several similar institutions will be established in Canada.——Dr. William H. B. Aikins, Toronto, has been elected president of the new American Radium Society.——Dr. G. Bryce Kendrick, Blenheim, Ont., was recently severely injured in a collision on the Pere Marquette Railway.——The following officers in the Canadian Medical Service have recently been mentioned in despatches on the Saloniki operations: Col. James A. Roberts; Lieut.-Col. William B. Hendry; Lieut.-Col. Edward C. Hart, and Maj. Clarence H. Morris.——It is unofficially announced from England that Surg.-Gen. Carleton Jones, C. M. G., and Col. Herbert A. Bruce, Toronto, will return to Canada, the former to resume his duties as Medical Director in the Dominion.

GENERAL

Western Eye and Ear Men to Meet.—The next annual meeting of the Pacific Coast Oto-Ophthalmological Society will be held in Spokane, Wash., June 18 and 19, 1917, under the presidency of Dr. Clarence A. Veasey, Spokane.

Cost of Foot and Mouth Disease.—The combined expenditures of the federal and state governments for fighting foot and mouth disease last year was $9,000,000, according to the report of the United States Bureau of Animal Industry.

Railway Surgeons Meet.—The Soo Line Surgical Association held its annual meeting in Minneapolis, December 13 and 14, and elected Dr. John M. Dodson, Chicago, president; Dr. Albert J. Pullen, North Fond du Lac, Wis., vice president, and reelected Dr. John H. Rishmiller, Minneapolis, secretary-treasurer. It was decided to hold the 1917 meeting in Chicago.

Northwestern Surgeons Elect Officers.—At the annual meeting of the Chicago and Northwestern Railroad Surgeons' Association, held in Chicago, December 13 and 14, the following officers were elected: president, Dr. Frank Allport, Chicago; vice presidents, Drs. William J. Egloff, Mason City, Iowa, and George J. Haslam, Fremont, Neb.; secretary-treasurer, Dr. John D. Andrews, Chicago, and member of the executive board, Dr. William H. Palmer, Janesville, Wis. The meeting is said to have been the largest and most successful in the history of the organization.

Treatment of the Insane in the Canal Zone.—The transfer of the American insane patients under treatment in the Panama Canal Zone to the Government Hospital for the Insane in the District of Columbia, has been recommended by the secretary of war. The secretary has asked for the enactment of the legislation necessary for this purpose. It is planned, however, on ascertaining the legal residence of any such patient, to return him to the place of such residence. The secretary of the interior, under whom the Government Hospital for the Insane is administered, and the superintendent of the hospital have approved the plan.

Tax Reduction on Oleomargarin.—With a view to reducing the price to the consumer, Representative Aswell of Louisiana, has introduced a bill diminishing the tax on oleomargarin from 10 cents a pound to 1 cent a pound. The tax now imposed applies only to the colored article and by increasing the selling price hinders sales. There is but little demand for the uncolored article, even though it is just as wholesome. Last year the army and navy used 750,000 pounds of colored oleomargarin, and foreigners bought 2,500,000 pounds, all free from tax, as they were entitled to do under the law, but they bought less than 20,000 pounds of the uncolored article.

Red Cross Meeting.—At the annual meeting of the American Red Cross, December 13, the treasurer's report showed that the organization had expended $543,535 during the eleven months preceding December 1, for war relief, exclusive of hospital and medical supplies sent abroad. Ernest P. Bicknell, director-general for civilian relief, reported that in response to the request of Austria, the American hospital units would be withdrawn from Serbia and that the Red Cross had arranged to forward and distribute about $150,000 collected for the relief of Lithuanian civilians. Mr. Otto T. Bannard, New York, a member of the commission which investigated the conditions in Serbia, reported that 150,000 Serbians are destitute and near starvation.

Oleomargarin from Pasteurized Dairy Products.—After June 30, 1917, milk and cream used in the preparation of oleomargarin must be pasteurized, and the butter used for this purpose must be made only from pasteurized dairy products, according to service and regulatory announcements of the United States Bureau of Animal Industry. Proprietors and operators of official oleomargarin-producing establishments will be required to furnish inspectors with satisfactory evidence that the butter used is made only from such products, and to give advance information of proposed sources of the butter supplies so that the matter of pasteurization can be investigated in cases of doubt. In lieu of the use of butter made from pasteurized dairy products, however, the butter itself may be pasteurized by heating it to a temperature of not less than 180 F.

Scientific Society to Meet.—The seventieth annual meeting of the American Association for the Advancement of Science will be held in New York City, December 26 to 30, together with the meeting of about forty national societies affiliated with it. President Charles R. Van Hise of the University of Wisconsin, Madison, will preside.——The Federation of American Societies for Experimental Biology, composed of the American Physiological Society, the American Biochemical Society, the American Society for Pharmacological and Experimental Therapeutics and the American Society for Experimental Pathology, will hold its annual meeting in connection with the American Association for the Advancement of Science, under the chairmanship of Dr. Simon Flexner, New York. In connection with the convocation, a number of addresses will be delivered on phases of the cancer problem. Section K, for Physiology and Experimental Medicine, will devote the afternoon of December 29 to this subject. Prof. Gary N. Calkins, New York City, will discuss "Stimu-ating Effects of Protoplasmic Substances on Cell Division"; Dr. Leo Loeb, of St. Louis, will read a paper on "Tissue Growth and Tumor Growth"; Dr. Joseph C. Bloodgood, Baltimore, will deliver an address on "Cancer in the Human Being" from the surgeon's point of view with special reference to preexisting lesions which favor the development of cancer; Dr. James C. Ewing, New York City, will summarize as regards radium in the treatment of cancer and Mr. Curtis E. Lakeman, executive secretary of the American Society for he Control of Cancer, will give an account of past and present efforts to combat the disease through the education of the people.

Congress Awakened to Importance of Public Health.—On December 16, the House of Representatives in considering ppropriations for the coming year reached those portions of he appropriation bill which concerned the Children's Bureau. The bill, as first read, provided for a total expediture of 106,640, the same sum as was appropriated for the last three ears. Representative Good of Iowa asked that the bill be mended to appropriate $178,760. In his discussion, Mr. Good aid:

> "I do not believe there is any bureau in any of the departments of Congress that is really doing a greater work for all the people than he Children's Bureau is doing."

He also asked to add to the appropriation the following:

> "To investigate and report on matters pertaining to the welfare of ildren and child life, and especially to investigate the question of fant mortality—$72,120."

Several congressmen spoke in behalf of these increased appropriations. Representative Caldwell spoke of the congested districts in New York City. Representative Raker of alifornia spoke for the rural districts, citing frequently om the writings of Miss Lathrop, chief of the Children's ureau. Very significant were the remarks of Representative ann of Illinois, who contrasted the immense appropriations r war preparedness with the small sum asked for the prevention of infant mortality. Representative Towner of Iowa id:

> "The United States of America, that ought to be foremost in this nd of work, is lagging behind almost every civilized nation of the rld in regard to it."

He then recapitulated some of the work which the bureau s done. Representative Barnhart of Indiana said:

> "I believe that the Children's Bureau is the longest step in the direc- n of creating better health, and therefore more happiness for the ople of the United States than any other legislative enactment on ich I have ever voted, and I want to see it strengthened. . . . asmuch as we are so ready to furnish means of keeping and drilling n to take human life, I want to see something done in the direction protecting and preserving it, and I believe that the enacting of legis- ion of this sort is going to do something to make better conditions for ure humanity, and the trips of the little white hearses less frequent n anything we can do. . . . I want to go slow in spending public ney in doubtful experiments of any kind, but when it comes to cern of the future health and happiness of the people, I would her spend thousands too much than to lack one dollar of meeting a uirement of human welfare."

Representative Sisson of Mississippi spoke against the endment as he feared that the Children's Bureau with increased appropriation would soon be duplicating the work done by the individual states, and by other departments of the national government. Representave Keating of Colorado spoke for the appropriation, stating that he hoped to live to see the day when this bureau would be spending millions of dollars instead of $300,000 per year. Representative Stafford of Wisconsin spoke against the work of the bureau as now conducted, stating that several of the activities were not national, but purely local in scope. He called attention to the fact that Miss Lathrop wished to establish a traveling car for educational purposes. Representative Cox of Indiana spoke in defense of the bill, particularly in defense of the car mentioned: He said in part:

> "The militarists tell us that the first line of defense of a country is in the navy, and that the second line is in its coast line fortifications, and that its third line of defense is in the army. I deny that. The first line of defense of this or any other country is the children of the country, and if by any appropriation or any amount of money, there can be built up in this country a strong, active, fighting race of men and women who are able to take care of themselves, that money, in my judgment, will be well and economically expended."

Representative Davis of Texas spoke in defense of the increased appropriation and Representative Good of Iowa, who introduced it, said:

> "Last year we increased the appropriation for foot and mouth disease by $2,500,000. We appropriated over $360,000 for hog cholera. We appropriated hundreds of thousands of dollars for the eradication of the southern cattle tick, of the cotton boll-weevil, and other things of that kind. But when it comes to making an appropriation at all commensurate with the great work of the Children's Bureau, we hesitate and quibble."

He then told of the excellent work which the Children's Bureau has done during the past year. Representative Byrne of Tennessee again spoke against the bill. The question was then taken, and the amendment passed by a vote of 141 to 39. There was then read another paragraph covering the field work of the Children's Bureau, appropriating the sum of $58,000 which Representative Good proposed be amended to give $95,000. Representatives Stafford and Byrne again spoke against this amendment which passed by a vote of 103 to 49. Apparently some congressmen at least are beginning to realize that the health of the people is as important economically for the nation as is the health of its cattle.

FOREIGN

Scarlet Fever in the Netherlands.—There were reported in July 506 cases of scarlet fever, in August 471 and in September 900 cases, with 200 new cases each week for some time thereafter. Amsterdam is the main seat of the epidemic, averaging 100 new cases a week. There were 966 cases of diphtheria reported during the same period. The total population of the country is over six millions; Amsterdam has about 600,000.

Training Nurses for Welfare Work.—The Vienna authorities have organized a six months' supplementary course for trained nurses to fit them for special service in the antituberculosis, the antialcoholism and infant welfare work and for service in epidemics. This is to be a permanent institution, the graduates thus fitting themselves for state positions as *berufsmässige Krankenpflegerinnen in der sozialen Fürsorgetätigkeit.*

WAR NOTES

Aid for American Ambulance Service in France.—More men are wanted in the American ambulance field service in France, according to Emory Pottle, a member of that organization. In an interesting talk, illustrated by motion pictures, Mr. Pottle described the work that is being done at the front by the seven American ambulance units now in France, each with twenty cars. There is, however, but one man to a car, and in order to facilitate the work there should be two. About $500 was raised for the use of the service.

Questionnaire to Hospital.—A committee of American physicians for military preparedness has sent to various hospitals blanks to be filled out showing their capacities and resources in the event of war. Dr. William J. Mayo, Rochester, Minn., is chairman of this committee. The questions include the number of nurses in the hospital, other employees, physicians on the staff, the number of beds and special departments, the character of work done at the hospital, the number of operating rooms and tables, and, in addition, the nearness of the hospital to railroads, trolley lines or water transportation, its water supply and the character thereof, its sanitary surroundings and the facility of local markets for food supplies.

LONDON LETTER

London, Nov. 22, 1916.

Demand for More Women Physicians in the Army

So successful has been the work of the women physicians attached to the Army Medical Corps that that body is now applying for fifty more women for service with the colors. Although women physicians have been attached to various hospitals as house surgeons and physicians during the war, and although one hospital is entirely run by women of the Army Medical Corps, the experiment of sending them to Malta—one of our greatest hospital bases—was not made until last July. There can never be any comparison between the number of men and women physicians available. There are only about 1,100 women on the British Medical Register, as compared with 35,000 men physicians. Many of these women are taking over the civil hospital and private practices; a few are taking up roentgenology and other special work. Under pressure of this need for physicians, the Cambridge University Senate has now under consideration the question of admitting women studying medicine there to the Bachelor of Medicine degree.

Massage of the Heart

At a meeting of the section of anesthetics of the Royal Society of Medicine, Mr. W. M. Mollison reported a remarkably successful case of heart massage following heart failure under anesthetic. A healthy but slight boy, aged 6, was given a mixture of two parts of chloroform to three parts of ether for removal of tonsils and adenoids, considered advisable as a treatment for asthma and bronchitis. During the removal of the second tonsil some struggling occurred and was followed by shock, the pupil dilating and respiration ceasing. After the throat had been swabbed out, artificial respiration by the Silvester method and stimulants were employed without improvement. Pituitary extract was injected subcutaneously, and later into the heart, but evoked no response. The heart sounds could not be heard. An incision was made through the abdominal wall, accidentally cutting into the liver, and the right hand inserted between the liver and the diaphragm. Between this hand and the other, applied to the precordium, the heart, which had ceased beating, was massaged at the rate of ninety movements a minute. At first respiration began and the pupil contracted, but the heart failed to respond; 1 c.c. of pituitary extract was injected into the heart and the massage renewed, and after about twenty movements the heart beat strongly. Almost certainly the time during which the heart stopped was between thirteen and twenty-four minutes, and probably about twenty minutes. The whole episode lasted about thirty-five minutes. When put back to bed the patient's condition was still poor and saline infusion was employed. One hour later the boy was restless and developed choreiform movements, during which the intestines protruded through the abdominal wound, which had been hurriedly stitched up. These were put back later when consciousness returned. For seven days he was more or less unconscious; then consciousness gradually returned with relapses back to unconsciousness. During the second week there were periods of rigidity, tetany and screaming, which was almost continuous for thirty-six hours. He was violent, and there was incontinence of both urine and feces, and he presented the picture of severe cerebral irritation. At the end of fourteen days he was much improved, and eventually made a perfect recovery. Of thirteen recorded cases of successful or partially successful heart massage which Mr. Mollison has collected, in nearly all only a short time had elapsed from the cessation of the heart's beat until the procedure was begun. In this connection the partially successful cases are most interesting, for in them similar unconsciousness, rigidity, cramps, and incontinence had subsequently occurred. The same phenomena accompany cerebral anemia, to which they can be ascribed in these cases. A study of the present case and of the records seems to indicate that heart massage should not be postponed too long, and ought always to be performed through an abdominal wound.

A State Medical Service

In spite of the preoccupation of the war, the question of state medical service in which, as a further development of the insurance act, physicians would be simply officials is hotly debated in the lay and medical press. The British Medical Association has passed a resolution against such a scheme, but has been denounced for doing so without any knowledge of its details. A rejoinder has also appeared in the *Times* from an army surgeon who says that thousands of war physicians have lost or are losing their means of livelihood because of their patriotism. These men, he says, would welcome a state service, and this is not to be wondered at. The panel-physicians must realize that the war physicians have also special claims on public gratitude, and that they are, as a class, exceedingly efficient men. It would be monstrous were the people to be deprived of their services after the war. Dr. S. Moone, health officer of Huddersfield, draws attention in the same journal to the advantage of the scheme over the present insurance act. He says that the complaisance of the panel physician in granting certificates of inability to work is seriously depleting the funds of the friendly societies. The panel physician is not in a position at present to refuse to furnish any certificate demanded at his hands by an insured person, except perhaps in the most glaring circumstances of malingering, because the result would be that he would lose his panel, which in many cases is the backbone of his practice. It is manifest that a man whose living and the provision for whose family depends on his panel practice to any considerable extent really has no choice in such a matter. A state medical service offers the only way out. It has, moreover, been pointed out that a state medical service would be merely applying to civil life the same highly organized and efficient medical service which on all sides is admitted to be so successful in the war.

BERLIN LETTER

(*Received Dec. 14, 1916*)

Berlin, Nov. 2, 1916.

Nyctalopia

Among 10,000 patients at one military eye hospital, 140 cases of nyctalopia or night blindness came under the observation of Professor Birch-Hirschfeld. In 108 instances the disease was present before the war began, in most of these cases having existed since early youth; but military service seems to have caused greater disturbances than did civil life. In thirty-two cases the condition was noted first during military service. In nine cases an injury, followed by hemorrhage, in five cases intestinal disease, and in three cases light dazzling (*Blendung*) were recorded as being the exciting causes. Myopia was present in sixty cases, to the extent of more than 6 diopters in twenty-six of these. It is assumed, therefore, that myopia is a cause of nyctalopia. A hereditary influence was traced in one third of the cases. Central vision was approximately normal in sixty-three cases, fair in sixty cases and considerably disturbed in seventeen cases. The fundus was normal in sixty-eight cases; in thirty-eight cases the peculiar pigmentation first described by Augstein was present, and in twenty-seven cases there was a deficiency of pigment. In seven cases there was a peripheral chorioretinitis. In the majority of cases the visual field for blue was considerably narrowed, especially in subdued light; thirty-three times for white and blue, even in ordinary daylight, and twenty-eight times there was a reduction of more than 30 per cent. Blue spots on a gray background remained invisible to the nyctalopes after half an hour of rest in the dark longer than to the normal eye. A five point adaptometer, devised by Birch-Hirschfeld, proved to be of great value in the examination of these soldiers. It was found that in the nyctalopes the irritation threshhold frequently is higher than in the normal eye, in many cases following slight disturbance of adaptation, and that the adaptation may be diminished with a normal irritation threshhold. In ninety-two cases both types of disturbance were present. They occurred particularly in the older patients with fundus changes and a reduction of central vision. Forty-nine patients were under observation for several weeks; in only eight cases was there any marked improvement, and six of these were recent cases. Birch-Hirschfeld emphasizes that it is impossible to make a definite prognosis in these cases after a single examination; therefore it is greatly to be desired that these patients remain under observation for several weeks, preferably in a hospital. The treatment consists, in the main, of increasing the resistance of the patient by the administration of tonics and protecting the eye from the light. Reduction in visual acuity and definition of not more than one fourth does not incapacitate the patient for military service, but he should be kept under observation all of the time by the army surgeon, and he should not be subjected to night duty of any sort. Only in exceptional cases should nyctalopia be considered as an adequate reason for granting a pension. Nyctalopia is not a specific disease or disease entity. Many factors are operative in its production. As a rule, the acute form is easily differentiated from the chronic sporadic form. In the production of the acute form, loss of blood, emaciation, faulty nutrition and poisons play a rôle. Light dazzling (*Blendung*) usually initiates the attack. The prognosis is usually a favorable one. In the production of the chronic form one must consider heredity, local conditions, such as developmental errors in the retina and choroid, and myopia, although nutritional disturbances and toxins may be contributing factors. Birch-Hirschfeld does not agree with Paul that nyctalopia bears any relationship to neurasthenia. Careful examination of these cases confirms the belief that the disease is essentially an organic disturbance of the retina.

The Statue of Robert Koch

The imposing memorial to Robert Koch was unveiled, May 27, in the Luisenplatz, opposite the Kaiserin Friedrich-Haus, the central headquarters for the medical postgraduate instruction system. As is readily understood on account of present circumstances, the ceremonies connected therewith were on a comparatively small scale. Those present were distinguished less by their number than by their prominence. Kirchner, the chairman of the memorial committee, presented the monument to the care of the city of Berlin with a brief address. The main memorial address was given by Gaffky as the oldest pupil and friend of Robert Koch. Of the beauty of the monument, which was hewn in marble by one of the leading sculptors of Germany, Tuaillon, the accompanying picture gives some idea. On the pedestal there are only a few inscriptions:

Front: "Robert Koch, 1843-1910."

Left side: "The pioneer investigator of the causal agents of disease." (Dem bahnbrechenden Erforscher der Krankheitserreger.)

Right side: "The victorious leader in the battle against epidemics and death." (Dem siegreichen Führer im Kampfe gegen Seuche und Tod.)

Rear: "I wish that in the war against the smallest and most dangerous enemies of the human race each nation may endeavor evermore to surpass all others." (Ich wünsche, dass im Kriege gegen die kleinsten aber gefährlichsten Feinde des Menschengeschlechts eine Nation die andere immer wieder überflügeln möge.) The last inscription is taken from the concluding words of Koch's address at the Tenth International Medical Congress at Berlin in 1890.

Statue of Robert Koch.

Spread of Cancer in Bavaria

In the half decade of 1905-1910, approximately 42,000 perons died from cancer in Bavaria. The sex percentage was 00 females to 77 males. The death rate per hundred thouand population, as compared with the total death rate, was as 92 to 100. There was a considerable increase in the incidence of cancer in the female. In the male the gastrointestinal tract was mainly affected; in the female the uterus nd the mammae. Dr. Grassl, who is responsible for these tatistics, concludes that the organs most often the seat of ancer or malignant disease are the ones of which the greatest involuntary use is made. There were 891 cases of cancer of he female mammae to five of the male, and seventeen cases f cancer of the mammae in the female to every case of hyroid disease.

Personals

Prof. A. von Hippel, formerly ordinary professor of ophhalmology at Göttingen, died, October 26, at the age of 75.

Professor Hochhaus, director of the medical division of the Augusta Hospital, and ordinary professor of medicine at the academy in Cologne, died, October 26, after a short illness. He was for many years assistant to Professor Quincke at Kiel.

During the latter part of October, Dr. Kurella, a neurologist and translator of Lombroso's works, died in Dresden at the age of 56. He had been for many years editor of the *Centralblatt für Nervenheilkunde* and *Zeitschrift für Elektrotherapie* and founder and editor of the Bibliotek für Sozialwissenschaften.

The Widal Reaction as a Diagnostic Aid

The Royal Health Department of the Kingdom of Saxony has issued the following dicta regarding the diagnostic value of the Widal reaction and the determination of the typhoid bacillus in the blood and feces: 1. The Widal reaction is not specific in the detection of typhoid. It is merely an aid and should be considered only in connection with the clinical history and the nature and degree of the reaction. 2. It may be regarded as positive only in the second week of the disease. 3. A negative Widal should not influence the diagnosis when typhoid is suspected. In such cases the test should be repeated. 4. A positive reaction with a serum dilution of 1:80 is of great value, but it must be remembered that the patient may have had typhoid before, and that in rare instances other diseases, especially jaundice, may give a positive Widal. 5. In the case of individuals who have received a prophylactic typhoid vaccination, the reaction may be positive for from three to five months afterward. 6. A positive diagnosis of typhoid may be made on finding the typhoid bacillus in the blood of persons who have not received a prophylactic injection during the first week of the disease, and later in the blood of vaccinated persons. Material for such examinations is furnished by the authorities. 7. Typhoid bacilli will be found in the feces usually only in cases in which intestinal ulcers have formed, that is, not earlier than the end of the second week of the disease. It is to be noted that typhoid bacilli have been found in the stools of typhoid carriers.

Decrease of Infant Mortality

During the months of June, July and August, the infant death rate of Germany is at its height, and the diseases of the gastro-intestinal tract are largely responsible. Strange as it may seem, the food problem in Germany has not had any deleterious influence on this mortality; in fact, the death rate was lower last summer than ever before. The death rate per hundred infants during the first year of life throughout the German Empire in cities having more than 15,000 population is shown in the accompanying tabulation.

DEATH RATE OF INFANTS

	1910	1911	1912	1913	1914	1915	1916
May	14.4	13.5	13.5	13.3	12.1	14.5	12.2
June	17.6	14.6	13.6	13.7	12.7	17.4	11.2
July	17.6	25.3	18.1	14.2	18.6	18.6	12.6
August	21.6	48.1	19.9	15.9	26.8	17.3	14.9

PARIS LETTER

Paris, Nov. 23, 1916.

The War

THE PREVENTION OF VENEREAL DISEASES IN THE ARMY

Reports from the army zone and from the interior affirm that a considerable increase in venereal diseases has been observed among the civil population, and still more among the soldiers. The increase is especially notable in the regions occupied either by the troops of our allies or by our colonial native contingents. An altogether abnormal percentage of the rank and file of the British army are affected with venereal disease; the same is true of the Belgians and Russians. Among the Arabs, whether Algerians or Moors, the proportion of syphilitics is considerably more than one half. There can be no doubt that an increase in clandestine prostitution is the principal cause of this state of affairs; but it is also certain that this epidemic has been propagated among the classes which one would have expected to remain unaffected; and that many married women, including the wives of men at the front, have been infected and will ultimately contribute to the spread of the disease. On account of the gravity of this venereal peril, the undersecretary of state for the medical service of the army has reinforced the prophylactic measures, particularly by creating special organizations for the diagnosis and treatment of these diseases. These organizations are divided into (1) urology, (2) dermatology and syphilology centers. To these centers are to be sent as early as possible not only all patients with characteristic chancres, but also those presenting the slightest suspicious erosion or ulceration. It is expressly forbidden to keep under observation at the regimental hospital a man presenting a suspicious ulceration in order to clear up a doubtful diagnosis. There is one venereologic center for each region, composed of a hospital service, a consultation service, a dental service and a laboratory. The special function of the dental service is to prepare the teeth of syphilitics preparatory to intensive mercurial treatment. This intensive treatment by salvarsan and mercury is necessitated by the urgency of returning valid men to the army as soon as possible. Orders have been issued that periodic lectures on venereal diseases shall be given in all depots and in the medical formations of the army, and that pamphlets on this subject written in a clear and concise style shall be distributed in order to propagate correct ideas on prophylaxis. Further, the military surgeons are called on to lend the utmost support and collaboration to the civil authorities to insure the best possible conditions for the functioning of the venereal service for civilians of both sexes. Daily consultations will be given, the hours of which will vary from day to day, thus making them accessible to all classes of patients. On the other hand, the Ligue française, being of the opinion that the present means of fighting the extension of venereal diseases are inefficacious, has proposed that these diseases be assimilated to other contagious diseases by the adoption of quarantine. Infected women would then remain isolated in special hospitals until cured.

SCIENTIFIC CORRESPONDENCE BETWEEN ARMY SURGEONS AND PHYSICIANS IN THE INTERIOR

The importance of informing medical officers—and in particular the surgeons, with the army or in the interior of the country—as to the progress and results of cases which they have treated and which have passed under the care of other persons is understood readily. It is especially important that surgeons at the front should know the subsequent history of cases in which they have operated: for example, the remote prognosis in craniocerebral operations, the results of early operations on joint wounds, the advantages presented, respectively, by the different methods employed for disinfection for the prevention of infection of war wounds in general, which methods give the best results in fractures, etc. A certain number of surgeons, recognizing the importance of correspondence with their colleagues on these points, have attempted to systematize it in order to apply the information obtained in improving their practice. M. Justin Godart, undersecretary of state for the military service of the army, has decided that this professional and scientific correspondence between medical officers should be generalized, and has strongly recommended this, taking measures to facilitate it. Heretofore it has been by the medium of the wounded themselves that the surgeons at the front have been able to keep track of their achievements. It is sometimes inconvenient, however, to place the soldiers in possession of knowledge concerning details of their illness or of the treatment which they have undergone, as they might be tempted to interpret ignorantly and incorrectly the results of the treatment they have received. For this reason the undersecretary of state has established a special transfer form, containing the necessary information concerning the patient, to be presented sealed to the medical officer. In order to follow up the case the surgeon will enclose with this form envelopes or postcards bearing his military address. The medical officers taking over such cases will naturally fulfil the duty of good fellowship by giving the desired information with a view to mutual instruction and progress.

TREATMENT OF WAR WOUNDS BY THE USE OF SOAP

Drs. Ratynski and Bergalonne recommend the treatment of war wounds by means of soap. A 20 to 40 per cent. solution of white Castile soap in warm water is prepared into which sterilized gauze swabs are dipped and employed to cleanse bloody surfaces. This is followed by free irrigation with soapy water, and by a sort of embalming with soap. One or more compresses of from sixteen to twenty thicknesses of gauze are soaked in the solution and then rubbed vigorously against a piece of soap until they are saturated, after which the compresses are rolled and kneaded between the palms of the hands until a fine and abundant lather is formed in the interstices. In this way there is produced a spongy tissue constituted by innumerable minute soap bodies. All the recesses and cavities of the wound are filled and the surfaces covered with this porous material, and the dressing finished by a thick layer of absorbent cotton and a bandage. This dressing requires renewal every two or three days. Drs. Ratynski and Bergalonne have always observed a remarkable diminution or a total disappearance of pain in wounds treated in this manner. It is noticed that this soapy dressing when changed does not adhere to the wound or neighboring parts, and is readily detached without causing any oozing. Wounds heal up rapidly, irritated and edematous surfaces quickly become pink and exuberant, and granulations rapidly take on a healthy activity from the commencement of the treatment.

THE ESTABLISHMENT OF AN INSTITUTE OF APPLIED OPTICS

The minister of public instruction is studying means to resuscitate, after the war, the industries of optical instrument making and of optical glass making, which in the middle of the nineteenth century emigrated to Germany. In a report on the subject the minister states that the neglect of the theory of optical instruments in France has been the cause of the monopoly of this manufacture by Germany. Our manufacturers have not only been anticipated by the Germans in the search for new markets, but have also found themselves unable to rival our neighbors, because of the lack of sources from which to obtain the indispensable theoretical data. In order to coordinate these efforts, the minister is of the opinion that it is necessary to create an institute of applied optics. This institute would consist of three sections: (1) higher general theoretical teaching; (2) a central laboratory for the examining and testing of glasses and instruments, and (3) professional teaching. The minister of public instruction, cooperating with the minister of commerce, has set up a special commission of scientists, manufacturers and representatives of the administrations concerned, to prepare the statutes and the program of this institute.

Marriages

Lieut. Floyd William Hunter, M. R. C., U. S. Army, to Miss Edith Chase of Brooklyn, in New York City, November 26.

Major Ernest Calvin Lee, M. C., Mich. N. G., Detroit, to Miss Luisa Briggs-Fegan of El Paso, Texas, November 9.

Actg. Asst. Surg. Benjamin Garfield Baker, U. S. N., to Miss Louise Henderson, both of Kansas City, Mo., October 28.

Robert Williams Tomlinson, M.D., Wilmington, Del., to Mrs. Mildred Hutton Bishop, at El Paso, Texas, October 14.

Glen Hunt Broyles, M.D., Kansas City, Mo., to Miss Hazel Bonser of Bethemy, Mo., at Kansas City, November 30.

Capt. Calvin D. Cowles, Jr., M. C., U. S. Army, to Miss Mary Florence Ridenbaugh of Boise, Idaho, October 10.

Charles W. Tedrowe, M.D., Woodward, Okla., to Miss Margaret Chriswell of Elk City, Okla., November 24.

Lieut. Arden Freer, M. C., U. S. Army, to Miss Mary Helen Sheetz of Fayetteville, N. C., November 28.

David Alba Bagley, M.D., De Soto, Ga., to Miss Bessie A. Klosterman of East St. Louis, Ill., November 15.

Godfrey Joseph Kadavy, M.D., Surprise, Neb., to Miss Anna M. Klepetko of Omaha, December 5.

Benjamin F. Walker, M.D., Stockton, Calif., to Miss Ethel Rosenthal of San Francisco, December 6.

Mark Victor Ziegler, M.D., Towson, Md., to Miss Janet Musgrove Bosley of Chicago, October 5.

Deaths

Col. Henry Sutton Tarring Harris, M. C., U. S. Army; Chief Surgeon of the Western Department, with headquarters at San Francisco; was found dead in his rooms, December 17, it is believed from cerebral hemorrhage. Colonel Harris was 53 years of age, a native of Virginia, a graduate of Columbian University, Washington, D. C., in 1884. He entered the army as lieutenant and assistant surgeon in 1886, served as major of volunteers during the war with Spain; became a major, Medical Corps, in 1901; a lieutenant-colonel eight years later and was made colonel, May 5, 1915. He was a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States. He served in expeditions against the Sioux and Cheyenne Indians in Montana, from 1889 to 1893; with General Shafter in the expedition against Santiago in 1898; with General McArthur in his advance from San Fernando to Bautista, P. I., in the fall of 1899; with General Schwann's second expedition through the southern provinces of Luzon, and scouted with General Funston through the mountains of Nueva Ecija and Bulacan, P. I., in 1910.

Harris Bennett Osborne, M.D., Kalamazoo, Mich.; Bellevue Hospital Medical College, 1867; College of Physicians of the City of New York, 1875; aged 74; a member of the Michigan State Medical Society; surgeon of the 113th Illinois Volunteer Infantry, and later post surgeon and health officer of Vicksburg, Miss., during the Civil War; one of the organizers and once president of the Kalamazoo Academy of Medicine; for eighteen years a trustee of the Kalamazoo State Hospital; died at his home, October 6. At a meeting of the Academy, November 14, resolutions on the death of Dr. Osborne were unanimously adopted.

John Savely Cain, M.D., Sewanee, Tenn.; University of Nashville, Tenn., 1853; aged 84; one of the founders and dean of and for many years professor of medical practice and general pathology and pharmacology in the Medical Department of the University of the South, Sewanee; the first student to matriculate in the University of Nashville; professor of gynecology in his alma mater; brigade surgeon in the Confederate service throughout the Civil War; once president of the Association of Surgeons of the Army and Navy of the Confederacy; died at his home, December 3.

Malcolm C. Sinclair, M.D., Grand Rapids, Mich.; Hahnemann Medical College, Chicago, 1873; aged 66; a member of the Michigan State Medical Society; a member and president of the first Board of Registration of Medicine in Michigan; for six years a member of the State Board of Health and more recently a member of the board of examiners for the State Sanatorium, Howell; for six years a member of the City Board of Health; died at his home, November 26, from acute endocarditis.

Isadore Elken Cohn, M.D., Berkeley, Calif.; Cooper Medical College, San Francisco, 1881; aged 64; first surgeon of the Oregon Railway and Navigation Company, Portland, Ore.; later superintendent of the Northern Pacific Hospital at Missoula, Mont.; at one time a member of the staff of the Napa State Hospital and State Quarantine Officer of California with headquarters at San Francisco; died at his home, December 3.

James A. Clyne, M.D., Joliet, Ill.; Albany, N. Y., Medical College, 1886; aged 56; a Fellow of the American Medical Association; once president of the Will County, Ill., Medical Society; for twenty years local surgeon of the Chicago & Alton Railroad; health commissioner of Joliet in 1893 and 1894; died at his home, recently, from disease of the throat.

Capt. R. E. Hoskins, R. A. M. C., Campbellford, Ont.; University of Toronto, Ont., 1914; aged 26; formerly a member of the staff of St. Michael's Hospital, Campbellford; who was attached to the Seventy-seventh Brigade of Royal Field Artillery; was struck by a shell and instantly killed during a battle near Combles, France, September 27.

John Tyler Smith, M.D., Baltimore; University of Maryland, Baltimore, 1877; aged 72; associate professor of medical jurisprudence and hygiene in his alma mater; assistant health commissioner of Baltimore, from 1897 to 1899; once a member of the board of aldermen; died at his home, December 3, from cerebral hemorrhage.

James Plaster English, M.D., Terre Haute, Ind.; Rush Medical College, 1879; aged 62; formerly a member of the Indiana State Medical Association; consulting surgeon to the Union Hospital and one time president of the Terre Haute school board; died at his home, November 26, from cerebral hemorrhage.

Uri Colvin Lynde, M.D., Buffalo, N. Y.; University of Buffalo, 1859; Jefferson Medical College, 1866; aged 83; assistant surgeon of the 116th New York Volunteer Infantry during the Civil War; who fell from a street car in 1910, fracturing the base of the skull; died at his home, November 21.

William C. Huston, M.D., Hamilton, Ohio; Medical College of Ohio, Cincinnati. 1894; aged 48; a Fellow of the American Medical Association; died in Mercy Hospital, Hamilton, December 5, twenty-six hours after an operation for appendicitis.

Rodney J. Bunch, M.D., Table Grove, Ill.; St. Louis University, 1906; a Fellow of the American Medical Association; for two years assistant superintendent of the St. Louis City Hospital; died at his home, December 7, from acute miliary tuberculosis.

Emerson B. Lambert, M.D., Port Jervis, N. Y.; New York Homeopathic Medical College, 1882; aged 64; a Fellow of the American Medical Association; one of the founders of Deer Park Sanatorium; died at his home, about December 9.

William Francis Scott, M.D., Port Washington, Wis.; Rush Medical College, 1877; aged 64; formerly a Fellow of the American Medical Association; died in Mount Sinai Hospital, Milwaukee, November 28, from pernicious anemia.

George Pasfield, M.D., Springfield, Ill.; Washington University, St. Louis, 1886; aged 85; surgeon of Camp Butler, near Springfield, during the Civil War; one of the wealthiest land owners of the state; died at his home, December 11.

Henrietta M. Farquharson, M.D., Chicago; Northwestern University Women's Medical School, Chicago, 1900; aged 50; a Fellow of the American Medical Association; a specialist in diseases of the eye; died at her home, December 9.

Walter Lear Williams, M.D., Mount Carmel, Pa.; Hahnemann Medical College, Philadelphia, 1903; aged 37; president of the Mount Carmel board of health; died at his home, December 3, from acute dilatation of the heart.

Joseph Philip Jones, M.D., Chicago; University of Michigan, Ann Arbor, 1890; a member of the Illinois State Medical Society; died at the home of his son, in Marcellus, Mich., November 25, from cerebral hemorrhage.

Lolita Belle Martinez, M.D., San Francisco; Cooper Medical College, San Francisco, 1908; aged 45; a member of the Medical Society of the State of California; died at her home, December 2, from cerebral hemorrhage.

Martin Van Buren Besemer, M.D., Ithaca, N. Y.; Homeopathic Hospital College, Cleveland, 1875; aged 76; a member of the Board of Directors in his alma mater; died at his home, December 3, from pericarditis.

Harry Pringle Robinson, M.D., Amesbury, Mass.; Harvard Medical School, 1902; aged 41; a Fellow of the American Medical Association; died at his home, November 28, following an operation for appendicitis.

Henry Ryan Marchman, M.D., Villa Rica, Ga.; Atlanta, Ga., Medical College, 1898; aged 48; a Fellow of the American Medical Association; died at his home, November 15, from cerebral hemorrhage.

Norman Wilson Knepper, M.D., Collins, Iowa; Long Island College Hospital, Brooklyn, N. Y., 1882; aged 63; also a dentist; died at his home, November 29, from cerebral hemorrhage.

Joseph H. Owsley, M.D., White Mills, Ky.; University of Louisville, Ky., 1870; aged 75; formerly a member of the Kentucky State Medical Association; died at his home, December 1.

Nelson L. Sweetland, M.D., Newark, Ill.; Rush Medical College, 1867; aged 73; a veteran of the Civil War; died at his home, November 21.

Thomas Henry Wayble, M.D., Toronto, Ohio; University of Wooster, Cleveland, 1883; aged 57; died at his home, August 21, from tuberculosis.

William F. Christ, Weissport, Pa. (registration, Berks County, Pa.); aged 83; died at his home, about November 23, from senile debility.

George R. Robbins, M.D., Hamilton Square, N. J.; Jefferson Medical College, 1870; aged 67; died suddenly at his home, November 30.

Arthur P. Woodward, Northfield, Minn. (license, Minnesota, exemption certificate, 1883); aged 65; died, about November 8.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

BROMIN-IODIN COMPOUND

Report of the Council on Pharmacy and Chemistry

"Bromin-Iodin Compound," according to the Bromin-Iodin Chemical Company, San Diego, Calif., has the following "formula":

Iodin	Gr. 1
Bromin	Gr. ¼
Phosphorus	Gr. 1/100
Thymol	Gr. ⅔
Menthol	Gr. ⅔
Sterilized Oil	fl. dr. 1

The only statement regarding its method of preparation is the line "Solution in Cod Liver Oil, Norwegian." According to the promoters "Bromin-Iodin" is:

> "A Powerful Anti-Tubercular Agent for Hypodermic Use in Pulmonary and Laryngeal Tuberculosis. Useful in other forms of Tubercular Diseases, and in Non-Tubercular Pulmonary Diseases of a Sub-Acute or Chronic Nature."

The "formula," in the form in which the manufacturers publish it, is either impossible or meaningless, according to the interpretation that may be given. It is impossible if it is intended to indicate the actual composition of the product because that would mean that the oil is alleged to contain free or uncombined iodin, bromin and phosphorus. Both on theoretical grounds and also in the light of the findings of the Chemical Laboratory of the American Medical Association, it is not possible that all these constituents can be present in the free state. The formula is meaningless if it is intended to convey the idea, merely, that iodin, bromin, phosphorus, thymol, menthol and sterilized oil are combined to form "Bromin-Iodin." In the absence of any details of the method of manufacture, it is futile to attempt to pass judgment on the actual composition of the preparation.

The use of an almost identical product (said, however, to contain only ½ grain iodin to each fluidram) was described in 1908 by Dr. Ingraham of Binghamton, N. Y., in "Five Years Successful Experience with a Special Mode of Treating Pulmonary Tuberculosis." In 1910 The Journal[1] characterized the preparation as "one of the innumerable 'treatments' for pulmonary tuberculosis that have arisen, had their day and, more or less gracefully, retired." If the preparation had value for the purpose for which it is recommended, its use during these twelve years should have secured its general recognition. There is no satisfactory evidence of its therapeutic efficacy. The Council refused recognition to Bromin-Iodin Comp. and, after submitting this report to the Bromin-Iodin Chemical Company, authorized its publication.

CASTROX

Report of the Council on Pharmacy and Chemistry

Castrox (The Purdue Newberry Co.) is a castor oil emulsion, claimed to contain castor oil 50 per cent., glycerin 10 per cent. with water and emulsifying agents. The advertised claims are that:

> "Castrox is prepared by a unique three day process with special apparatus and is more than 'just an emulsion.' It is a MUTUAL emulsion, for the oil and aqueous solution have been united without 'forcing'. . . "

The rules of the Council declare that: "The use of articles which are unessential modifications of official or established nonproprietary articles is unscientific and serves no useful purpose." The rules further explain: "The application of 'trade names,' protected or not, to official or established nonproprietary products tends to confusion and fosters many abuses."

The Council held "Castrox" to be an unessential modification of an established article, marketed under a proprietary name and with claims which give a false value to a simple castor oil emulsion. It was declared not admissible to New and Nonofficial Remedies.

MORE MISBRANDED NOSTRUMS

Smith's Kidney Remedy.—This was sold as a cure for Bright's Disease, Gravel, Stone in the Bladder, Stricture, Varicocele, etc., by Abner Harvey Duncan, trading as the Smith Medicine Co., St. Louis, Mo. Government chemists declared: "Product is a hydro-alcoholic solution containing glycerin, potassium acetate, trace of alkaloids, and laxative extractive plant drug." The claims were declared false and fraudulent. Defendant pleaded guilty and was fined $10 and costs.—[*Notice of Judgment No. 4154.*]

Hill's Syrup of Tar, Cod-Liver Oil Extract and Menthol.—Hollander-Koshland Co. (Inc.) of Baltimore was the defendant in this case. The preparation was declared to be "essentially a sweetened hydro-alcoholic solution containing small amounts of chloroform, menthol, morphin and tar; ipecac, tolu, cannabis indica, and wild cherry were indicated; cod-liver oil was absent." It was declared misbranded because the name indicated that the preparation contained syrup of tar, cod-liver oil and menthol, harmless medicinal agents, as its principal and most active ingredients, when its real active ingredients were chloroform, morphin sulphate, opium and cannabis indica. The claim that it was a remedy for "All Diseases of the Throat and Lungs and Asthma" was declared false and fraudulent. Defendant pleaded guilty and was fined $100.—[*Notice of Judgment No. 4171.*]

Mag-No Brand Liniment.—Leslie A. Knight, doing business as the Mag-No Company, St. Louis, Mo., was the defendant. Federal chemists reported that the liniment was "essentially an aqueous solution of ammonia flavored with sassafras oil and colored with a vegetable coloring matter." Sold as an effective remedy for Diphtheria, Rheumatism, Spavin, Scab in Sheep, etc. The claims were declared false and fraudulent. Defendant pleaded guilty and was fined $10 and costs.—[*Notice of Judgment No. 4176.*]

Radway's Sarsaparillian.—This product (alcohol 16.5 per cent.) was reported to be essentially a watery-alcoholic solution of sugar, potassium iodid, arsenic, a trace of alkaloids and certain plant substance. It was sold as a cure for cancer, falling of the womb, paralysis, diabetes, consumption, leucorrhoea, etc. These claims were declared false and fraudulent. Radway & Co. of New York, the defendant, pleaded guilty and was fined $50.—[*Notice of Judgment No. 4179.*]

Dr. Shoop's Diphtheria Remedy and Dr. Shoop's Preventics.—Dr. Shoop's Laboratories, a "patent medicine" concern of Racine, Wis., was made defendant. The "Diphtheria Remedy" was reported "to consist of sugar sirup with a very small amount of soluble chromate, glycerin, and salicylic acid." The claim that it was a cure for diphtheria was declared false and fraudulent. The "Dr. Shoop's Preventics" was reported to be "a tablet containing a small amount of unidentified vegetable extractive matter." It was sold as a "preventive of colds, fevers, grippe and pneumonia"; these claims were declared false and fraudulent. The defendant pleaded guilty to both counts and was fined $50.—[*Notice of Judgment No. 4186.*]

Hot X-Ray Porous Plaster.—The defendant in this case was T. A. Slocum Co., New York. The preparation was reported by the government chemists to be essentially a capsicum (cayenne pepper) plaster. It was sold as a cure for rheumatism, "kidney trouble," croup, pneumonia, angina pectoris, locomotor ataxia, etc., and the claims were declared false and fraudulent. Defendant pleaded guilty and was fined $75.—[*Notice of Judgment No. 4188.*]

N. H. Downs Vegetable Balsamic Elixir.—Henry, Johnson & Lord of Burlington, Vt., was the defendant in this case. The nostrum was reported by the federal chemists to be "a sweetened solution of opium, ipecac, glycerin, and small amounts of calcium, potassium, and iron compounds, flavored with anise." The claim that it was a remedy for consumption was declared false and fraudulent. The defendant pleaded guilty and was fined $50.—[*Notice of Judgment No. 4210.*]

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[1] June 4, 1910, p. 1884, reprinted in pamphlet "Consumption Cure Fakes" (price 10 cents), published by the American Medical Association.

Kopp's Baby's Friend.—Over 2,000 bottles of this "baby killer"[1] were seized by the government. The stuff contained 8.5 per cent. alcohol, and ⅛ grain of morphin sulphate to the fluidounce. The claims that it was a safe remedy or cure for wind colic, griping in the bowels, diarrhea, cholera infantum and teething troubles were declared false and fraudulent. The case was not defended. As no one appeared to claim the property, the court entered judgment of condemnation and forfeiture and ordered the United States marshal to destroy this dangerous fraud.—[*Notice of Judgment No. 4213.*]

Prof. Hoff's Prescription.—A preparation, originally known as "Hoff's Consumption Cure,"[2] marketed by Bendiner and Schlesinger, New York. Sold for the treatment of consumption, asthma, bronchitis, hay fever and "catarrh." Government charged that the curative, therapeutic and physiologic effects claimed for the nostrum were false and fraudulent. No claimant appeared for the property and the court ordered that the United States marshal should destroy it.—[*Notice of Judgment No. 4268.*]

Dr. Haynes' Arabian Balsam.—Lavinia A. Marsh, who traded under the name E. Morgan & Sons, Providence, R. I., manufactured this preparation which the federal authorities declared misbranded. It was sold under the claim that it was "the most perfect remedy ever known for . . . Erysipelas, Rheumatism . . . Piles . . . Croup. . . ." It was also recommended for deafness and diphtheria as well as for "loss of sight by Palsied Nerves." The federal chemists reported that the stuff appeared to be "a mixture of cottonseed oil, turpentine and oil of cumin." The claims were declared false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The defendant would neither admit nor deny the allegations, putting in a plea of *nolo contendere,* and the court imposed a fine of $20.—[*Notice of Judgment No. 4349.*]

Russia Salve.—This preparation, marketed by Redding & Co., Boston, Mass., was sold as a cure for conditions ranging from "cancers" to "mosquito bites" and from "swelled nose" to "ingrowing nails." The government declared that the curative claims were false, misleading and fraudulent. The Williams Manufacturing Co. of Cleveland, Ohio, appeared as claimant and admitted the allegations in the libel. The court permitted the product to be turned over to them after the cost of the proceedings had been paid and a bond of $2,000 executed, by which the company bound itself to remove all the labels and replace them with cartons and circular that should meet the approval of the Department of Agriculture.—[*Notice of Judgment No. 4301.*]

Opportunity for Research.—Sometimes one hears the complaint that the world has grown old; that the great discoveries have all been made; and that nothing is left to us now but to work out matters of sheer detail. Perhaps the great and constantly growing mass of rather uninteresting, but otherwise apparently meritorious scientific literature, increases this impression. At certain moments one may long for the past centuries when there was much less to read, and people seemed to have plenty of time to think, and to have endless material for new discoveries and projects. But in reality I do not think that there was ever more scope for new ideas and discoveries than there is at present.—J. S. Haldane: "The New Physiology," *Science,* Nov. 3, 1916.

Correspondence

Early Man and Meat Diet

To the Editor:—It is always a pleasure to read the editorials and comments of The Journal for their wide interest and eclecticism, but one cannot expect more than a narrowed discussion of a subject which at times will give an imperfect idea of it. Since my work has been quoted (The Journal, Oct. 21, 1916, p. 1234), permit me a few remarks on the ever recurring discussion on diet.

I believe I have made it clear that I give the anatomic argument only as a pointer in the right direction and not as convincing in itself. It has its place much more to refute an affirmation universally repeated in popular and even scientific books that man finds a justification of his carnivorous habits in his teeth and alimentary canal. The jaws of fruitarian monkeys and herbivorous camels have strong canines which no one invokes as a proof that they should live on animal flesh.

The subject is so complex that it is easy to find arguments for and against any view. The conviction that a fleshless diet is best for civilized man gathers its strength not only from anatomy, but also from physiology, pathology and the social sciences. In pathology, since my book was published, two main arguments of opponents have turned in favor of flesh abstention: Beriberi is cured with unpolished rice. Diabetes is treated by fasting and a diet mostly of vegetable origin.

It is not likely or desirable that people should change their habits abruptly; but, having a responsibility as counselors for the people in their life, we must take care that we are not more anxious to justify our ways and support our prejudices than to give a helping hand in the direction of progress.

Even at the risk of being considered lacking in breadth of views, I confess I see no point at all in the tapeworm argument. I know that some habits and structures of low forms of life are so invariable that they appear to have come from an immemorial past; but I am aware also that we know next to nothing of the inner causes of variations. All that can be safely said about them is that they "happen." Then what ground is there to presume that a variation of a given species either in form or habit has taken place a hundred, a thousand or a million years ago, especially when there are no geologic deposits to support one view or another? When it comes to biologic history, facts and their relation are so uncertain that they have no strength against sound experimental evidence of the present day.

There is no discussion about the fact that man can live and is adaptable to many kinds of foods. But this adaptability is in favor of any change that may commend itself through scientific findings, economic conditions and moral development.

I do not think we can condemn the use of animals for man's needs and comfort, but I think there are many abuses that need eradication. Animals are not made for man. I believe that our use of animals must be directed by the idea of an exchange of services. This may seem a far fetched proposition, and its working out theoretically might give rise to seeming impossibility.

There is a latent perfection in process of becoming that man has in himself and against which nothing can prevail definitely. This may be called a belief, if you will. There are some people who can live only by belief or faith, for they find very little comfort in mere existence.

J. L. Buttner, M.D., Château de Passy, Passy par
Véron (Yonne), France.
Assistant Surgeon, Hôpital 32 bis.

[Comment.—Our correspondent refers to the Current Comment on recent zoologic evidence that man and his ancestors have long indulged in three forms of animal food which today are commonly found in our markets. So far as the advocates of the fleshless diet, of whom Dr. Buttner has long been a recognized representative in the literature of vegetarianism (see Buttner, J. L.: A Fleshless Diet, New York,

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[1] See reports of deaths following use of "Kopp's Baby's Friend"; "Nostrums and Quackery," p. 431.

[2] See also report in "Nostrums and Quackery" (second edition) and in pamphlet "Consumption Cure Fakes," price 10 cents. The stuff had previously been declared misbranded under its old name (*Notice of Judgment No. 1551*). The previous government report reported the combined "treatment" to contain, among other things, morphin, codein, arsenic, alcohol and chloroform.

F. A. Stokes Company, 1910) appeal to a "belief" in the worth of their cause, they carry the questions involved beyond the realm of purely scientific discussion. The same is true of the advocacy of a dietary scheme which commends itself through "moral development." Physiology is not concerned with these purely ethical speculations, however fitting they may be in any scheme of human conduct. The *new evidence* quoted in favor of abstention from flesh does not appeal to us as at all convincing in respect to any inherent superiority of this plan. Beriberi is not relieved because of the superiority of unpolished rice over animal products as an antineuritic. Animal tissues can furnish the curative vitamin; in fact, it was through the use of meat that the disease was first controlled in the Japanese navy. And as for the modern dietotherapy of diabetes, surely fasting or semistarvation on a diet of green vegetables ought not to be adduced as indication of the triumph of the vegetarian propaganda.—Ed.]

Patenting of the Walsh Window Tent

To the Editor:—Among the advertisements in The Journal, Nov. 4, 1916, p. 66, I noticed one of the so-called Walsh window tent, which begins as follows:

> Four physicians invented it. The patents of Dr. W. E. Walsh, Dr. S. A. Knopf, Dr. J. H. Williams, and Dr. W. B. McLaughlin, are all combined and built into the Walsh Window Tent.

That I invented the first window tent which bears my name I do not deny. I protest, however, against the statement in this advertisement to the effect that I have taken out a patent. This device was worked out particularly for the benefit of the consumptive poor who cannot have the luxury of an outdoor porch. I feel that I ought to give the American medical profession an explanation of how this window tent came to be patented at all.

Dr. W. B. McLaughlin was my resident physician at the Health Department's Riverside Hospital-Sanatorium on North Brother Island, New York, at the time when I was experimenting with the tent. He offered to make a model for me, but it was unsatisfactory and I could not use it in connection with a paper on the subject to be read before the County Medical Society. The Kny-Scheerer Company made me another model, which I presented at the meeting. Nevertheless, in appreciation of Dr. McLaughlin's efforts, I published the paper which I had read before the County Medical Society, Feb. 27, 1905, under his and my name in the *New York Medical Journal,* March 5, 1905. Although he had been urgently invited to be present at the meeting of the County Medical Society and share in the reading of the paper, Dr. McLaughlin did not come, and the next thing I heard was that he had taken out a patent on the window tent in his name. He made arrangements with the manufacturers of the window tent to receive a royalty for each tent made, and later on sold the patent to the Walsh Window Tent Company of Quincy, Ill.

I interviewed patent lawyers to find out what I could do to contest the unjust patenting of a life-saving and health-giving device. I was told that such a suit was likely to cost several thousand dollars, and since Dr. McLaughlin had complied with all the legal requirements prior to taking out the patent, the outcome would be doubtful. I did not feel that I could afford to risk such a large sum, but in my popular writings on tuberculosis, including my international prize essay, I made it a point thereafter to describe the mechanism of the tent completely so that any one handy with tools could make one for himself.

S. A. Knopf, M.D., New York.

The Country Practitioner as the "Goat"

To the Editor:—From a perusal of the extracts of discussions at the last meeting of the American Association for the Study and Prevention of Infant Mortality (The Journal, Dec. 9, 1916, p. 1785), it appears that the rural practitioner is the cause of all evils in rural obstetrics.

One speaker said, "These men [rural doctors] are sent out from our medical colleges and schools with nothing but a smattering of knowledge of the mechanics of childbirth," but failed to say that in the same graduating class are men who decide to cast their lot in the city, and according to the same theory should bungle things in an obstetric manner in the city. I, for one, believe that the average rural practitioner is just as capable as his city classmates, if not more so.

The conscientious country doctor makes as many after-calls and is as anxious for a successful puerperium as the city man. It behooves the rural practitioner to be successful in this line of work, since much of his practice is of this kind; and if he fails to make good it means general failure.

True, as was said, he is often confronted by a number of obstacles of which the city man, who has his nurse on the case to depend on, knows nothing. He must act as physician and nurse too, and manages to do pretty good work at that.

There undoubtedly is plenty of room for improvement, not alone in the country but also in the city, before the ideal obstetric condition will be reached, and we can only hope that sometime in the future we may have all the advantages which our city friend has.

Erwin C. Cary, M.D., Reedsville, Wis.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SLEEPINESS AS A SYMPTOM

To the Editor:—Please refer me to literature on sleep and sleepiness as a presenting symptom in disease, or advise me in what conditions or diseases, other than trypanosomiasis and catalepsy, sleep is a marked symptom. I have two cases in which sleep is the only marked symptom, and a diagnosis is yet to be made.

B. L. Liggett, M.D., Mill Creek, W. Va.

Answer.—A reference to the literature on the subject of sleepiness is impracticable. The causes are so varied and numerous that it would be like a reference to the literature of medicine. Sleepiness or drowsiness may occur as a symptom in many diseases, for instance: anemia, atony of stomach (after meals), abscess of brain, asphyxia, acute yellow atrophy, alcoholism (acute), bromism, cerebellar disease, chlorosis, cold (intense), commencing coma, concussion of brain, delirium tremens, dilatation of the heart (daytime), dyspnea (severe), embolism (clot, or fat), encephalitis, epilepsy, gangrene of lung, hematoma of dura mater, hydrocephalus, hysteria, hemophilia, hookworm disease, intermittent fever at end of paroxysm, pernicious intermittent jaundice, lithemia (after meals), liver disorders, meningitis (simple, tuberculous or cerebrospinal), narcotic poisoning, chronic nephritis, neurasthenia, petit mal, plague, remittent fever, spina bifida, softening of the brain, septicemia, trypanosomiasis, chronic gas or narcotic poisoning, typhus, typhoid, typhic state, uremia and Winkel's disease.

R. Goiffon has recently published a general review of digestive narcolepsy (*Arch. d. mal. de l'app. digestif,* 1916, ix, 95).

RESPONSIBILITY OF SURGEON

To the Editor:—Could you give me any special information regarding the responsibility of the surgeon in the operating room, that is, whether his responsibility ceases the moment he is through operating, or whether it continues until the patient is safely on his way to his room? Also, as to the responsibility of a private hospital for the actions of its nurses while they are under the operator's orders in the operating room?

A. H. F.

Answer.—The question is not clear as to the point involved. No definite rule can be laid down applicable to all cases as to when the responsibility of the surgeon ceases after an operation, as it depends on the facts in the particular case. As a general rule the surgeon is responsible for his own acts and the acts of his assistants. If the surgeon owns the hospital or personally employs the assistants, he would be responsible for any damage done the patient as a result of negligence on the part of any one connected with the hospital. If the surgeon is in no way connected with the ownership of the hospital, and has nothing to do with the employment of the help, the responsibility for damage to the patient, due to negligence other than that of the surgeon, would rest on the hospital.

For acts done by the personal assistants of the surgeon, if done under his direction and supervision, the surgeon would be held responsible, whether done during or after the completion of an operation; but for a harmful act done by the surgeon's assistant (a medical man) on his own initiative without the knowledge or consent of the surgeon, the surgeon would not be responsible.

It is the duty of the surgeon to see that the patient after an operation is placed in safe, competent hands, and he would be held liable for any harm that might come to the patient as a result of going away and leaving the patient on the operating table, while coming out from under the influence of an anesthetic, even though the operation were entirely finished, without seeing that a competent, reliable person was left in charge.

It will be necessary to know the particular facts in the case in order to formulate a more definite answer.

THE RECTAL TUBE AND HIGH INJECTIONS

To the Editor:—Your answer to the query on this subject (The Journal, Dec. 2, 1916, p. 1688) was very comprehensive and complete, and should be convincing. All rectal surgeons have been curious concerning the function of the rectum and pelvic colon, and, together with the roentgenologist, have solved many of their problems. We know that the yielding tube can be passed, with certainty, into the pelvic colon only through a sigmoidoscope. No one uses the term "sigmoid colon" now.

For high injections, the high introduction of a tube of any sort is quite unnecessary. When fluid is run under a steady pressure of 3 feet from a funnel or a douche can, through a tube, into the intestine, it will reach the cecum without difficulty, as is demonstrated daily in any complete Roentgen laboratory. It is quite unnecessary to assume any special position, or series of positions, which are usually suggested. The fluid runs in easily when the patient lies on the back. Low pressure injections are passed into the pelvic colon with difficulty sometimes on account of that organ being held in the pelvis, and its flexure with the rectum being acute. Increasing the pressure for a few moments will overcome the resistance, and fluids will reach the cecum in a short time. Any tube which passes the internal sphincter muscle is long enough for a "high injection."

Doubting Thomas will rise to be heard from time to time, and proof will be demanded. This is readily furnished by the roentgenologist; but the progress of a fluid in the colon may be demonstrated by palpation, percussion and the aid of a stethoscope.

C. C. Mechling, M.D., Pittsburgh.

SACCHARIN AND GLYCERIN IN DIABETES

To the Editor:—How are saccharin and glycerin regarded as sweetening substances in foods in diabetes?

A. F. Kingsley, M.D., Battle Creek, Mich.

Answer.—In experimental diabetes in lower animals, it was found that the administration of glycerin led to a reduction in the amount of sugar excreted. This substance was then tried in human diabetes, and some favorable results were reported. Recently little has been said concerning it. In large quantities, glycerin is not innocuous. As a sweetening agent it has been replaced by saccharin. Saccharin is said, by some observers, to slow the action of the digestive enzymes. This retarding influence, however, seems negligible in such quantities as can be administered for sweetening purposes. According to Food Decision 142 of the Department of Agriculture, the referee board found that saccharin in quantities exceeding 0.3 gm. a day, was liable to cause digestive disturbance. Provided this quantity is not approached, saccharin may be regarded as therapeutically unobjectionable as a sweetening agent in diabetes.

LACTÉOL

To the Editor:—I should like any information which can be obtained of a preparation known as lactéol du Dr. Boucar of Paris. Is the ormula known? It is supposed to be a lactic acid ferment.

X. Y. Z.

Answer.—Lactéol appears to be one of the many lactic acid ferment preparations. The advertising material is of he usual exaggerated character, suggesting that lactéol may e considered a prophylactic measure against diseases of ntestinal origin in which, at least by inference, are included ot only typhoid fever, appendicitis, etc., but also dermatoses, uch as eczema, urticaria, herpes, acne and psoriasis, hepatic nd renal disturbances, arteriosclerosis, migraine and cardiac iseases. When considering the fact that the preparation is made in Paris, it should be borne in mind that since bacteria n lactic acid ferment preparations are not long lived, mported cultures may be inactive by the time they are used n this country.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 9. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 3. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 2. Sec., John Wix Thomas, 306 Goodrich Bldg., Phoenix.

California: Sacramento, Jan. 9. Sec., Dr. C. B. Pinkham, Forum Bldg., Sacramento.

Colorado: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Illinois: Chicago, Jan. 24-25. Sec., Dr. C. St. Clair Drake, Capitol Bldg., Springfield.

Indiana: Indianapolis, Jan. 9-11. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

Minnesota: Minneapolis, Jan. 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

New Mexico: Santa Fe, Jan. 8. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: New York City, Albany, Syracuse, and Buffalo, Jan. 29-Feb. 2. Chief, Examinations Division, H. H. Horner, University of the State of New York, Albany, N. Y.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 9-10. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Oregon: Portland, Jan. 2, Sec., Dr. Herbert S. Nichols, 802 Corbett Bldg., Portland.

Pennsylvania: Philadelphia, Jan. 9-11. Sec., Nathan C. Schaeffer, Capitol Bldg., Harrisburg.

Rhode Island: Providence, Jan. 4-5. Sec., Dr. G. T. Swarts, State House, Providence.

South Dakota: Pierre, Jan. 10. Sec., Dr. P. B. Jenkins, Waubay.

Washington: Spokane, Jan. 2. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. 2d St., Ashland.

Illinois June Report

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, June 21-23, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 281, of whom 230 passed and 51 failed. Six candidates did not complete the examination. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Bennett Medical College	(1915)	2
Chicago College of Medicine and Surgery	(1913) (1914, 2) (1915, 3) (1916, 62)	68
Hahnemann Medical College and Hospital, Chicago	(1916)	9
Jenner Medical College	(1913) (1916, 2)	3
Loyola University	(1916)	25
Northwestern University	(1916)	17
Rush Medical College	(1915) (1916, 36)	37
University of Illinois	(1915, 2) (1916, 46)	48
University of Louisville	(1916)	2
St. Louis University	(1915, 4) (1916, 11)	15
Eclectic Medical College	(1916)	1
Ohio State University	(1916)	1
University of Pennsylvania	(1906)	1
University of Toronto	(1910)	1
FAILED		
Howard University	(1914)	1
Bennett Medical College	(1914) (1915)	2
Chicago College of Medicine and Surgery	(1915) (1916, 9)	10
Chicago Hospital College of Medicine	(1915)	3
Hahnemann Medical College and Hospital, Chicago	(1914) (1916)	2
Illinois Medical College	(1910)	1
Jenner Medical College	(1915) (1916, 2)	3
Loyola University	(1916)	14
Northwestern University	(1916)	2
Reliance Medical College	(1911)	1
Rush Medical College	(1916)	1
University of Illinois	(1914) (1916)	2
University of Louisville	(1913)	1
Detroit College of Medicine	(1904)	1
Minnesota College Hospital	(1884)	1
National University of Arts and Sciences	(1916)	1
Meharry Medical College	(1913) (1915, 2)	3
University of Moscow	(1895)	1
University of Geneva	(1899)	1

Virginia June Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 17-20, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 96, including 1 osteopath, of whom 86 passed and 8 failed, including 1 osteopath. Twenty-one candidates were licensed through reciprocity. One candidate did not complete the examination and one withdrew. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1916)	83
Kentucky School of Medicine		(1882)	84
College of Physicians and Surgeons, Baltimore		(1895)	75
Johns Hopkins University		(1916)	85
University of Maryland (1915) 84;		(1916)	78, 88
Boston University		(1916)	81
Columbia University		(1916)	90
Hahnemann Medical College and Hospital of Philadelphia		(1916)	79
Jefferson Medical College of Philadelphia		(1916)	83
University of the South		(1899)	84
Vanderbilt University		(1916)	83
Medical College of Virginia (1914) 80; (1915) 75, 80, 80, 81; (1916) 75, 75, 75, 75, 75, 76, 76, 76, 76, 76, 77, 77, 78, 79, 79, 79, 79, 80, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 84 84, 84, 84, 84, 84, 85, 85, 85, 85, 86, 86, 86, 87, 87, 87, 87, 88, 88, 90, 94.			
University of Virginia (1916) 75, 78, 83, 83, 84, 87, 87, 87, 88.			
McGill University		(1913)	84
	FAILED		
National Medical University		(1906)	68*
Baltimore University		(1894)	51
North Carolina Medical College		(1915)	63
Meharry Medical College		(1915)	63
University of West Tennessee		(1916)	62
Medical College of Virginia (1912) 61;		(1916)	64

* Graduation not verified.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Columbian University	(1898)	Dist. Colum.
George Washington University	(1910)	Dist. Colum.
Atlanta School of Medicine	(1909)	Georgia
Bennett Medical College	(1914)	W. Virginia
University of Louisville	(1914)	Kentucky
College of Physicians and Surgeons, Baltimore	(1905)	N. Carolina
	(1909)	W. Virginia
University of Maryland (1911)	(1914)	Maryland
Leonard Medical School.. (1906) North Carolina;	(1913)	W. Virginia
North Carolina Medical College (1914) Maryland;	(1915)	N. Carolina
Jefferson Medical College of Philadelphia	(1914)	N. Carolina
Medico-Chirurgical College of Philadelphia	(1899)	Penna.
Medical College of the State of South Carolina	(1910)	S. Carolina
Lincoln Memorial University	(1915)	Tennessee
Medical College of Virginia (1900) West Virginia;	(1914, 2)	N. Carolina
Manitoba Medical College	(1907)	Manitoba

Washington July Report

Dr. C. N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Tacoma, July 4-6, 1916. The total number of subjects examined in was 11; total number of questions asked, 121; percentage required to pass, 75. The total number of candidates examined was 37, of whom 33 passed, including 6 osteopaths, and 4 failed, including 2 osteopaths and 1 chiropractor. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	90.7
George Washington University		(1912)	79.4
Rush Medical College (1892) 83.2, *;		(1902)	80
Loyola University		(1916)	89.5
University of Louisville (1910) 87.1;		(1916)	85.5, 92
College of Physicians and Surgeons, Baltimore		(1915)	91.8
Johns Hopkins University (1912) 86.5;		(1914)	93.7
University of Michigan Medical School		(1916)	81.9
John A. Creighton Medical College		(1916)	78.8
Starling-Ohio Medical College		(1913)	85.4
University of Oregon..(1908) 80.9; (1915) 80.7, 93.2;		(1916)	79.7, 87.9
Jefferson Medical College (1914) 81.3;		(1916)	82.2, 82.9
University of Vermont		(1903)	76.8
McGill University		(1914)	83.6, 84.3
Sai Sei Medical College†		(1892)	*
	FAILED		
Bennett College of Eclectic Medicine and Surgery		(1883)	*

* No grade given.

† The name of this college does not appear on the official list of existing Japanese Medical Schools.

Connecticut Homeopathic August Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports that one candidate, a graduate of the Boston University, School of Medicine, in 1907, was licensed, Aug. 15, 1916, through reciprocity with Massachusetts.

Social Medicine, Medical Economics and Miscellany

HOSPITAL PROBLEMS OF GONORRHEA AND SYPHILIS *

JOHN H. STOKES, M.D.
Rochester, Minn.

Sexual disease is only just beginning to obtain recognition as a hospital problem. The scanty attention it has received has been due less to ignorance of its importance than to deliberate refusal to deal with it. Two recent estimates agree in showing that, excluding frank syphilis, about 6 per cent. of all patients undergoing treatment in a general hospital have positive Wassermann reactions. Another report mentions 16 per cent. positives in 500 cases. Only 2 per cent. of these were diagnosed clinically as syphilis. This is "incidental syphilis," so to speak. For syphilis frank and uncomplicated, few hospitals profess to make any provision whatever. In 1914 it was estimated that the city of London, with a population of 7,000,000, had 163 beds actually available for the care of sexual diseases. The Sydenham Royal Commission has just found the same condition throughout Great Britain. Of thirty general hospitals in New York City, a recent investigation showed that only ten receive recognized cases of syphilis in active stages. Nine receive adult cases of gonorrhea needing hospital attention, and three receive and treat active gonorrhea in little girls. Thirteen of thirty will not even receive medical cases with known syphilis or gonorrhea. Detroit until recently made no provision for hospitalizing active sexual disease, but has now developed two clinics. Chicago has the Cook County Hospital, the only open special service I know of in the city—200 beds to 2,000,000 people. The problem exists — it has simply been ignored. Pontopidan, on the basis of a large experience with the Danish system, estimates that one bed to 2,000 of the population is insufficient for the adequate care of sexual diseases. How desperately we need a general survey, to show us the extent to which we fall short even of this ideal, can be imagined.

The problem of the hospitalization of sexual disease is interwoven with the venereal stigma. The first effort in the development of hospital service for the sexual diseases must be directed at breaking up the venereal connotations and clearing up the confusion of medical and moral issues which have muddled our outlook. As a practical illustration, the customary association of syphilis and gonorrhea on a service seems to me to contribute little to the care of either, and to favor directly the perpetuation of the venereal stigma on them both. Gonorrhea can be smuggled into the hospital under the cloak of genito-urinary surgery, and syphilis under that of diseases of the skin, since dermatologic opinion is so essential to the diagnosis of the disease during a large part of its course. Such an evasion sidesteps a temporarily unmanageable public prejudice and ignorance, and allows us to proceed at once with practical measures while the slow work of reeducating sentiment is carried on.

Making sexual disease the province of the general, and not of the special venereal, hospital is another form of the same method to break the force of the venereal stigma. This principle has been recognized most recently in the recommendations of the Sydenham Commission, and is now incorporated in the provision being made by the Local Government Boards of Great Britain for the care of these diseases. We would be retrogressing, I believe, if we subscribed to any other point of view in this country. Nothing will go farther to popularize good treatment than to make the recipient of it inconspicuous.

Speaking now directly about syphilis, with which I am more familiar, eight ways occur to me in which the general hospital can contribute to the management of the disease:

1. *A Study of the Entering Patient by a Serologist.*—A competent serologist in a hospital laboratory can detect the disease in 6 per cent. of the hospital population in whom it is more or less concealed. The routine Wassermann test on

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* From the Mayo Clinic.

* Read before the American Public Health Association, Cincinnati, Oct. 25, 1916.

entering patients is then an ideal to be striven for, and will ultimately take its place with urinalysis and the estimation of blood pressure as part of an adequate examination. Darkfield equipment should also be installed to aid in the quick diagnosis of acute cases, doubtful mucous recurrences, etc. Such recognition of entering syphilis is insurance for the staff, in whom, in general, house infection is too common and entirely avoidable.

2. *Prolonged Observation.*—Prolonged observation of a patient in a hospital under control is an asset in the care of any disease, and in none more than syphilis. The brilliance and éclat of even reasonably effective therapy often leads one to slur over the valuable impressions as to the patient's resistance and reaction which have been gained by deliberate and painstaking observation of the case from day to day. The carefully made chart, and the cooperative opinions of aurists, ophthalmologists and internists based on continued study have a special value in outlining prognosis and determining future treatment. The treatment of active hereditary syphilis was first recognized by Welander as the province of the school-hospital, an institution as yet unknown for this disease in this country. Lumbar puncture should also, in my opinion, be a hospital procedure.

3. *Intensive Treatment.*—The most intensive treatment of syphilis, especially before the patient's tolerance and condition have been determined, is best carried out, in my opinion, not under ambulatory conditions, but in the hospital. This is especially true of the administration of salvarsan, the first injection of which may be followed by sharp reactions even with graded doses, and later by imperative warnings of intolerance. Ambulatory technic for this treatment necessitates reductions in the later dosage and lengthening of the intervals. The clinician's control over his technic and procedure, sacrificed when the patient is allowed to go unobserved after the injection, is vital to long-run successful results and should, I believe, become a standard and universal feature of our practice.

Severe constitutional involvement in early syphilis is not uncommon and deserves hospital care. Even the milder grades of infection make striking gains under diet and rest, both of which are valuable adjuncts to specific treatment of which the patient can seldom avail himself outside of a hospital. The accidents of late syphilis in viscera and nervous system usually profit by and deserve hospitalization.

4. *Quarantine.*—As a contagious disease, syphilis in many cases needs hospitalization for temporary quarantine. Especially is this true of the irresponsible and ignorant, who should be compelled to accept it if necessary. Temporary sterilization by a single dose of salvarsan in the dispensary carries with it serious later risks of neurorecurrences, and is hardly a substitute for the inhibitory effect, for example, of a series of three doses in six days, such as hospital control permits. Quarantine, deliberate study and massive treatment effects, these three alone, justify and make imperative beds for all syphilitics in active stages of the disease.

5. *Social Aspects.*—I am fond of comparing the hospital service for syphilis with the sanatorium for tuberculosis. It is essentially a sanctuary for many, and provides, moreover, a place and opportunity to reconstruct and rehabilitate the victims of one of the most peculiarly distressing of human ailments. Morale forms an important though often little appreciated factor in the course of the disease, and social responsibility must be made to reach a high plane in the victims of syphilis if those around them and society at large are to be protected from harm. In the comparative calm and sequestration of the hospital, separated for a short time from the bustle of affairs, and under the influence of far-sighted and humane physicians, impressions and suggestions can be made with greater hope of permanence than under average outside conditions, and more prolonged and effective cooperation for cure established and maintained.

6. *Treatment Control.*—I should like to urge, without excluding the dispensary from the field, the possibilities of the hospital clinic for syphilis as a center for treatment control. Haphazard and incidental care mars the whole modern scheme for the effective treatment and cure of the disease. A little treatment may be worse than none at all. Yet this is all the average patient gets. "Pillar to post" summarizes his fate. Of all things, he needs most one central governing power, always interested in his condition, always directing his course toward cure, always in full possession of the facts about his case. Patients seize on this idea with avidity, and I am encouraged to attempt a practical scheme of the sort for the Rochester service. The prestige of a hospital, its disinterested character, the ample facilities for the development of the necessary record and follow-up system, all make it potentially an effective instrument for this sort of work.

7. *Cooperation.*—Those who work with syphilis in hospital and dispensary, trying to carry through modern methods of cure, realize that outside medical cooperation, when it must be used, too often proves a weak tool. Lack of cooperation, lack of the spirit of cooperation, lack of the common knowledge and methods which make cooperation possible, lie at the bottom of it. The patient gets pills when we know he needs rubs, or iodids when he should be saturated with mercury. The hospital service has it in its power to spread higher ideals of treatment, and to illustrate them to physicians who wish to cooperate with it in the care of its patients. It is not beyond reason for a clinic to maintain a register of physicians who have taken the trouble to visit it and ascertain its methods, and besides offering them valuable information, regard them as a sort of cooperative outside staff, and refer patients to them for intelligent care. Such a reference list of men who will treat patients sent them by methods in harmony with those of the central bureau, and in cooperation with it as well, seems worth trying for, at least to one who has daily reason to appreciate the chaotic condition of syphilitic therapy among physicians in general practice.

8. *Facilities for Study.*—The service of the hospital to the cause of investigation and research is, I believe, unique, and in no field more so than that of syphilis. The struggle to do effective, basic, original work under the limitations of dispensary practice carries impossible odds. A shifting material, a hiatus between each two periods of observation, a line-up always pressing forward for more and more superficial attention, is no foundation for painstaking work. He is a hero who makes head against it. May the gods save us from the torrent of patients, the struggle with inadequate assistance, the sodden burial of our ideals under tons of routine. A service of even a few beds with a small laboratory and an organization that saves to its staff a few precious hours of leisure in which to mull over its patients, to know them, to sit on a stool and watch them, absorbed in thought, is a powerful force in the development of originality, and may be the nurse of genius.

The practical problems of organization of a bed service must vary with local conditions, and cannot be detailed in advance. They differ widely from those of the dispensary. If there is an attending physician, or if a clinician is invited to join the staff, the fewer his outside interests the better. As in many other fields of medicine, the advent of the full-time man will be, I believe, an advance worth the cost. When the senior is not on full time, I would urge a permanent resident who should be a student of the disease, living in the midst of it, and having the *savor faire* and qualities of heart and mind which enable him to appreciate it as a social and psychologic as well as a medical problem. Rotating-service interns should study the disease only under his control and direction, and those with merely perfunctory attitudes of mind toward it should be carefully excluded.

A hospital service for syphilis may be pay or free. As the state grows to larger appreciation of its responsibilities, we may perhaps look forward to the latter ideal, now embodied in the Scandinavian and Italian systems, and foreshadowed for us in the action of the state of Michigan in its recent provisions for the care of sick children and adults. In the interregnum between *laissez faire* and this new ideal, however, there is a place for the pay service for those of moderate means, who usually fall heavily between the two stools of high-priced specialism and the charity clinic. Such a pay hospital clinic, limiting its field, is under the necessity of protecting itself on the one hand from "dead beats," and on the other from dissatisfied and unmanageable wealth. The requirement that a reasonable fraction of the fee, especially for salvarsan, be deposited in advance, disposes of many of the former, and is a proper feature of the business management, provided it be administered with such discretion that special distress and worthiness can have help occasionally.

The mechanics of operating a service in a hospital involve complexities that do not appear on the surface, and are more or less *sui generis*. The necessary protection of the incognito of the better and more sensitive types of patients flatly precludes herding or labeling methods. Venereal wards are as unsocial and unintelligent a provision for syphilis as a venereal hospital would be, and make hospital care a luxury limited to "down-and-outs." Self-respecting people will not avail themselves of it. The private room is the nearest approach to the ideal. On my service at Rochester I hope to develop this sort of care to a fine point, and thus far I have found that it makes an appeal. The suppression of gossip, careful guarding of correspondence, and protection of the records are all necessary. Prying eyes must be kept out. Privacy in treatment must be provided, doing away with salvarsan line-ups, etc., and the utmost care taken that when patients are thrown together, innocently infected and unsophisticated persons are not brought under the influence of black sheep. If isolation wards are used, it is a constant struggle to keep them from being stigmatized by gossip. Attention to these details makes the advantages of inpatient care, continuous or intermittent, available to all who deserve protection and consideration.

As a contagious disease, syphilis is, of course, a problem only in the primary and secondary stages. Even at its worst, its infectivity in the hospital is scarcely comparable to that of tuberculosis or even typhoid, since the organism has an extremely low vitality. In the hospital, dangerous syphilis is unrecognized syphilis, and against it the routine Wassermann test and the service for the disease are valuable protection. Patients with active syphilis should be confined to their rooms until, after salvarsan has been administered. Their dishes should be phenolized or boiled. A "precautions" routine that I devised for the use of nurses describes the calomel prophylaxis provided in the medicine rooms in case of possible accidental inoculation, the dangers of the pricked glove, the immersion of thermometers, disinfection of instruments, and the buccal and anogenital lesions of the disease, with the risks involved in approaching them. Panic and syphilophobia in medical staff and nurses is occasionally ludicrous and sometimes exasperating, but controllable by a little tact and common sense.

Records, follow-up and outside medical cooperation should be integral parts of one another, and between the three it ought to be possible, in the ideal system, to obtain for any one case a complete panoramic picture of the disease from incidence to cure. Included in the record should be notes describing the character of the cooperation of both patient and outside physician. A generation of such records would be a priceless picture of the treatment of the disease in modern times, and an authentic and convincing basis for legislation looking to its social control. As a practical skeleton for such a system I have been interested in that in use for surgical cases in the Presbyterian Hospital, New York. The importance of social service and visiting nurses, especially in connection with familial syphilis, is easily appreciated.

Interdepartmental cooperation within the hospital is vital to the efficiency of a service for syphilis. The holding back of syphilitic cases by other clinics on the one hand, or the failure of the department for syphilis to extend ready cooperation outside of its own wards on the other, impairs efficiency. The creation of the department by voluntary act of the hospital staff, and unhesitating and complete transfer to it of all the responsibility for the care of syphilis is the sine qua non, and without it men of high caliber will not find it worth while to give the service their attention. On the other hand, the clinician in charge of the work should not lose sight of the wide clinical bearings of the disease, and should maintain the interest of his colleagues in the progress of their cases under his care as well as in the diagnosis.

I have found that gonorrhea can be handled satisfactorily by the department of genito-urinary surgery among adults in a general service, or as a complication of syphilis. In hospitals for children and in lying-in hospitals, it is a dangerous contagious disease, and should be managed with the rigidity observed for diphtheria. I recall an epidemic in a children's ward traced by inference to the visits of infected patients from a near-by maternity home. There is nothing more distressing than the way in which a pediatrician may wake up some morning to find half a dozen little girls in some seemingly well-managed ward ruined for life by gonorrheal vulvovaginitis. A large hospital adhering to the venereal classification placed some heredosyphilitic children in a ward in which there were cases of gonorrheal vulvovaginitis, in spite of the protests of the pediatrician, and calmly permitted the little syphilitic girls to add the vulvovaginitis to their woes. The arthritic complications of gonorrhea seem to me to be legitimately within the province of genito-urinary work, since prostatic manipulations, etc., may well be part of the treatment, and these demand special knowledge of the genito-urinary tract. The follow-up on gonorrhea is fully as essential as that on syphilis, and might well follow the same lines.

The problems of gonorrhea and syphilis are not to be handled by any one agency to the exclusion of all others. Each one has its place, and each its problems with which it must perforce deal. It is no more possible to rate such diseases exclusively as hospital problems than it is to regard them solely as dispensary problems. Only in proportion to its ability to fill its place in a cooperative scheme will the hospital find its greatest usefulness.

I have touched elsewhere[1] on the value of the hospital in the study of gonorrhea and syphilis as diseases, not only of the physical body, but of the social *milieu* in which we move. The effort to understand and get back to first causes in the ideals, the daily life and the mental outlook of the victims of these diseases is a basic part of a public health movement against them. The opportunities offered by the hospital for intimate personal contact can create in this field a new type of physician to succeed the old family doctor—a physician who, though a specially trained clinician, has not lost by that fact the insight into the fundamentals of human nature which marks the student of life as well as the student of medicine. The studies of men trained to such an outlook in this field will, I believe, contribute much to the prevention of "half-baked" and premature legislation. Moreover, they will be a factor in the positive and constructive, rather than in the merely negative and prohibitive point of view which must dominate any successful campaign.

COURT RULES CORPORATIONS NOT FOR PROFIT MAY ELECT TRUSTEES OR DIRECTORS OUTSIDE OF STATE

People ex rel Hoyne,
vs. } Heard, J.
Lutz et al.

Saturday, Dec. 16, 1916.

Present: Mr. Stedman and Mr. Scofield.

The Court:—The statute, of course, provides for several different kinds of corporations in this state, one of them being corporations for pecuniary profit, and another corporations not for pecuniary profit, and others, religious societies, etc., homestead societies and different societies under the law. The provisions of the law with reference to these different societies are all different. Of course, the old idea originally was that a corporation was simply confined to the state or sovereignty which gave it birth. That rule, of course, has been a great deal modified since that time.

It is suggested here that because a phase of this matter had been before the Appellate Court twice, that their decisions in those cases were binding here. If this were the same case, of course, the court would be absolutely bound by that case. I consider this is an entirely different case, and the decision of the Appellate Court in that case is not binding.

It is said that it is contrary to public policy to allow the trustees to be elected at meetings held outside of the state of Illinois. The public policy of the state, as I understand it, is to be found in its statutes and the decisions of the court;

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[1] Stokes, J. H.: The Inpatient Hospital in the Control and Study of Syphilis, Social Hyg., 207, ii, 1916.

so that on this subject we do not find that the contention is borne out that this is against public policy.

The provision of the constitution to which my attention is called simply applies to corporations for pecuniary profit, and not corporations or societies of this kind.

Section 32 of the statute provides: "Corporations, associations, and societies, not for pecuniary profit, formed under the provisions of this Act, may elect trustees, directors, or managers from the members thereof, in such manner, at such times and places, and for such periods, as may be provided by the certificate of incorporation, or in case such certificate does not contain such provisions, then, as may be provided by the by-laws, which trustees, directors, or managers shall have the control and management of the affairs and funds of the corporation, society or association. Said trustees, managers or directors, may, upon consent"—giving their duties.

The certificate of incorporation in this case said that the directors should be elected in such manner as provided by the by-laws, and the by-laws provided that—

Mr. Stedman:—I didn't so read it, if your Honor please. Counsel so stated it, but—never mind—that is not correct.

Mr. Scofield:—It is absolutely correct, and his statement—

Mr. Stedman:—I am not debating it.

Mr. Scofield.—His statement that it is not correct is as correct as his statement in regard to the Derry Council case.

THE COURT:—Here is the proposition: That construction would place a limitation upon this act which would destroy the usefulness, not only of this particular organization but of hundreds of other organizations of exactly the same kind, and among them some of the oldest and most established organizations there are in the country, which are carrying on their proceedings in exactly the same way.

There is not a day passes scarcely but what some national society meets here in the city of Chicago. Their usefulness depends on their meeting in different places throughout the United States. The American Bar Association meets in different places. The general bodies of all the different religious societies meet in different places throughout the country. There is scarcely any branch of trade but what has its national association meeting in different parts of the country.

Now, of course, it is contended that their habitat cannot be changed. Of course it cannot, but this is not a question of habitat. The habitat always remains the same, the domicile remains the same, but its place of exercise of its power may be somewhere outside of the state of Illinois.

I think that the demurrer should be sustained in this case. You can get up an order.

An appeal was requested and allowed.

Researches on Gas Gangrene

M. Weinberg (*Proc. Roy. Soc. Med.*, July, 1916) reports on the use of an active serum with the three most pathogenic organisms of gas gangrene—*Bacillus perfringens*, the *Vibrion eptique* and *Bacillus œdematiens* in the treatment of gas gangrene. The serum was tried in fifteen cases. It was bsolutely inefficacious in five cases of septicemia due to B. *perfringens;* but in five other cases, not complicated with epticemia, the intravenous injection of this serum was rapidly ollowed by amelioration of the symptoms both local and eneral. Weinberg says that his bacteriologic study has hown that the anti-*Bacillus perfringens* serum has had a avorable influence in those cases of gas gangrene in which *B. erfringens* was the chief pathogenic organism of the flora. Weinberg believes that the antitoxic serum obtained with the oxin of the *Vibrion septique* or *B. œdematiens* will have a reater preventive than curative action. From experiments n animals he found that these toxins become so rapidly tached to the nervous system that it is very difficult to cure n animal even as little as half an hour after one fatal dose f toxin has been injected intravenously. In the author's pinion the best practical method of dealing with such a ase of gas gangrene is to inject immediately in the wound nd the neighboring tissues a mixture of the serums of the ree microbes mentioned above. A rapid bacteriologic investigation then made by an expert will show which serums must continued.

Medicolegal

Two Illegally Practicing Medicine Cannot be Treated as a Joint Offense

(*State vs. Hendricks et al.* (*Mo.*), *187 S. W. R. 272*)

The Kansas City Court of Appeals reverses a conviction of the defendants who were jointly indicted for practicing medicine without a license from the state board of health in violation of Section 8315 of the Revised Statutes of Missouri of 1909. The court says that the law does not provide for the issuance of a license to two persons to practice medicine jointly. The license to practice medicine must be procured by individuals. Each person must have his own license. Neither of the defendants could procure a license for the other, nor could the two obtain a license for a joint undertaking to practice medicine. Hence the case was not like those in which a license for a business is necessary and such license can be procured for a joint enterprise. In such case two or more, jointly carrying on that business without such a license, can be jointly indicted. But here the case is different. If two persons engage in the task of medically treating a sick person without a license, the two have not committed a joint offense, but each has committed a separate offense. If one of them has a license, he is not guilty; if both are without a license, then both are guilty, but each is guilty of his own offense, and not both guilty of one offense. The burden of the offense is in not having a license, and the failure to have a license is a purely personal matter. Failure to procure a license cannot be a joint, but is necessarily an individual, matter. The treating of the sick is not in itself an offense. It becomes so only through the personal default of the defendant who does not secure an individual license from the state board. To convict of a joint offense the act proved must be joint. That is, each must be guilty of that which the other does. The two must be guilty of one and the same offense. So, while there may be a joint participation in an act of treatment, there is no joint offense created, but the same treatment may constitute one or two offenses according to whether one or both of those giving the treatment is without a license.

Hospital Not Absolutely Bound to Prevent Necropsy

(*Hasselback vs. Mount Sinai Hospital* (*N. Y.*), *159 N. Y. Supp. 376*)

The Supreme Court of New York, Appellate Division, First Department, says that this action was by a widow for damages by reason of an unauthorized necropsy performed on her husband's body after he had died in the defendant's hospital. The plaintiff, however, not only failed to allege that the necropsy was performed by the defendant, or by any of its servants, or by its consent, knowledge, privity or procurement, but she expressly admitted by a demurrer that the person or persons performing the necropsy were not servants or agents of the defendant, and at the time the necropsy was performed were pursuing an independent calling, and were not then acting under the direction or instruction of the defendant. The question was, therefore, squarely presented whether or not the defendant owed an absolute duty to the plaintiff to protect her husband's body against a necropsy by any person whomsoever, and to deliver the body to her in the same condition in which it was immediately after death. The plaintiff insisted that the defendant was under such a duty. The court does not so understand the law. Certainly no reported case has gone to this extent. It is well settled that, in the absence of a contrary testamentary disposition, the right to the possession of the body of one who has died belongs to the surviving husband or wife or next of kin for purposes of preservation and burial, and that this right is infringed on by any one who unlawfully mutilates such a body without the consent of the person entitled to the possession thereof, and for a violation of this right damages may be recovered for the injury to the feelings and the mental suffering resulting from the unlawful act. In all the cases, however, in which such a right of action has been upheld, the person held liable has either been the one who committed the unlawful act, or one who caused or produced the necropsy to be made. None of them, therefore, is authority for the proposition contended for by the plaintiff in this action. Nor did the defendant's action or nonaction as alleged fall within the purview of the New York penal law, which declares that "a person who makes, or causes or procures to be made, any dissection of the body of a human being, except by authority of law, or in pursuance of a permission given by the deceased, is guilty of a misdemeanor." Neither could the plaintiff's demurrer to the defense in this case be upheld by analogy to a case of a bailment of good, in which a warehouseman has received the goods in an undamaged condition and delivers them damaged. No obligation is imposed by law on the defendant, except to refrain from actively participating, by its servants or otherwise, in the unlawful mutilation of the body of a patient who dies within its walls, and from causing or procuring such a mutilation to take place. The order sustaining the demurer is reversed and the demurrer overruled.

Unlawful Use of Mails in Scheme to Defraud

(Oesting vs. United States (U. S.), 234 Fed. R. 304)

The United States Circuit Court of Appeals, Ninth Circuit, affirms a conviction, under Section 215 of the Criminal Code of the United States, of Paul Oesting, alias Paul Allen, of using the mails in connection with a scheme to defraud. The indictment charged, in substance, that at a time and place named, under the name of Dr. Jordan, L. J. Jordan, Incorporated, and Jordan's Museum of Anatomy, a corporation organized and existing under and by virtue of the laws of the state of California, and under the guise of the said Jordan's Museum of Anatomy, the defendant devised a certain scheme or artifice to defraud, or for obtaining money by means of false pretenses, representations or promises, to be effected by means of the postoffice establishment of the United States, etc. The court finds no merit in any of the objections which were made to the indictment. Referring to the charge that the defendant, under the name and guise of "Dr. Jordan, L. J. Jordan, Incorporated, and Jordan Museum of Anatomy," devised a certain scheme and artifice to defraud, etc., the objection was made that the charge was equivalent to saying that a corporation conceived the scheme, and that the defendant was charged only with acting for the corporation. But no such meaning could be found in the language of the charge. It distinctly alleged that the defendant acted under the guise of a corporation, and that he conceived the scheme. It would make no difference whether there was or was not such a corporation, so long as the defendant devised the scheme to defraud, whether acting for the corporation or in his own behalf. But it was said that the scheme as alleged did not appear to be of a fraudulent nature, or calculated to deceive, and cases were cited to show what must be alleged in an indictment for obtaining money under false pretenses. But the rule in those cases has no application to a prosecution under Section 215 of the criminal code. That section does not require that the scheme should be fraudulent on its face. All that is necessary is that it be a scheme reasonably calculated to deceive persons of ordinary comprehension and prudence, and that the mail service of the United States be used and intended to be used in execution of the same. It was urged that, from advertising that "Jordan was a physician," etc., it did not follow that the defendant intended to claim that Jordan still existed at the time of the advertising, but merely that he was or had been a physician prior to that time. This may be passed by as a mere quibble on words. But it was said that, even supposing that the defendant did intend to advise well people that they needed medical treatment, it did not follow that he intended to defraud, because it is well known that there is a large class of well people who are hypochondriacs, and who are benefited by medical treatment through its effect on the mind. In answer to this fanciful suggestion, it was only necessary to point to the language of the indictment, which showed that the aim of the defendant's scheme, both by advertising and by correspondence, was to convince well people that they were ill, and that they needed treatment from the imaginary Dr. Jordan.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New York, Dec. 27-29.
American Physiological Society, New York, Dec. 28-30.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Wednesday, Nov. 22, 1916

The President, Dr. John D. McLean, in the Chair

SYMPOSIUM ON THE DRUG HABIT

The Legal Aspect of the Drug Habit Problem

Mr. Francis Fisher Kane: I want to call attention to certain provisions in the Harrison Narcotic Law and to two or three decisions of the courts in which these provisions have been construed, and then speak of the state bill proposed by the Philadelphia Narcotic Drug Committee and suggest additional requirements for incorporation into the bill. Observing the "selling" provision of the act, it is seen that while Congress does not specifically say that the physician shall be guilty of offense if he sells or gives away the drugs to an addict to gratify the appetite, yet careful reading of the section shows this to be the intent. The phrase "in the course of his professional practice only" can have but one meaning.

Three cases are cited in which the language of the provision has been interpreted. In one arising in the court for the Southern District of Ohio, a bill in equity had been filed to restrain the internal revenue officers from enforcing the law against doctors doing a mail order business, attempting to prescribe for patients at a distance, sending out preparations containing cocain. After a careful analysis of the act and a review of the regulations of the commissioner, Judge Sater says that physicians who register and pay the tax may only under certain conditions prescribe the particular drugs in the treatment of their patients, and that Congress has indicated in "unmistakable language" that the practice of the doctor "must be legitimate and professional." In a case arising in the Northern District of New York, Judge Ray decided that a physician who issues a prescription for drugs in an amount so large as to be utterly unreasonable is guilty of an offense under the law; also, that the dealer filling such prescription is likewise guilty. In the Eastern District of Pennsylvania the prosecution in a case was against a physician under the same selling provision of the act, and the court ruled favorably to the government on the words "in the course of his professional practice only."

One question arising under the "selling" section of the act is whether a physician may not be said to "sell," even though the only part played by him is the writing of a prescription coupled with the receipt of money. In a Virginia case the judge said that prescribing was the same as selling or dispensing. In a regulation issued by the commissioner of internal revenue it was stated that for the purposes of the act generally, prescribing, dispensing and distributing are synonymous terms. Regarding the responsibility of the druggist in these cases, it is contended that he is protected by the mere presentation of a prescription. The government, of course, contends that the druggist is not so protected. The Harrison act had to be drawn as a revenue measure in order that it might be constitutional and enforceable by the courts, Congress not having power to legislate directly for the purpose of safeguarding the health and morals of the public. Certain of the provisions are being attacked on constitutional grounds as well as the government's interpretation of them. We of the government, knowing the seriousness of the drug evil, hope that the state legislatures will by stringent state laws safeguard the health and morals of the people. With the knowledge that in Pennsylvania there is no effective legislation regarding morphin and other products of opium, the Philadelphia Narcotic Drug Committee has had a bill drawn to fill the serious omissions in the Harrison act. The state courts are given direct control of the "possessor" who has got his drugs through illegitimate channels.

Ought we not to except from the provision of the act such "an habitual user" as the morphin addict, who, suffering from a chronic or incurable disease, needs the drug quite as much because of the disease as because of his habit? Would it not be well to allow the physician to frank the prescription, and permit it to be filled as often as may be necessary, provided the case be reported to the board of health, as any other addict? The provision would meet a class of cases comprising the aged and impecunious to be provided for in any intelligent scheme of legislation. There should be also the regulation of the sale of the hypodermic syringe and of the indiscriminate sale of paregoric. This indiscriminate sale of paregoric cannot be prevented so long as compounds containing not more than 2 grains of opium to the fluidounce may be sold without a physician's authority.

Relative Infrequency of the Habit Among the Middle and Upper Classes; Treatment and Final Results

Dr. F. X. Dercum: Long before the enactment of the Harrison Narcotic Law there had been a marked diminution in the number of users of drugs in the middle and upper classes. This I attribute largely to the influence of physicians, their indirect education of the community, and the general educational movement in public schools and through the press. Physicians of a generation ago were more prone to resort to hypodermic injections for the relief of symptoms then are physicians today. Detection of drug habits is not as a rule difficult. If a hypodermic injection is absolutely necessary today, it is usually combined with scopolamin hydrobromate, and a much smaller dose of morphin is required, thus greatly lessening the danger of establishing the habit. Occasionally, I have noted that a patient would make use of cocain to correct the effects of morphin, and in addition use alcohol to overcome the general depressing effects, in this way acquiring the so-called triple habit. I believe the Harrison law has been especially effective in reaching the poor and the dependent classes, especially the degenerate and criminal classes of the tenderloin. That it also protects the drug inebriates of the middle and upper classes there can be no doubt. In the treatment, a physiologic method of living should be instituted. The drug should be withdrawn rapidly when the general condition of the patient permits it; more gradually if there is grave impairment of the health. Elimination should be stimulated, and in the rapid withdrawal of morphin, brisk saline cathartics should be employed. Permanency of cure depends largely on the subsequent life of the individual. There should be abundant hours of rest, abundant food, exercise in the open air, and wholesome occupation. The habitué or alcoholic is usually not a normal person; frequently he is hereditarily neuropathic. The symptoms arising during the withdrawal of the drug are largely due to the unantagonized action of the accumulated antitoxin, the result of the long continued ingestion of morphin. The sweating, vomiting and diarrhea can be looked on only as efforts on the part of nature at elimination. The symptoms of withdrawal have an important diagnostic significance, for if these symptoms are absent and the patient is comfortable, sleeps well and is contented, then we know that he is obtaining the drug surreptitiously.

The Drug Habit and the Underworld

Dr. Frederick S. Baldi: Eighty per cent. of drug habitués are from 12 to 30 years of age. Ninety-five per cent. of habitués are criminals by reason of the acquired habit. The keynote of the successful management of the habitual drug user is supervision. I do not believe in the so-called reduction cure; it is not the solution of the problem, and simply affords the victim the means of continuing the drug. Absolute and immediate withdrawal, the withholding of other drugs as substitutes, and hydrotherapy are the cardinal factors in a speedy recovery. This recovery will require twenty-four hours in mild cases and not more than from three to five days in the most severe cases. The patient should be fed and put to work under supervision. In our prison care of the habitué, no matter how long he has been addicted to the drug, he must take a cold shower bath, rub himself if able, and if not, be rubbed. He immediately goes to sleep and wakes asking for another bath. Gonorrheal and syphilitic infections are commonly associated with the drug habit; pulmonary tuberculosis and asthma are also frequent. Legislation regarding the habitué per se is absolutely useless. Legislation should rather be directed toward the producer of the drug. There should be state control of the drugs from the crude form to the finished product. Such control of the drug would render an institution unnecessary. The Harrison act has proved a failure. Whatever legislation is to be made on this subject, let the county medical society submit recommendations before a bill becomes a law, and not wait until the law is passed and then cry out that another injustice has been wrought on the medical profession. I differ from Dr. Dercum regarding the relative frequency of the drug habit among the middle and upper classes.

DISCUSSION ON THE DRUG HABIT

Dr. John H. W. Rhein: I have had opportunity of treating many patients sent to the Polyclinic Hospital by Mr. Kane in connection with the operation of the Harrison act. The patients first sent were habitués of the tenderloin, forced to take the treatment from fear of arrest if they continued the habit. With some the drug was withdrawn successfully, and they left the hospital in a week or two in good condition; others resisted treatment and left in a day or two. At first we were rather encouraged with the results, finding through the social service that some of those treated remained away from the drug for from one to four weeks. These were later lost sight of. A second class was made up of those sent in by missionaries or social workers, not the tenderloin class, but those who went to the tenderloin but still tried to work. Some of these paid for semiprivate wards. Most of them stayed until the drug was entirely removed. They promised to return; and while many did, others were lost sight of. Those of the first class we may regard as hopeless; of the second class we may say there is some hope in a small percentage of cases. Our treatment was not so heroic as Dr. Baldi's. We gave them scopolamin and belladonna, and elimination was effected by calomel and salts for a couple of days. At the end of a week almost every patient was fairly comfortable. I have had several cases in which the patients had been taking the drug for twenty-five years, using a large dose hypodermically, whom I treated in this way without untoward results. I fully approve of restricting the sale of hypodermic syringes. The morphin habit dates from the introduction of the hypodermic syringe. The most rational way of curing the evil is the enactment of laws restricting the sale of the drug. While patients are well cared for in the general hospital, to have special wards would be ideal. The extent of the habit is very great, and it is mainly confined to the underworld. In an experience of twenty-six years I have had relatively few cases among the better classes. The real problem of the drug habit is the social problem of the tenderloin.

Mr. Christopher Koch: I agree with Dr. Baldi that the best method of treatment is the entire withdrawal of the drug at once. The worst case I ever saw was that of a man, aged 35, who had had the habit for twenty years. We took the drug away from him entirely, and so long as he was under restraint he improved. Left to himself, however, he would return to the drug. I do not believe there is any cure for the habit. There seems to be a strong desire among habitués to spread the habit. Through the South, contracts are made with negro laborers to give them dope in order to obtain a greater amount of work. When from the effect of the drug they are unable to work, they are turned loose and a new bunch of colored labor is secured. A law to be effective should be prohibitive; the many "provisions" written into it emasculate it. If you want to curtail the dope habit, dispensing of drugs should be stopped. The manufacturer must be restricted. I believe that all these drugs should be prescribed by themselves; it is the mixtures that do the harm. Regarding the requirement of patients to register, I do not see how the difficulty would be overcome of having them register with two physicians. If the state legalizes the reduction treatment, which I myself think is a mistake, there should be a central point of registration and for receiving the drugs.

Dr. Howard W. Hassell: I have not the slightest doubt that there is a cocain habit. The usual form of syringe of the chronic habitué is a rubber bulb from an eye dropper which he ties on a needle. Restricting the sale of the hypodermic syringe, therefore, would not affect him. Regarding the gradual reduction treatment, I do not believe you can treat a dope case in the office any more than you can treat the drunk case.

Dr. H. C. Wood, Jr.: We do not kill people by abrupt withdrawal of the drug. In one case, the man could scarcely walk; the temperature by mouth was less than my thermometer would register; his weight was 95 pounds. He was sent to the hospital and was not given a grain of morphin or other opiate. In the first week he gained 10 pounds; the second, 8 pounds, and the third, 5. At no time were there symptoms to cause serious alarm. The most important problem before the society tonight is not the treatment of the individual, but the treatment of the community. The number of persons who can be cured of the drug habit is extremely small. Prevention of the spread of the drug habit is much more important to the community than the treatment of the individual. Federal legislation has failed to stop the sale of the drug because the United States government has no authority in the state of Pennsylvania to regulate the sale of morphin and cocain. We are behind the majority of the states of the Union in the matter of the control of the sale of narcotics. The influence of the medical profession back of the people is needed to secure adequate legislation in this matter.

Dr. Alfred Gordon: In a study of the effect of cocain and morphin from the neurologic and psychiatic standpoints I have concluded that the majority of cases are not curable. The most striking feature is the defective will power. I cannot subscribe to the abrupt withdrawal of the drug in all cases. Patients must be treated individually. Prevention is the most important consideration. To establish this we must find the cause, and this is usually within the individual himself.

Dr. George E. Price: My experience with these cases has been confined to a comparatively small number in private practice and a rather large number in the Philadelphia General Hospital, where Dr. McIvor and I made an analysis of a series of cases. The type of case found there and our results corresponded well with Dr. Baldi's finding in his prison work, and those of Dr. Rhein in the hospital cases, except in the matter of immediate withdrawal. We found that we obtained the best results by withdrawing morphin in from two or three days to two weeks, except in one or two cases in which very large doses had been taken for many years and the patients were feeble. There is a cocain habit, but cocain can always be withdrawn abruptly. Patients at the Philadelphia Hospital included persons of 15, 16 and 17 years of age, nearly all dwellers in or frequenters of the tenderloin and from practically all walks of life. The average amount of morphin taken daily was 15 3/10 grains. The largest dose was 90 grains in one day. The cocain and heroin habit seem to be of recent origin in the tenderloin. That the patients were degenerates was found by the signs of developmental arrest in about 40 per cent. of cases. I agree with Dr. Rhein and Dr. Dercum that the habit in the upper and middle classes is becoming less frequent. There seems to be wide difference of opinion regarding the prognosis. One writer makes the statement that the cure of the morphin habit is as impossible as the cure of inoperable cancer. The so-called drug institutes claim from 80 to 90 per cent. of permanent recoveries. I am skeptical about these reports. In our hospital cases the same patients returned from three to five times. Many of them had been treated in these institutions. It is my experience in my private work that patients do not stay cured. The crux of the question lies not in the cure of the individual, but in striking at the root and getting at the supply. The only effectual method is that of having the patients under supervision and restraint. I would favor having a farm or place where these men might be kept for a reasonable time until their general health was built up and where they might be at least self-supporting.

On motion of Dr. H. C. Wood, Jr., consideration of the suggested antinarcotic act was referred to the board of directors with full power to represent the Philadelphia County Medical Society.

SOUTHERN MEDICAL ASSOCIATION

Tenth Annual Meeting, held at Atlanta, Ga., Nov. 13-16, 1916

The President, Dr. Robert Wilson, Jr., Charleston, S. C., in the Chair

Tuberculosis, a Disease of Children

Dr. F. Clifton Moor, Tallahassee, Fla.: All children under 5 should be protected, and measures should be taken to prevent the massive infection which is sure to occur when there is active disease in some member of the household. No mother with active disease should nurse her infant. Where home conditions are hopeless, the younger children should be removed to a preventorium. Bovine tuberculosis should be controlled by uniform state laws or, better still, by the federal government. In Florida there are thirteen tuberculosis nurses. During the first year of the present campaign 1,225 patients were seen by the visiting nurses, and up to September of this year, 2,781 patients have been visited and instructed in the principles of prevention. The average time between visits is four weeks. The families visited are interested, and really endeavor to follow instructions.

Treatment of Syphilis with Arsenical Preparations

Dr. E. H. Martin, Hot Springs, Ark.: Salvarsan should be used in all persistent local infections without waiting for a positive Wassermann. In the administration of 6,377 intravenous doses of salvarsan to 1,776 patients, I had only thirty-two instances of angioneurotic edema of sufficient severity to interfere with the administration of the salvarsan; there were only forty-two cases of rash following in from two to seven days thereafter, and only six instances of hemolysis, only three of which were of sufficient severity to cause a chill and jaundice; and only four cases of severe kidney congestion.

Health Insurance: Its Relation to the Medical Profession

Dr. B. S. Warren, Washington, D. C.: The bills proposed for enactment by legislatures have not provided in any way for a preventive medical service. They contain no authority for organizing health machinery or for utilizing existing health agencies. An excellent opportunity is offered by which the specialist in preventive medicine could be introduced into the plan through the administration of the medical benefits. It would be a simple matter to provide that the medical referee be a medical officer of the health department, and employed by that department after careful examination as to his knowledge of preventive medicine as well as skill in diagnosis. This would bring to the service of the health insurance system a corps of trained specialists clothed with all the authority of the health department.

Meckel's Diverticulum, with Special Reference to Umbilical Disorders of Infancy

Dr. R. M. Harbin, Rome, Ga.: These patients frequently furnish a history of umbilical disorder in infancy, and of having been irritable, colicky babies. There is a history of constipation, with the occasional presence of bloody mucus in the stool, causing straining. There usually has been pain around the navel, aggravated by running or pressure from the outside, an inability to expel gas, and bilious attacks without obvious cause.

Importance of Time in the Treatment of Tuberculosis

Dr. William Redin Kirk, Hendersonville, N. C.: The time spent in arriving at a diagnosis is not lost. After the diagnosis has been made, no time should be lost before commencing treatment. It is economy in both time and money to send the patient from home for treatment under competent supervision.

Transmissibility of Pellagra

Dr. Joseph Goldberger, Washington, D. C.: Our experiments furnish no support for the view that pellagra is a communicable disease; they materially strengthen the conclusion that it is a disease essentially of dietary origin, brought about by a faulty, probably deficient, diet.

Diagnosis of Pellagra

Dr. M. L. Graves, Galveston, Texas: Many symptoms, isolated and unsupported, are suggestive of pellagra and may afford much strong suspicion of the disease, and with combination of two or more symptoms may amount to certainty. Neither the mouth secretions, the blood, the spinal fluid, the gastric contents nor the stools have yet given any conclusive evidence of this disease. Until they, one or more, do give such evidence or some definite etiologic agent is discovered, we shall be compelled to rely on the clinical aspects of the disease for the diagnosis.

Limited Artificial Pneumothorax

Dr. C. M. Hendricks, El Paso, Texas: The disadvantages of partial collapse are few: Refills are necessarily more often; these patients must be studied and examined very closely, both by physical examination and the fluoroscope, in order to determine the time for refills; the frequency of the refills requires only that one be careful of his technic, as the more often the pleura is entered there is an increased liability to infection, air embolism and pleural shock. The advantages of this method are: There is less tendency to pleural effusions; very little strain is thrown on the right heart; there is no disturbance of the mediastinum; there is less danger of spontaneous pneumothorax and of rupturing an abscess into the pleural cavity; when the disease is arrested, the unaffected portion of lung is performing its function.

Early Recognition of Pulmonary Tuberculosis

Dr. Wallace J. Durel, New Orleans: In the diagnosis of early pulmonary tuberculosis, one must separate the active incipient tuberculosis with clinical symptoms, such as slight fever, instability and acceleration of the pulse, dyspepsia, loss of weight, chills and night sweats, hemoptysis, etc., from latent incipient tuberculosis, in which the physical findings denote a lesion in the lungs, but with none of the cardinal clinical symptoms indicating active or progressive tuberculosis.

Rôle of Food in the Etiology of Cardiovascular-Renal Disease

Dr. Allan Eustis, New Orleans: In cases of cardiovascular-renal disease, intestinal toxemia may contribute to the severity of the symptoms and should be considered in the management of all cases. Excessive protein food, irrespective of intestinal toxemia, overworks the kidney and is at least a predisposing cause of cardiovascular-renal disease.

Prognosis in Cardiovascular-Renal Disease

Dr. George Dock, St. Louis: A bad prognosis should not be given at the first examination unless the evidences of heart failure are well marked, or unless there is advanced arteriosclerosis, strong suspicion of coronary artery disease, and evidence of severe renal insufficiency or other dangerous organic disease. Even then, rest and appropriate treatment may modify the outlook. When loss of compensation occurs, the prognosis can be greatly aided by the careful observation of the effect of treatment, and the degree of functional power regained. No matter how complete the incompensation, a hopeless prognosis as to improvement in a given attack should not be made, for patients not rarely seem to be moribund and then recover to a surprising degree and remain so for months.

Local Health Work Under State Board Supervision

Dr. G. M. Cooper, Raleigh, N. C.: When a county contains a city of more than 10,000 people there should be a thoroughly organized health department with a graduate physician who has had experience in public health work at the head. There should be at least four school and public health nurses, a food inspector and a second physician to look after medical cases. In small, poor counties, certain units of health work can best be done under state board supervision. This arrangement makes for low per capita cost, effective work and efficiency, and removes health work from the field of petty politics. A free dental and medical dispensary with the county as unit ought to be provided for.

Treatment of the More Common Fractures

Dr. Lucius E. Burch, Nashville, Tenn.: The injured should always be compared with the uninjured member. The diagnosis should be checked up with roentgenograms taken anteroposteriorly and laterally. Splints are for the purpose of immobilization and not for reduction. An anesthetic should be used when fractures are being reduced. Tight bandages should be avoided. Massage and passive motion should be started at an early date.

Diaphragmatic Hernia

Dr. James F. Mitchell, Washington, D. C.: There are two routes of approach, the thoracic and the abdominal. In acute injuries the abdominal route offers the advantage of better inspection and safer repair of wounds of the abdominal viscera. The thoracic route is indicated in recent stab wounds which have penetrated the chest, and the nature of the incision depends largely on the wound. Simple enlargement of the wound with resection of a rib or two may be all that is necessary to enable the operator to replace the herniated abdominal organs and repair the injured diaphragm.

Tumor of the Mammae

Dr. E. B. Claybrook, Cumberland, Md.: We should say to all men and to all people that all lumps in the breast are potentially, if not actually, malignant, and the breast should be sacrificed, and the axilla cleaned out regardless of sentimental considerations as to diagnosis and the loss of the breast. If we do this, it will not be long until our cancer statistics will be different, and the woman with a lump in her breast will not hide it from her friends and from her doctor, but will come and have it out.

Extraperitoneal Cesarean Section

Dr. W. Kohlmann, New Orleans: I have performed six sections, five of which were extraperitoneal, and one transperitoneal, with clamps. Notwithstanding the fact that the absolute extraperitoneal route is more difficult and requires more time, a fact which is of great importance, especially in cases in which the patients are exposed to long and protracted labor, this procedure seems to offer some rather important advantages: The safety of the patient will be greatly insured; the bleeding from the thinned out cervical walls is greatly diminished, and the operation will not be complicated by intraperitoneal adhesions.

Neglected Appendicitis

Dr. Jere L. Crook, Jackson, Tenn.: I am confident that the task of teaching the people that this disease is a surgical one, demanding prompt operation, would be far easier than convincing them that pure air and good food cure consumption. By the time that the people have learned their lesson we may expect to have the diagnosis and treatment so standardized in the minds of both internists and operators that the so-called medical treatment of appendicitis will be but a doleful memory, and neglected cases only those in which the patients refuse to heed the advice of their physicians and have closed their eyes and ears to facts set forth by the campaign to teach the people the nature and treatment of this disease.

Suction Drainage in Empyema

Dr. Alexius McGlannan, Baltimore: I have treated twenty-four cases of acute empyema by suction drainage. For comparison I have taken an equal number of cases treated by ordinary drainage during the years immediately preceding 1914. Four patients died, a mortality of about 17 per cent. In one of the fatal cases the empyema was part of a general pyemia following lateral sinus thrombosis, and in another, death was caused by a complicating cerebral abscess. The mortality rate in the earlier series was 25 per cent., and here again one fatal result was due to cerebral abscess. Both cases of cerebral involvement were proved by operation, and in one case necropsy showed a hemorrhage about a thrombus at a distance from the abscess. There were no fistulas or secondary operations in the suction cases. In the earlier series there were two cases requiring secondary operations. The average time required for complete healing with suction drainage was thirty-eight days. Omitting the two cases in which secondary operation was required, the average time of healing with ordinary drainage was eighty-four days.

Basal Cell Cancers of the Skin

Dr. H. H. Hazen, Washington, D. C.: There are two distinct types of skin cancer, the basal cell and the prickle cell. These two types run different clinical courses, and must be treated along different lines. Basal cell tumors usually spring from pathologic conditions of the skin, of which the senile keratosis is the commonest. Removal of these precancerous lesions would prevent most cases of cancer. Basal cell cancers usually spring from the basal layer of the rete, and may be multicentric in origin. The disease is more common in men than in women, and negroes are but exceptionally affected. While the disease not infrequently starts during the fourth decade of life, it is most common in the fifth and sixth decades. Basal cell tumors are most commonly situated on the skin of the face, where the majority of all cancers are of this character. They are extremely uncommon on the limbs, and are rare on the trunk. Only a small percentage of them metastasize to the neighboring glands, and hence local removal is usually sufficient to effect a cure. In early growths, competent surgery should cure well over 95 per cent. of all patients, while in late growths surgery will cure a fair number.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

December, XII, No. 6

1 Obstetric Paralysis; Report of Four Hundred and Seventy Cases. J. W. Sever, Boston.—p. 541.
2 *Topography of Pulmonary Fissures and Lobes in Infants with Special Reference to Thoracentesis. J. C. Gittings, G. Fettcrolf and A. G. Mitchell, Philadelphia.—p. 579.
3 *Fresh Moving and Cool Outdoor Air in Pediatric Practice. R. G. Freeman, New York.—p. 590.
4 Case of Infantilism Due to Hypopituitarism. H. Climenko, New York.—p. 597.
5 Transient Abdominal Tumor in Child of Five Years with Redundant Colon. G. N. Acker and E. P. Copeland, Washington, D. C.—p. 602.
6 *Congenital Obliteration of Aorta; Report of Case. H. Gauss, Chicago.—p. 606.
7 *Use of Cream and Precipitated Casein in Indigestion with Fermentation. J. I. Grover, Boston.—p. 612.
8 Suggestion as Therapeutic Measure in Nocturnal Enuresis. F. L. Dunham, Baltimore.—p. 618.
9 Review of Literature of Respiratory Diseases of Past Year. C. H. Smith, New York.—p. 626.

2. **Topography of Pulmonary Fissures and Lobes in Infants.**—As the lower level of the lungs in infants and probably in young children does not extend quite so low as in adults, and owing to the anatomic characteristics of the bases of the pleural cavities in early life, the authors urge that great care should be exercised to avoid damage to the diaphragm in performing thoracentesis. The sixth interspace in the midthoracic line and the seventh or possibly the eighth interspace in the line of the angle of the scapula (at rest) represents the lowest limits of absolute safety for thoracentesis in early life.

3. **Fresh Air in Pediatric Practice.**—Fresh moving and cool outdoor air, Freeman says, is an agent of wonderful power and value to the pediatrician. It stimulates the appetite, induces quiet sleep, brings color to the cheeks, and increases the resistance of the organism to infection. The cold air of winter is much more stimulating and produces better results in children than the mild air of spring and autumn. The best results from fresh air are obtained by keeping the children out of doors day and night. These children are not subject to colds which others have during the winters; they have good color, good appetite and a normal, robust development. Outdoor sleeping porches enclosed on three sides and roofed, but open to the south, furnish the best fresh air at night, while in the daytime balconies and rooms without heat and windows wide open supply the air needed.

Where it is impossible to obtain complete outdoor exposure, substitute in cold weather rooms with cheesecloth screens in the windows. Other methods of ventilation consist in patent ventilators put under the lower sash. These, however, allow more movement in the air of the room, but less open space, and some of them furnish no filtration of the dust from the air. The most important application of fresh-air treatment is to build up the vitality and resistance to disease of frail children. This is true in early life, for children with marasmus and malnutrition who are impossible to feed so as to obtain an increase in weight will often gain promptly, with no change in food, on being kept out of doors or in front of an open window in winter. In all the acute infectious diseases, Freeman says, there is now a general acceptance of the advantage of fresh air, excepting perhaps in measles and scarlet fever, although he has convinced himself that measles and scarlet fever are no exceptions. He has put patients during a severe measles epidemic complicating scarlet fever out of doors in winter without a single fatality, although some of the scarlet-fever patients were exceedingly sick when the change was made. The change to outdoor air seemed to help them all. The common colds of winter are favorably influenced by cold, fresh air, as are other forms of infections.

6. **Congenital Obliteration of Aorta.**—The anatomic diagnosis in Gauss' case was: congenital atresia of the aorta at the orifice; total absence of the aortic valves; hypertrophy of left ventricular wall; dilatation of the right ventricle; common opening of the coronary arteries. The specimen was encountered in a routine postmortem examination. The heart was slightly enlarged. The apex was made up of the right ventricle, which was appreciably larger than the left. The auricles and the coronary sinuses were distended with blood. The pulmonary artery was considerably larger than the aorta. From the ventricular cavity there was no opening into the aorta; but at the site of the aorta there was a small pinpoint retraction of the endocardium, and there was no evidence of the aortic valves. The aorta was completely closed for a distance of 2 cm.; beyond this point it dilated and reached its normal diameter at the junction of the ductus arteriosus. The closed aorta was 2 mm. wide. The coronary arteries opened into the left ventricular cavity by a common orifice near the site of the aorta close to the interventricular septum. The ductus arteriosus and the foramen ovale were widely patent.

7. **Cream and Casein in Indigestion with Fermentation.**—Nothing is claimed by Grover for the precipitated casein in this method of feeding except that it makes possible a very low carbohydrate food, it being almost lactose free. Many cases of indigestion with fermentation are brought about by dispensing with the disturbing sugar. In Grover's opinion the symptoms would clear up faster and surer if all the carbohydrates were reduced to a minimum for a while, and then a different one gradually substituted for the one that caused the disturbance. In treating fat intolerance try at first to give a food free from fat, and gradually build up a tolerance. It seems, therefore, reasonable in treating carbohydrate indigestion to get the carbohydrate as low as possible for a while, and gradually build up a tolerance. It is interesting to note in this series how well each baby took fat up to 2 per

cent., 2.5 per cent. and even 3 per cent., while on the low lactose formulas.

American Journal of Roentgenology, New York

November, III, No. 11

10 Roentgenology of Heart. A. W. Crane, Kalamazoo, Mich.—p. 513.
11 *Roentgen Diagnosis of Bronchiectasis. A. B. Moore, Rochester, Minn.—p. 524.
12 *Capillary Circulation in Roentgenogram of Chest. J. G. van Zwaluwenburg, Ann Arbor, Mich.—p. 532.
13 Scarf Pin in Right Lung. P. M. Hickey, Detroit.—p. 536.
14 Case of Arteriosclerosis. R. C. Mahaney, Owosso, Mich.—p. 537.

11 and 12. Abstracted in The Journal, Nov. 18, 1916, p. 1549.

Boston Medical and Surgical Journal

November 30, CLXXV, No. 22

15 *Clinical Study of Secretions of Digestive Tract. T. R. Brown, Baltimore.—p. 775.
16 Psychic and Neuropsychic Affections in War. E. Régis, Bordeaux, France.—p. 784.
17 Drug Addiction and Modern Methods for Its Control. S. H. Rubin, Boston.—p. 792.
18 Acute Primary "Idiopathic" Phlegmonous Gastritis; Report of Case. E. B. Fink, Chicago.—p. 795.

December 7, No. 23

19 Preparedness for Health. H. Emerson, New York.—p. 811.
20 *Spinal Fluid Sugar. J. B. Rieger and H. C. Solomon, Boston. —p. 817.
21 Outline of Elements and Treatment of Stammering. A. B. Stedman, Brookline.—p. 818.
22 Fatty Degenerative Changes in Purkinje Cell Belt of Cerebellum in Exhaustive Infective Psychoses. E. W. Fell, Elgin, Ill.—p. 819.
23 Yerkes-Bridges Point Scale as Applied to Candidates for Employment at Psychopathic Hospital. C. S. Rossy, Boston.—p. 822.
24 Intensive Group of Social Service Cases. M. C. Jarrett, Boston. —p. 824.
25 Expedient for Radical Cure of Some Retroversions. E. Reynolds, Boston.—p. 830.
26 Ether Anesthesia. H. H. Amsden, Concord, N. H.—p. 832.

15. **Secretions of Digestive Tract.**—From his studies Brown draws certain conclusions—some of purely physiologic, others of clinical interest. Of the former the most interesting were the demonstration of the lack of influence of the gastric secretion on the character of the saliva; the fact that a saliva rich in diastatic ferment is secreted during the chewing of inert substances, stimulating neither to the senses of taste nor smell, the independence of rennin and pepsin, the lack of definite quantitative relationship between the pepsin and the hydrochloric acid of the digestive juice, and the proof that in the absence of the normal mechanism of pancreatic stimulation some other mode of calling forth the ferment of this gland, probably nervous in character, is called into play. From the clinical side, although also of physiologic interest, the conclusions of interest are the large number of conditions in which an absence of hydrochloric acid in the gastric juice is met, and the importance of the appreciation of this fact both diagnostically and therapeutically; the significance of an increase in the soluble protein of the gastric contents in the diagnosis of gastric carcinoma; the importance of recognizing the group of gastrogenous diarrheas, and the brilliancy of their treatment with hydrochloric acid; the fact that with a rigorous technic there are low normal limits to the quantity of diastase found in the stool, and that an absence of these ferments is very suggestive of cancer of the pancreas.

20. **Spinal Fluid Sugar.**—Estimations of the reducing sugar content of the spinal fluids of 175 subjects, in the main, psychopathic, gave values ranging from 0.050 to 0.090, or a grand average of 0.070 per cent. The extremes obtained in certain diabetic and inflammatory conditions are not here included. In general, the higher values have always been found in the more robust subjects, and aside from this, the range is the same in the psychopath as in the nonpsychopath, in the male as in the female, and the young as in the old. The diagnoses made on these subjects are general paresis, 47; dementia praecox, 30; alcoholism, 22; manic depressive insanity, 12; epilepsy, 6; diabetes, 6; juvenile cerebrospinal syphilis, 4; adult cerebrospinal syphilis, 5; arteriosclerosis, 4; pellagra, 2; tuberculous meningitis, 1; hypopituitarism, 1; chorea, 2; tabes, 4; miscellaneous psychoses, 20; not insane, 10. On this basis the following values are remarkable; diabetes, 0.134 to 256 per cent.; pellagra, 0.90 to 0.102 per cent.; two of the more severe cases of cerebrospinal syphilis, 0.044 to 0.048 per cent.; tuberculous meningitis, 0.026 per cent.

Cleveland Medical Journal

October XV, No. 10

27 *Transplantation of Ureters; Report of Cases. W. E. Lower, Cleveland.—p. 629.
28 Diseases of Colliculus Seminalis; Report of Case. A. Strauss, Cleveland.—p. 636.
29 Use of Radium in Dermatology. H. N. Cole, Cleveland.—p. 645.
30 *Report of Complement Fixation Test for Gonorrhea. T. P. Shupe, Cleveland.—p. 652.
31 Skookum Chuck. H. F. Biggar, Cleveland.—p. 656.

27. **Transplantation of Ureters.**—In one case cited by Lower a woman, aged 47, who had a history of several unsuccessful attempts to repair a vesicovaginal fistula, which had resulted from the removal of a malignant uterus, transplantation of the ureters into the loin brought her relief from the urinary incontinence. A boy, 9 years of age, had exstrophy of the bladder. The ureters were transplanted into the rectum, with an interval of about two weeks between the two operations. At a still later time, a plastic operation made the boy more comfortable. In a third case, one of carcinoma of the bladder, which was inoperable intravesically, the ureters were transplanted into the rectum at different times, and later the bladder was completely extirpated. Six weeks after operation, the man was in good health, had regained practically all the weight he had lost, and had no special discomfort. In none of these cases was there any resulting incontinence.

30. **Complement Fixation Test for Gonorrhea.**—In a series of 1,000 tests made by Shupe, no case was found in which the result was positive when the patient had not been infected with the gonococcus or did not have gonococci vaccine. In acute cases, when it is very easy to demonstrate the presence of gonococci, the fixation test is generally negative in the first five weeks and becomes positive from the fifth to the sixth week in uncomplicated cases. If the infection remains limited to the anterior urethra and subsides by the seventh or eighth week, the patient may never have a positive reaction. A positive reaction occurring in a person clinically cured of gonorrhea indicates the presence of a gonococcus focus, and these persons are potentially capable of infecting others. The antibodies may remain for five or six weeks after all organisms have disappeared and a negative test following a positive one in a supposedly cured case is good evidence that the patient is cured. About 30 per cent. in this series were positive when supposed to be cured. Shupe has found that the test is of particular value in gonorrheal arthritis. It is about 100 per cent. positive in this class. In acute epididymitis, after five weeks from the onset of the disease, it is 100 per cent. positive. Chronic prostatitis, seminal vesiculitis and posterior urethritis give 80 per cent. positive reaction. An uncomplicated stricture does not give a positive result. An individual may have two or more infections and in interpreting a positive test it should be borne in mind that gonorrhea is a very widespread disease.

Delaware State Medical Journal, Wilmington

October, VII, No. 11

32 Women and Tobacco. C. B. Towns, New York.—p. 3.
33 Psoriasis. G. C. McElfatrick, Wilmington.—p. 5.
34 Cystic Odontoma. W. E. Bird, Wilmington.—p. 8.

Journal of Bacteriology, Baltimore

November, I, No. 6

35 Nomenclature and Classification of Bacteria. R. E. Buchanan, Ames, Iowa.—p. 591.
36 Oxygen Requirements of Biologic Soil Processes. T. J. Murray, Blacksburg, Va.—p. 597.
37 Preparation of Culture Media from Whole Blood. R. A. Kelser, Washington, D. C.—p. 615.
38 Classification of Some Lactose Fermenting Bacteria. M. Levine, Ames, Iowa.—p. 619.
39 New Ice Sampler. M. Greenfield, Lawrence, Kan.—p. 623.
40 Apparent Recovery of Hen Infected with Bacillary White Diarrhea. G. D. Horton.—p. 625.

41 Influence of the Chemistry of the Culture Medium on the Indol Production of B. Coli and B. Typhosus. E. Zunz and P. György, Brussels.—p. 627.
42 Some Regulating Factors in Bacterial Metabolism. I. J. Kligler, New York.—p. 663.

Journal of Cancer Research, Baltimore

October, I, No. 4

43 *Effects of Cancer Tissue, Embryonic Tissue and Normal Tissue on Vitality of Protozoa. G. N. Calkins, New York.—p. 399.
44 *Mode of Origin of Fibro-Adenoma of Mammary Gland in Rat; Delayed Retrogression of Mammary Gland After Lactation. L. Loeb, St. Louis.—p. 415.
45 *Transplantation of Benign Tumors. L. Loeb and M. S. Fleisher, St. Louis.—p. 427.
46 Primary Carcinoma of Ureter; Report of Case. E. C. Schmitt, Chicago.—p. 461.
47 *Inheritability of Spontaneous Tumors of Specific Organs and of Specific Types in Mice. M. Slye, Chicago.—p. 479.
48 *Inheritability of Spontaneous Tumors of Liver in Mice. M. Slye, Chicago.—p. 503.

43. **Effects of Cancer Tissue on Protozoa.**—The general results of Calkins' experiments confirm conclusions previously reached, that a lethal factor is present in cancer tissue which is absent in normal tissue.

44. **Fibroadenoma of Mammary Gland of Rat.**—Loeb's observations constitute a further argument in favor of the view that in certain cases cirrhotic conditions of an organ may not be of a substitute character, but rather the result of a direct stimulating effect exerted by the epithelium on the connective tissue, under conditions which favor the production of fibers by the fibroblasts rather than the integrity or multiplication of the connective tissue cells.

45. **Transplantation of Benign Tumors.**—From their studies Loeb and Fleisher conclude that it is possible to transplant benign tumors, specifically the adenofibroma of the mammary gland of rats, through several generations, but there is an apparent decrease in the growth energy in each successive generation. Sarcoma as well as carcinoma generally show on transplantation a definite increase in growth energy, which is not dependent on a selection of the most virulent cells, as Ehrlich maintained, but on a direct stimulation of the tumor cells by the conditions associated with transplantation. The curve of this increase differs in different tumors. In the case of the benign tumor there is a certain variability in the results of transplantation in the first as well as in the succeeding generations. At various periods after transplantation mitotic figures can be found, which are occasionally more numerous in the connective tissue than in the epithelial structures. Exactly as with malignant tumors, there is also among benign tumors a difference in transplantability; some appear to be more readily transplantable than others. Those pieces of adenofibromas which do not grow after transplantation seem at least to remain alive for a considerable period of time. Two purely fibromatous tumors, the second of which approached a sarcomatous nature, were not successfully transplanted into other rats. The transplantation of adenomafibroma of mammary gland into pregnant rats seems to favor its growth during the period of pregnancy, much as the growth of the transplanted normal mammary gland is favored through pregnancy. If, on the other hand, carcinoma of the mammary gland of the mouse is transplanted into other pregnant mice, it usually does not grow.

47 and 48. **Spontaneous Tumors of Specific Organs in Mice.**—The results thus far obtained in the laboratory in which Slye is working, basing the conclusions on over 14,000 necropsies and on over 2,500 primary neoplasms, show (1) that in every case (not merely in selected cases) where there are sufficient data for study, tumors of specific organs and of specific types persistently occur in strains whose ancestry has furnished that type of tumor, and (2) they rarely or never occur in strains whose ancestry has not furnished that type of tumor, even where the strain carries 100 per cent. of cancer.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, IX, No. 2

49 *Secretion of Lymph. H. Yanagawa, London.—p. 75.
50 Trichlor-Tertiarybutyl Alcohol (Chloretone) Anesthesia. L. W. Rowe, Detroit.—p. 107.
51 Pharmacology of Seminal Vesicles. J. A. Waddell, Charlottesville, Va.—p. 113.
52 Action of Opium Alkaloids on Ducts of Testis. D. I. Macht, Baltimore.—p. 121.

49. **Secretion of Lymph.**—Narcotics (ether and alcohol), Yanagawa says, increase the lymph, which becomes more concentrated and of higher osmotic pressure, but is reduced in its coagulability. The higher arterial pressure and the greater rapidity of the blood circulation through the organs under strophanthin does not influence the lymph flow; the intracapillary pressure in the portal veins is not increased by it. After the injection of epinephrin the lymph increases parallel wih the rise of the arterial pressure, and here the intracapillary pressure is also increased. Arsenic increases the lymph, diphtheria toxin augments the lymph greatly, with the changes in its composition characteristic of the lymphagogues of the first class. Calcium chlorid does not reduce the lymph flow under normal conditions, but acts in the same way as the other salts. Calomel and its double salts injected subcutaneously do not cause any significant hydremic plethora and do not increase the lymph. The intravenous injection of acids (lactic acid, oxybutyric acid), in quantities insufficient to cause marked poisoning, does not affect the lymph flow. The effect of alkalies (sodium bicarbonate, limewater), can not be distinguished from that of neutral salts. Pilocarpin increases and atropin reduces the activity of liver cells as measured by the bile flow, and the lymph after pilocarpin is augmented, while after atropin it is sometimes increased and sometimes unchanged. Quinin has no distinct effect on the lymph flow, except when sufficient is given to cause fatal intoxication. The flow of the lymph does not always run parallel to that of the bile; sometimes they are influenced in opposite directions.

Kentucky Medical Journal, Bowling Green

November, XIV, No. 11

53 Future of Medical Profession in Kentucky. E. A. Stevens, Mayfield.—p. 560.
54 Then and Now in Surgery. W. L. Gambill, Jenkins.—p. 564.
55 *Nontuberculous Infections of Kidney. C. G. Hoffman, Louisville.—p. 568.
56 Relationship of Feeding in Infantile Eczema. M. L. Ravitch and S. A. Steinberg, Louisville.—p. 576.
57 Infantile Paralysis. J. Glahn. Owensboro.—579.
58 Case of Splenomegaly of Inherited Syphilis. C. A. Vance, Lexington.—p. 583.
59 Summer Diarrhea. F. G. Carroll, Cave City.—p. 584.
60 *Functional Heart Diseases; What Are They and How Treated? B. B. Keys, Murray.—p. 585.
61 Case of Perforated Duodenal Ulcer. J. S. Lutz, Louisville.—p. 587.
62 Treatment of Tuberculosis. T. J. Townsend, Owensboro.—p. 588.
63 Inguinal Hernia; Herniotomy; Report of Cases. R. L. Schroader, Owensboro.—p. 590.
64 Acute Bright's Disease. S. M. Hopkins, De Mossville.—p. 594.
65 Camp Sanitation of Kentucky Troops. R. C. Adams, Salyersville.—p. 595.

December, XIV, No. 12

66 Acidosis; Its Determination, Significance and Treatment. E. F. Horine, Louisville.—p. 650.
67 Expectorants; Mode of Action and Symptomatic Indications. C. Norfleet, Somerset.—p. 652.
68 Excision and Immediate Closure Operation for Anorectal Fistula. B. Asman, Louisville.—p. 654.

55 and 60. Abstracted in The Journal, Dec. 2, 1916, pp. 1692 and 1693.

Medical Record, New York

December 2, XC, No. 23

69 Consideration of Intestinal Toxemias from Standpoint of Physiologic Surgery. J. M. Lynch and J. W. Draper, New York.—p. 969.
70 Dangers and Complications of Tonsillectomy. S. E. Moore, Minneapolis.—p. 972.
71 Syphilis Problem Among Confined Criminals. E. N. Boudreau, Auburn.—p. 981.
72 Lupus Erythematosus and Tuberculosis. L. B. Mount, Albany.—p. 983.
73 Sexual Development and Ductless Glands. S. Block, Brooklyn.—p. 984.
74 Albinism, Leukoderma, Vitiligo. J. E. Lane, New Haven, Conn.—p. 986.
75 Researches in Trichinosis. W. Lintz, Brooklyn.—p. 987.

Missouri State Medical Association Journal, St. Louis

December, XIII, No. 12

76 Two Hundred Routine Fracture Cases. C. E. Syndman, St. Louis.—p. 573.
77 Transplantation of Bone. E. F. Robinson, Kansas City.—p. 579.
78 Factors Tending Toward Accuracy in Clinical Diagnosis. W. W. Graves, St. Louis.—p. 581.
79 Spinal Cord Neoplasms. A. L. Skoog, Kansas City.—p. 585.
80 Experiences in Subdermal Medication. J. J. Gaines, Excelsior Springs.—p. 587.
81 *Rural Sanitation. J. C. Boone, Charleston.—p. 590.
82 *Unusual Case of Status Epilepticus. F. L. Long, Farmington.—p. 592.

81. Abstracted in The Journal, June 24, 1916, p. 2121.

82. **Congenital Epilepsy.**—A male, aged 20, victim of congenital epilepsy, was slightly paralyzed on the right side, which dated from birth, and it was presumed that the resulting condition was caused by birth paralysis. He had major convulsions regularly, averaging several per week. About three months before death he had an attack of serial epilepsy lasting about a week, during which time he had nearly 200 convulsions. During the last eleven and one-half days of life he had 2,031 convulsions. During this period he had several lucid intervals, lasting a few hours, at which time he took some nourishment. On several occasions his temperature rose to 103 but did not last long; morphin and bromids seemed to increase the severity of the convulsions. Within twelve hours after receiving ¾ grain of morphin he had 137 convulsions. The greatest number in any twenty-four hours was 481; in the last twelve hours of life he had 331.

New Jersey Medical Society Journal, Orange

December, XIII, No. 12

83 Reed's Bacillus of Epilepsy. A. J. Hinkelmann, Galesburg, Ill.—p. 655.
84 Analysis of Schoolroom Lighting. F. L. Godinez, Jersey City.—p. 656.
85 Services Which Women May Render State in Time of War. E. Marvel, Atlantic City.—p. 661.

New York Medical Journal

December 2, CIV, No. 23

86 Psoriasis as Hysterical Conversion Symbolization. S. E. Jeliffe and E. Evans, New York.—p. 1077.
87 Focal Mouth Infections, Their Systemic Effects and Treatment. R. H. Babcock, Chicago.—p. 1084.
88 Traditional Fallacies About Tuberculosis. M. Fishberg, New York.—p. 1085.
89 Columnar Amniotic Epithelium. H. K. Thoms, New Haven, Conn.—p. 1090.
90 Oxygenated Milk C. G. Grulee, Chicago.—p. 1092.
91 Ozena. H. Horn and E. A. Victors, San Francisco.—p. 1094.
92 Malingering. P. E. Bowers, Michigan City, Ind.—p. 1096.
93 Syphilitic and Parasyphilitic Affections of Urinary Bladder. A. Strachstein, New York.—p. 1098.
94 Epidemic Gastro-Enteritis, Infantile Paralysis and Influenza. B. Frankel, New York.—p. 1100.

Oklahoma State Medical Association Journal, Muskogee

December, IX, No. 12

95 Suppurative Otitis Media. L. A. Newton, Oklahoma City.—p. 387.
96 Mastoid; Report of Cases. A. W. Roth, Tulsa.—p. 391.
97 Chronic Catarrhal Deafness. C. M. Fullenwider, Muskogee.—p. 394.
98 Catarrhal Deafness; Treatment. W. E. Dixon, Oklahoma City.—p. 399.
99 Mouth and Throat Infections; Their Relation to Diseases of Body. W. H. Livermore, Chickasha.—p. 406.

Public Health Journal, Toronto

November, VII, No. 11

100 Defective Immigrant. C. K. Clarke. Toronto.—p. 462.
101 Importance of Housing and Lodging-House Inspection. J. S. Schoales, Toronto.—p. 470.
102 Sanitation as It Was. A. P. Reid, Middleton.—p. 481.
103 Small Water Works and Sewage Works. R. O. Wynne-Roberts, Toronto.—p. 489.

South Carolina Medical Association Journal, Greenville

November, XII, No. 11

104 Chronic Specific Urethritis; Its Danger and Treatment. E. C. Baynard, Charleston.—p. 339.
105 Physician in Relation to Penal and Charity Problems. A. S. Johnstone, Charleston.—p. 342.

Surgery, Gynecology and Obstetrics, Chicago

December, XXIII, No. 6

106 *Gunshot Wounds of Peripheral Nerves. B. Stookey, Los Angeles.—p. 639.
107 Diagnosis and Management of Acute Extrapelvic Conditions During Pregnancy. E. W. Andrews, Chicago.—p. 657.
108 Diagnosis and Management of Pregnancy in Presence of Acute Abdominal Conditions. J. B. De Lee, Chicago.—p. 660.
109 Diagnosis and Management of Pelvic Affections Complicating Pregnancy. H. F. Lewis, Chicago.—p. 663.
110 *Study of Menopause with Special Reference to Its Vasomotor Disturbances. C. Culbertson, Chicago.—p. 667.
111 Obstructive Calculus Prostate; Report of Cases. W. W. Townsend, Rutland, Vt.—p. 685.
112 Large Solitary and Multiple Cysts of Kidney; Report of Cases. J. H. Cunningham, Jr., Boston.—p. 688.
113 Clinical Data of Polycystic Kidney. W. F. Braasch, Rochester, Minn.—p. 697.
114 *Exstrophy of Bladder; Report of Case Five Years After Implantation of Ureters into Rectum. A. R. Stevens, New York.—p. 702.
115 Cystography. H. L. Kretschmer, Chicago.—p. 709.
116 Calcified Glands Proximal to Common Bile Duct; Cysticoduodenal Ligament; Report of Case. R. S. Fowler, Brooklyn.—p. 718.
117 *Is Employment of Actual Cautery in Treatment of Chronic Ulcer of Stomach Safe Procedure? C. L. Scudder and S. C. Harvey, Boston.—p. 719.
118 Technic for Suprapubic Prostatectomy Under Local Anesthesia. B. S. Barringer, New York.—p. 725.
119 Abdominal Operation for Cure of Cystocele. F. G. DuBose, Selma, Ala.—p. 727.
120 Management of Advanced Cases of Tuberculosis of Hip. C. S. Venable, San Antonio, Texas.—p. 729.
121 Pubiotomy in Impacted Face Presentations. P. Titus, Pittsburgh.—p. 733.
122 Surgical Treatment of Acute Epididymitis. C. M. McKenna, Chicago.—p. 738.
123 Wire Gauze Brain Drain. H. P. Mosher, Boston.—p. 740.
124 A-B-C Rule in Forceps and Version. S. E. Moore, Minneapolis.—p. 741.
125 New Tractor for Perineal Prostatectomy and New Perineal Drainage Tube. G. F. Lydston, Chicago.—p. 742.
126 Technic of External Urethrotomy. J. Niemack, Charles City, Iowa.—p. 743.

106. **Gunshot Wounds of Peripheral Nerves.**—This paper is based on a study of seventy-eight cases of nerve injuries. The number of nerve injuries in the upper extremity (66) greatly exceeds those in the lower extremity (12); of those in the upper extremity the musculospiral was involved in 36 per cent., median in 17 per cent. and ulnar in 41 per cent. Fracture, either complete or incomplete, of the humerus, occurred in 50 per cent. of the musculospiral injuries. In those of the lower extremity, the internal popliteal was not injured, the external popliteal in four cases. The sciatic was completely involved, though never completely severed in any case, incompletely in eight cases, and in each instance the portion forming the external popliteal was the part involved. The details in diagnosis are discussed in full by Stookey.

110. **Study of Menopause.**—From a study of twenty-nine cases Culbertson concludes that the menopause is a functional derangement on the part of various glands of the endocrin system subsequent to the cessation of the ovarian secretion. On this basis may be explained the psychic and somatic manifestations of the menopause. The vasomotor disturbances represent an instability of arterial tension. (*a*) In the majority of cases this takes the form of a vacillating hypertension, both systolic and diastolic. (*b*) The diastolic pressure is not elevated proportionately to the systolic. This produces an increased pulse pressure. (*c*) Hot flushes, sweating and other vasomotor symptoms are directly created by the vacillations in arterial tension. (*d*) In a minority of cases there is arterial hypotension and here also the systolic and diastolic pressures are out of proportion. Hypertension is apparently due to a relative oversufficiency on the part of the hypophysis or the suprarenals. The psychic symptoms are apparently influenced by thyroid dysfunction; in the majority of cases a hyperthyroidism, in the minority, a hypothyroidism. The administration of the missing hormone, represented by the extract of corpora lutea from animals in early gestation, brings about a gradual restoration to normal of the blood pressure with disappearance of the mental symptoms.

This reduction of blood pressure by organotherapy, together with the disproportionate systolic and diastolic rise, is offered as evidence that the hypertension is a functional one and not due to organic changes. Blood pressure estimation is essential, as a means both of measuring the degree of menopause disturbance and of controlling its therapy. An occasional pressure reading is of little or no value. Tension must be determined at frequent intervals, preferably daily until improvement is well under way. The significance of functional hypertension as a factor in uterine hemorrhage is obvious and will be made the subject of a subsequent report.

114. **Exstrophy of Bladder.**—In April, 1911, Stevens operated on a boy, aged 16, under gas and ether anesthesia. Catheters were placed in both ureters. A rosette of bladder wall, including the muscle, was dissected free about each ureteral orifice. The ureters were freed high enough so that they could assume the straightest course from the brim of the pelvis to the rectum. A curved artery forceps was introduced in the rectum. On the tip of this, a small opening was made in the left anterolateral rectal wall, 2 or 3 cm. above the internal sphincter. The forceps were made to protrude, to grasp the edge of the bladder wall about the left ureteral orifice after the catheters had been removed, and to withdraw the ureter well into the rectal lumen. Similarly, the right ureter was placed in the rectum. No suture was taken in the rectal wall. What would come away easily of the bladder wall was removed. A tube was kept in the rectum the first four days after operation, and the rectum irrigated several times a day. The patient now voids urine, often quite free from feces, every three to five hours and sometimes goes seven hours. He gets up at night once or not at all. By measure, a single voiding is often over 350 c.c. The bowels move usually twice a day, and the patient can often distinguish in anticipation between a passage of urine and one largely feces. Occasionally a laxative is needed. Papillae nearly 1 cm. high are formed by the ureteral projections in the rectal lumen and can be readily palpated 2 to 3 cm. above the internal sphincter ani. The patient is at work and is in perfect health.

117. **Cautery in Treatment of Stomach Ulcers.**—On the basis of some experimental work, the authors favor this method of procedure. It appears that the suture of the cauterized margins of the stomach wall is attended by practically a normal reparative process similar to the reparative process following a simple incision with the knife. This having been demonstrated by the actual study of the areas involved serves to show that the method is a safe one for ordinary use in the human. The method is applicable to a chronic ulcer seated on the lesser curvature so far away from the pylorus as to make its easy removal by excision difficult. Ulcers seated on the posterior wall of the stomach which are safely approached by a gastrotomy incision, may have their edges thoroughly cauterized and also the base thoroughly cauterized even when it is adherent to the pancreas, and be sutured with the assurance to the surgeon that the reparative process will proceed satisfactorily. Certain chronic ulcers adherent to the posterior parietes and pancreas do not lend themselves to easy and safe excision and suture. The cautery is sometimes applicable to this special group of cases. The cautery will destroy any beginning cancer in the edges of the ulcer if the cauterization is thoroughly done. The employment of the cautery saves considerable time over the simple excision method.

West Virginia Medical Journal, Huntington

December, XI, No. 6

127 Treatment of Bladder Tumors. J. T. Geraghty, Wheeling.—p. 193.
128 Acute Abdominal Pain; Its Diagnosis and Treatment. R. B. Miller, Parkersburg.—p. 199.
129 Use and Abuse of Exercise in Treatment of Pulmonary Tuberculosis. E. E. Clovis, Terra Alta.—p. 203.
130 Clinical Notes from Congress of Surgeons. J. E. Cannaday, Charleston.—p. 205.
131 Value of Kidney Functional Tests. R. M. Bobbitt, Huntington.—p. 209.
132 Commercialization of Pupil Nurse. E. W. Bauer, Huntington.—p. 211.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

November 18, II, No. 2916

1 *Disinfection of Meningococcus Carriers. M. H. Gordon and M. Flack.—p. 673.
2 *Cultural Requirements of Meningococcus. M. H. Gordon, T. G. M. Hine and M. Flack.—p. 678.
3 Epidemic Cerebrospinal Meningitis. W. J. Denehy.—p. 684.
4 *Serum Treatment of Cerebrospinal Fever. C. Worster-Drought.—p. 689.

November 25, No. 2917

5 *Excision of Knee Joint as Method of Treatment for Severe Infections. A. Fullerton.—p. 709.
6 Gunshot Injuries to Knee Joint. W. Edmond and W. W. Galbraith.—p. 715.
7 *Use of Atropin as Aid to Diagnosis of Typhoid and Paratyphoid A and B Infections. H. F. Marris.—p. 715.
8 Whirlpool Bath. F. P. Nunneley.—p. 721.
9 Relief Staining for Bacteria and Spirochetes. T. H. C. Benians.—p. 722.

1. **Disinfection of Meningococcus Carriers.**—Clinical observations lead Gordon and Flack to believe that, in the case of carriers of the meningococcus, prognosis with regard to the duration of their future period of carrying varies largely with the degree to which their nasopharyngeal secretion is infected by the meningococcus. In the authors' experience the majority of carriers whose nasopharynx yields only a few colonies of the meningococcus clear up quickly. In the case of these persons good results follow local treatment either by direct application of a 1 per cent. solution of chloramine (sodium paratoluene sulphochloramid), or by subjecting them to inhalation of a steam spray charged with zinc sulphate. On the other hand, carriers whose nasopharyngeal secretion yields a copious growth, or a practically pure culture of the meningococcus, are often far more difficult to cure. The results on these persons with zinc salts were disappointing, but they served to emphasize the success of those obtained with chloramine, which, though still somewhat few in number, are more than encouraging, and would appear to indicate that a large proportion of these chronic carriers can be definitely freed of the meningococcus by this form of treatment in a comparatively short space of time. Several cases of chronic nasal or postnasal catarrh were submitted to disinfectant treatment by the automatic steam spray. Improvement resulted and the suggestion is offered that this method is worthy of trial on a larger scale for the treatment of such cases.

2. **Cultural Requirements of Meningococcus.**—The following medium is used by the authors to cultivate the meningococcus: Agar 2.5 per cent. dissolved in the trypsinized broth of Douglas. To this, when it has reached the final stage, is added 5 per cent. of a sterilized extract of peaflour prepared as follows: Peaflour 10 gm., salt 10 gm., distilled water 100 c.c. Steam for twenty minutes and filter. Sterilize the filtrate by steaming on two successive days. This medium (trypsin broth, pea agar or "trypagar") is made neutral to phenolphthalein. Over 200 meningococci originally isolated from the cerebrospinal fluids of patients with meningitis have been subcultured on to trypagar, with the result that they have all been found to grow readily on it; moreover, plates of this medium have been in continual use for growing meningococci in bulk for the purpose of making standard suspensions for agglutination work. The addition of 2 per cent. of serum, or better, ascites fluid, seems to increase the size of the meningococcus colonies and sometimes their vitality.

4. **Serum Treatment of Cerebrospinal Fever.**—The serum used by Worster-Drought was a polyvalent serum, prepared from various strains isolated from a 1915 epidemic. The summary of the treatment adopted is as follows: Serum is given at the earliest possible moment, without waiting for the bacteriologic report. The initial dose is 30 c.c. This amount is repeated daily until the clinical improvement is quite definite and undeniable. The minimum period for continuance of serum is four days, thus covering the merely apparent improvement so often seen on the second or third day. The dose is always 30 c.c., excepting when less than this amount of cerebrospinal fluid can be obtained; in such a case the

fluid withdrawn should exceed the amount of serum injected by at least 5 c.c. When the clinical improvement is quite decided, serum may be omitted; lumbar puncture is then performed daily until the fluid is clear to the naked eye. Should there be any sign of the reappearance of symptoms, particularly mental relapse or increased turbidity of fluid, serum administration is recommenced and continued on the same lines. The amount of fluid withdrawn is always practically the maximum that can be obtained, that is, until it flows through the needle at about the rate of one drop in five seconds. The serum is much better run in by the gravitation method than injected by means of a syringe. When the injection is completed the foot of the bed is raised on blocks for an hour to facilitate the upward flow of the serum. If any subsequent pain is complained of in the back or legs, 10 to 15 grains of acetyl-salicylic acid usually gives relief. The number of cases treated in the manner above described was 16; of these, 11 recovered (68.75 per cent.) and 5 died (31.25 per cent.). The total amount of serum given varied from 110 c.c. to 600 c.c. The prognosis is better the earlier treatment is commenced.

5. **Excision of Knee Joint for Severe Infections.**—Excision of septic wounds into the joint and removal of foreign bodies, if present, followed by complete suture of the synovial membrane, is now the almost universal practice among British surgeons in France. The results of drainage of the joint by tubes, as used in earlier days, were disastrous. Fullerton's experience has been that quite a fair proportion of distended knee joints containing actual pus, from which micro-organisms may be grown, settle down and recover movement after aspiration, aspiration and irrigation, or aspiration followed by the injection of such substances as glycerin and liquor formaldehydi (a few cubic centimeters of a 2 per cent. dilution at least 48 hours old), or ether. In a certain proportion of cases, however, this line of treatment fails. The joint fills up again and again with pus, the cells of which perhaps show diminishing instead of increasing phagocytosis. Pain in the joint increases, the temperature rises, the pulse increases in frequency, and the general condition of the patient becomes such that it is obvious that something radical must be done to save his life if not his limb. The introduction of drainage tubes favors the entrance of microbes other than the original offenders, and a mixed infection is only too certain to result. For the past six months Fullerton has been advocating excision of the bones with wide separation of the ends as a method of dealing with certain knee joints in which conservative methods have failed. This procedure is carried out for the purpose of drainage, even if the bone ends have not been injured.

7. **Atropin as Aid to Diagnosis of Typhoid Infections.**—In practically all cases of the typhoid group during some period of the infection, Marris says, the rate of the heart cannot be increased by atropin as the rate can be accelerated in normal people and those suffering from other diseases. He uses this reaction as a means of diagnosis. At least one hour after a meal should elapse. The patient should lie horizontally and be instructed to keep perfectly quiet throughout. The pulse rate is then taken and recorded minute by minute until found to be steady. Usually ten minutes will be found to suffice for this; then 1/33 grain atropin sulphate is injected hypodermically, preferably in the triceps region, to insure rapid absorption. The patient now remains absolutely quiet, and, after an interval of twenty-five minutes, the pulse rate is again taken and recorded minute by minute until it is obvious that any rise which may have followed the injection of atropin has passed, and that the rate is falling to a lower level—fifteen to twenty minutes may be necessary. As an arbitrary rule, an increase of the pulse rate by about 20 or more beats a minute after atropin may be accepted as an indication that the patient is probably not suffering from typhoid or one of the paratyphoid series. Should the pulse rate increase only 10 beats or less the reaction is suggestive of an infection by one of these diseases. Readings which give a difference of more than 10 and less than 20 beats a minute are uncertain in their interpretation, and necessitate further observations a day or so later.

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10 Universities and New Era. A. Ewing.—p. 293.
11 Acetonuria, Acetonemia and Acid Intoxication in Children. J. Thomson.—p. 298.
12 Histology of Disseminated Sclerosis. J. W. Dawson.—p. 311.

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13 Some Eye Symptoms and Their Interpretation. A. J. Ballantyne. —p. 257.
14 Aneurysm of Hepatic Artery—Rupture of Liver—Periarteritis Nodosa. J. H. Teacher and W. R. Jack.—p. 277.
15 Cessation of Vertiginous Attacks Following Intranasal Treatment. R. Fullerton.—p. 286.

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16 Future of Crippled Sailor and Soldier. C. W. Hutt.—p. 629.
17 Relation of Enterococcus to Trench Fever and Allied Conditions. T. Houston and J. M. McCloy.—p. 632.
18 Diagnosis of Tuberculosis by Tuberculin. H. A. Ellis.—p. 638.
19 Use of Celluloid in Plastic Surgery. C. Higgens.—p. 643.
20 Case of Chorion Epithelioma. H. N. Taylor.—p. 644.
21 Spinal Anesthesia with Special Reference to Acute Abdomen. P. P. Cole.—p. 645.
22 Case of Beriberi. G. M. Findlay.—p. 646.
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24 *Natural History of Septic Wounds. K. Goadby.—p. 851.
25 *Value of Vaccine Therapy in Treatment of Septic Gunshot Wounds. R. H. J. Swan.—p. 859.
26 Psychology of Malingering and Functional Neuroses in Peace and War. T. Lumsden.—p. 860.
27 Angle of Dropping Pipet and Accuracy in Agglutination Technic. R. P. Garrow.—p. 863.

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28 *Some of Maladies in which Splenectomy May Be Indicated. W. J. Mayo.—p. 889.
29 Medical Profession and Campaign against Venereal Disease. O. May.—p. 893.
30 Diagnostic Value of Agglutinin Determinations in Inoculated Individuals. E. W. A. Walker.—p. 896.
31 *Pieces of Clothing Embedded in War Wounds. R. J. Willan. —p. 901.
32 *Toxic Action of Dilute Pure Sodium Chlorid Solutions on Meningococcus. C. Shearer.—p. 902.

24. **Natural History of Septic Wounds.**—This is the third section of Goadby's report. It relates mainly to certain tissue reactions against bacterial infection, and may be summarized as follows: The energy dissipated in the tissues from projectiles produces changes in a wider area than that immediately lacerated by the projectile itself. The cellular activity promoting repair in the affected areas proceeds concomitantly with degenerative processes; with the degenerative processes are associated anaerobic bacteria, *B. perfringens*, *B. malignant-edema* and possibly *B. Hibler* IX type. There is direct histologic evidence of tissue digestion, in addition to necrotic changes due to traumatism or coagulation owing to interference with circulation. Evidences of degenerative tissue changes are found in tissue removed from wounds at long period after the original infection of the wound. Acid production by anaerobic bacteria of the perfringens class is an important factor in the determination of clinical gas gangrene. The general blood reaction in the direction of leukocytosis is more related to infection with the pathogenic cocci than the anaerobic bacilli. No drainage in the ordinary sense of the term can easily affect the contorted intricacies of a sinus passing first of all into bony tissue and thereafter radiating in several directions; it is in this type of wound, or rather sequelae to a wound, that the bacteria are found lodged in the tissues, partially shut off from the action of the living cells. Operative interference sets them free; they may, and do, reinfect the surrounding areas, and to raise the patient's resistance to such disability is clearly a therapeutic step of supreme importance.

25. **Vaccine Therapy in Septic Gunshot Wounds.**—To such an extent has Swan modified his former views as to the value of vaccine in these cases, that he now directs that every case with a septic wound should receive an initial dose of a mixed polyvalent vaccine of proteus and streptococcus until the true bacteriology of the individual wound can be worked

out and before any surgical measure, other than freely incising the wound to secure adequate drainage, is adopted. The future course of vaccines depends on the examination revealed in the individual wound, when appropriate combinations are given. The greatest value of vaccine therapy is in the treatment of complicated septic fractures of long bones and of fractures which open into joint cavities. Swan gives a preliminary dose of polyvalent vaccine (proteus and mixed streptococci), and then after two or three days freely opens the wound to secure adequate drainage, approximating the fragments and only removing those fragments which are undoubtedly completely separated, at the same time taking advantage of the opening of the wound to obtain further bacteriologic examination. In the treatment of septic gunshot fractures which involve a large joint, vaccine therapy holds an important place. Another feature is the freedom from secondary hemorrhage in patients treated with a polyvalent proteus and streptococcal vaccine.

28. **Maladies in Which Splenectomy May Be Indicated.**—Mayo believes that splenectomy is a curative measure in properly selected cases of splenic anemia, hemolytic jaundice and allied states, and that it may be curative in certain as yet little understood conditions which are confused with pernicious anemia, leukemia and cirrhosis of the liver. Splenectomy is of value in certain types of parasitic splenomegalia—notably, malaria and syphilis. It is of value for the palliation of some types of pernicious anemia. In portal and biliary cirrhosis associated with splenomegalia, splenectomy may have a field of usefulness, but there has not been sufficient experience with it in these conditions to furnish reliable data. In true leukemia, splenectomy does not appear to have standing, but in connection with the use of radium it is at least to be considered.

31. **Clothing Embedded in War Wounds.**—Willan aimed at trying to find a single substance to treat the "action clothes" which would satisfy the following requirements: (1) would make the garments (or fragments of same) impermeable to Roentgen rays; (2) would have some antiseptic properties; (3) would contain some antiseptic which was nonirritating to the tissues; (4) would contain some antiseptic which was nonirritating to the skin. He soaked strips of flannelette in the following solutions, respectively: potassium permanganate, 1:5,000; hydrargyrum perchloridum, 1:1,000; tincture of benzoin compound; aqueous solution of equal parts of salicylic acid and boric acid; and boric acid, saturated solution. These strips were dried, laid in a row, and roentgenographed. The strip soaked in tincture of benzoin compound showed the densest shadow, while that treated with the salicylic and boric acid was next best in density. As a medium similar to salicylic and boric acid seemed to be the easiest one to work with, Willan decided to experiment with a modification of this. Salicylic acid by itself is not very soluble in water. If, however, borax be added it is readily soluble. The solution he used was: boric acid, 15 grains; salicylic acid, 15 grains; borax, 14 grains; water sufficient to make 1 ounce.

32. **Sodium Chlorid Solutions and Meningococcus.**—In experimenting with a large number of freshly isolated strains of the meningococcus, Shearer noticed that almost all of them were killed when placed for a short time in dilute pure sodium chlorid solutions. The action of sodium chlorid is most toxic to the meningococcus when the concentration of the salt is not below 0.85 per cent. and not much above 0.9 per cent. sodium chlorid. It was found that freshly isolated meningococci were more vulnerable than old laboratory cultures. While laboratory cultures could sometimes resist the action of pure 0.85 per cent. sodium chlorid for three or four hours, freshly isolated strains seldom resisted its action for more than twenty minutes. Shearer has found, as a general rule, from a large number of experiments that one or two drops of an emulsion (of 5,000 million meningococci to the cubic centimeter in distilled water) is the proper quantity of emulsion to be added to 2 c.c. of 0.85 per cent. saline to demonstrate the toxic action of pure sodium chlorid effectively on the meningococcus. The toxic action of a 0.85 per cent. sodium chlorid solution on the meningococcus can be readily antagonized and rendered harmless by the addition of a trace of some bivalent salt such as calcium chlorid with or without the addition of a small quantity of potassium chlorid.

Bulletin de l'Académie de Médecine, Paris

October 31, LXXVI, No. 43, pp. 325-344

33 *Sifting Out the Tuberculous from the Suspects. (Les enseignements cliniques d'un centre de triage de militaires suspects de tuberculose.) E. Sergent and G. Delamare.—p. 329.
34 Bacteriologic Study of Hypochlorites Applied in Sterilization of the Hands. Lochelongue and Dubard.—p. 334.
35 The Bacteria Found in War Wounds. (Recherches sur la flore bactérienne des plaies de guerre.) H. Tissier.—p. 337.
36 Detection of Picric Acid in the Serum with Factitious Jaundice. Castaigne and Desmoulières.—p. 339. See Paris Letter, p. 1771.
37 Experimental Generalized Vaccinal Fever. (De la vaccine généralisée expérimentale. Conditions de sa production.) L. Camus.—p. 342.

33. **Sifting Out the Tuberculous from the Suspects.**—Sergent and Delamare discuss the lessons learned from months of work in a *centre de triage*, to which the soldiers suspected of tuberculosis are referred for the final diagnosis. Among 600 merely suspected of tuberculosis, 89 proved to be exempt from active tuberculosis and tubercle bacilli were found in the sputum of 83. The diagnosis was thus positive in these, but in 428 it proved a difficult matter to determine whether their pulmonary trouble was tuberculous or not, and especially whether it was active or healed. In roentgenoscopy, a veiled aspect of the apex is often found accompanied by enlarged tracheobronchial glands. They found that this indicated a lesion in the parenchyma when there was absolute dulness, exaggerated vibrations, crepitation and blood in the sputum, when the veiled aspect of the apex was not modified by coughing, and when stripes and spots could be detected. On the other hand, the predominance of changes in the pleura was manifest when there was only subdulness, the vocal vibrations physiologic or reduced, and friction sounds were evident, the pupil on that side dilated or smaller than its mate, and the supraclavicular glands enlarged. This syndrome of apical pleuritis is differentiated further by general and functional examination of the patient, his antecedents and the date of the first symptoms. The pleural "veil" shows the apex a little lighter after coughing.

As a final test, they gave 1 gm. potassium iodid daily for five days. A rise in temperature is the rule when the lesion is active, but there is no rise if it is healed solid. They warn that this test should not be applied unless confident of a favorable response, as otherwise it might induce congestion and hemoptysis if there is an active process. They found that exactly 50 per cent. of the suspects referred to their station were free from active tuberculosis. Without this scientific differentiation, many if not all of them would have been classed among the dangerous tuberculous, as one of the unexpected effects of the war is a widespread tuberculophobia.

Paris Médical

November 11, VI, No. 46, pp. 421-436

38 Microscopic Examination of Secretions of Wounds at Different Stages. (L'examen cytologique des plaies de guerre. Sa valeur pratique.) A. Policard.—p. 421.
39 Beneficial Influence of Insufflation of Oxygen in Treatment of Traumatic Pleurisy. (De l'emploi de l'oxygène dans le traitement des pleurésies purulentes consécutives aux plaies du thorax.) Dehau and J. C. Roux.—p. 424.
40 Resection for Subphrenic Abscess from Tuberculous Chondritis. S. Mercadé.—p. 425.
41 Early Passive and Active Mechanotherapy for the Wounded Still in Bed. Amieux.—p. 427.
42 Suturing Stump after Amputations. (Faut-il fermer les moignons d'amputation de guerre?) J. Fiévez.—p. 433.

Presse Médicale, Paris

November 9, XXIV, No. 62, pp. 497-504

43 War Wounds of the Spinal Cord. (Les plaies de la moelle épinière par blessures de guerre.) G. Guillain and J. A. Barré.—p. 497.

November 16, No. 63, pp. 505-512

44 *Experimental Cholera. (La pathogénie du choléra. Reproduction expérimentale de la maladie.) G. Sanarelli.—p. 505.
45 Malignant Anaerobic Infections of War Wounds. G. Lardennois and J. Baumel.—p. 506.

44. **Reproduction of Cholera in Suckling Rabbits.**—Sanarelli found that the stomach always destroyed cholera vibrios

taken by the mouth, but he was able to reproduce the disease at will by injecting vibrios into a vein or subcutaneously. By these routes they get into the blood and thus reach the intestinal walls where they locate by preference. The same effect was realized by injection of the vibrios directly into a loop of the small intestine. He found it impossible to reproduce the disease in the young of mother rabbits that had been vaccinated against cholera. By injecting colon bacilli directly into the wall of the appendix or sacculus rotundus, or injecting into a vein an extract of the toxic products of colon bacilli, this damages the intestinal wall so that cholera vibrios getting into the general circulation locate at once and proliferate here rapidly. He thinks that his data demonstrate that in man all the vibrios do not pass through the stomach directly into the intestine but get into the blood—possibly through the tonsils—and thus reach their favorite site, the wall of the bowel close to and below the ileocecal valve, and settle there.

Progrès Médical, Paris

November 5, XXXI, No. 21, pp. 203-212

46 Effects on Glands and Secretions of Shock from Explosion Nearby. (La répercussion glandulaire et humorale des commotions.) M. Loeper and G. Verpy.—p. 203.
47 Radioscopic Outline Sketches. (Utilisation habituelle des calques radioscopiques en chirurgie de guerre.) A. Binet.—p. 205.
48 Open Treatment after Aseptic Operations. (De la suppression complète du pansement à la suite des opérations aseptiques.) A. Chalier.—p. 207.
49 Causes and Treatment of Dyspepsia in Infants. A. Satre.—p. 208.

Archiv für klinische Chirurgie, Berlin

CVIII, No. 2, pp. 151-305. Last indexed Sept. 2, p. 776

50 The Question of Amputation of the Legs, Supports and Artificial Legs. (Zur Amputations- und Prothesenfrage für die untere Extremität.) R. Hofstätter.—p. 151.
51 *Successful Application of Thiersch Flaps in the Mouth. (Ueber Verpflanzung Thiersch'scher Epidermisläppchen in die Mundhöhle.) L. Moszkowicz.—p. 216.
52 *Periosteum Plastics: Substituting the Tibia by means of the Fibula. (Zum Ersatz grosser Tibiadefekte durch die Fibula.) L. Moszkowicz.—p. 221.
53 Pathology and Treatment of Hyperextension in the Elbow. A. Suter.—p. 230.
54 Hygroma and Free Bodies of Bursa in the Knee. (Hygrom und Corpora libera der Bursa semimembranosa.) E. Sonntag.—p. 245.
55 Bone and Dura Plastic Operations on the Skull. (Die freie Knochenplastik zum Ersatz von knöchernen Defekten des Schädels mit und ohne gleichzeitigem Duraersatz.) H. Nieden.—p. 281.

51. **Thiersch Flaps in the Mouth.**—The entire jaw bone had been shattered into fragments by a shrapnel ball, leaving only the ascending rami. The mouth was damaged extensively otherwise and the man had lain on the battlefield for three days. After he was brought in, it seemed impossible to feed him, so he was eight days without food. The wound was then cleared out and he was fed through a stomach tube for seven months. Moszkowicz gives an illustrated description of the various operations required to restore fairly good functional conditions; the outline of the chin is now normal. He lined the wound with Thiersch flaps, implanting them first in a subcutaneous pocket close to the mouth, where they healed in place under aseptic conditions. Then this pocket n the skin was opened into the mouth, the epidermis flaps thus becoming for the first time mouth epidermis. The echnic, he remarks, is like that followed in building a bridge without interrupting traffic; the new bridge is built close to he old one, and when it is ready it is built up in the place of the old bridge. This method can be applied at any point where the flaps are destined for a body cavity moistened with secretions. He has in mind, in particular, strictures of the urethra and rectum and plastic operations of all kinds with which the production of an epithelium-covered mucosa is of moment.

52. **Periosteum Plastics.**—Moszkowicz calls attention to the atrophy of what is left of the tibia when the weight-bearing s transferred to the fibula. He gives a roentgenogram illus-rating this, taken from a case under observation for several ears. It demonstrates beyond question that the fibula cannot e counted on for a reliable support unless its lower end fits quarely on the middle of the head of the talus, instead of being left in its normal one-sided position. He accomplished practically this in a case described in detail. After removal of the upper two thirds of the tibia, for sarcoma, on a boy of 11, he cut a pedunculated flap, 4 cm. long, from the periosteum of the fibula and laid it over the top of the tibia stump, thus covering the open bone-marrow cavity. Callus developed wonderfully from it until the tibia and fibula at this point were solidly bound together by the bone growth. The fibula above this grew to the size of the tibia in the other leg, but below this it retained its former size, testifying that the weight was borne mainly by the adherent tibia stump.

Berliner klinische Wochenschrift

October 23, LIII, No. 43, pp. 1165-1184

56 Percentages of Positive Findings in Bacteriologic Tests for Typhoid in Epidemic. (Die Leistungsfähigkeit der bakt. Typhusdiagnose, gemessen an den Untersuchungsergebnissen bei der Typhusepidemie in Jena 1915). K. E. F. Schmitz.—p. 1165.
57 Typhoid Pneumonia. (Typhus und Pneumonie.) A. Döblin.—p. 1168.
58 *Etiology of Typhus. (Praktische Bemerkungen zur Aetiologie des Fleckfiebers.) E. Fuld.—p. 1170.
59 Potato Flour in Infant Feeding. (Die Verwendung von Kartoffelwalzmehl als Zusatz zur Säuglingsnahrung.) E. Müller.—p. 1172.
60 True Hermaphroditism in Man and Animals. L. Pick. Concluded.—p. 1173.

58. **Etiology of Typhus.**—Fuld replies to recent assertions of E. Friedberger to the effect that the rôle of the body louse in the transmission of typhus is not absolutely proved, Fuld being convinced that the evidence is all in favor of this to date. One gap in the chain of evidence has recently been closed—development of typhus in persons who have not been close enough to typhus patients to get lice from them—this gap in the evidence has been closed by authentic witnesses of lice being blown by the wind from one person to another. The fact that typhus died out spontaneously in all the prison camps during the heated term, whether they had been "unloused" or not, Fuld shows testifies further in favor of louse transmission, as lice are killed by a temperature of 35 C. (95 F.), according to Anderson, Nicolle and others.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 4, XLVI, No. 45, pp. 1505-1536

61 *Pathology of the Persisting Omphalo-Enteric Duct. J. Dubs.—p. 1505.
62 Importance of Respiratory Exercises to Overcome Effects of and Counteract Tendency to Curvature of the Spine. (Zur Kenntnis und Behandlung kyphotischer Wirbelsäuleverkrümmungen und der sie begleitenden Thoraxsenkung und deren Folgen.) E. Stotzer.—p. 1519.
63 Difficulty of Differentiating Erythema Induratum. (Einige Bemerkungen über einen Fall von Erythema induratum Bazin.) Tièche.—p. 1522.
64 Traumatic Neuroses and Their Treatment. (Psychische Traumata und deren Behandlung.) T. Zangger.—p. 1526.

61. **Pathology of the Persisting Omphalo-Enteric Duct.**—Dubs reports two cases which demonstrate anew the possible dangers from persistence of this fetal duct, and emphasize the necessity for its radical removal when its presence is suspected. Not only the danger of prolapse of intestines through the fistula opening into the duct, but the manifold dangers which may result from the transformation of the duct into a Meckel diverticulum, justify its prompt removal. He reviews the literature on the persisting vitelline duct and also on volvulus and other mishaps to which one is exposed from a Meckel's diverticulum. In the first of his two cases there was prolapse of the bowel through a congenital vitelline duct cyst. The prolapse occurred because the attending physician did not recognize the prolapsed mucosa of the duct for what it was. He took it for a granuloma, and tried to remove it by ligating the pedicle, thus bringing on the prolapse in the babe. A similar mishap from the same cause is recorded in the literature by two others. In the second case there was a subcutaneous cyst formed by the duct. He describes and gives some diagrams showing the various forms which may be assumed by the persisting omphalo-enteric duct. His bibliography fills two closely printed pages.

He declares that the diagnosis of the persisting duct is simple and easy if the physician will examine with the catheter every umbilicus that does not heal up promptly. The small tumor formed by the partial prolapse of the mucosa of the duct always has a small opening through which the catheter can be passed into the interior of the abdomen. This is never observed with teratomas or granulomas, there being no orifice in or around the tumor through which the catheter can be passed in deep. The emergence of fecal matters or flatus is an aid in differentiation, as otherwise a persisting urachus might be suspected. In case of doubt, any protuberance at the umbilicus with a minute opening at any point should call for radical operative removal of the entire persisting omphaloenteric duct. No half-way measures should be considered. The duct should be cut off close to the bowel. If there is extensive prolapse of intestines, as in one of the personal cases described, the abdominal cavity should be opened and the umbilicus reached from behind.

Deutsche medizinische Wochenschrift, Berlin

October 19, XLII, No. 42, pp. 1277-1308

65 *Elastic Traction on Nerve Stumps to Close Up Gap. (Zwei neue Methoden der Ueberbrückung grösserer Nervenlücken.) A. Bethe.—p. 1277.
66 *Sources of Error in Testing for Agglutination. (Ueber Fehlerquellen der Gruber-Widalschen Reaktion.) H. Conradi and R. Bieling.—p. 1280.
67 *Etiology of Weil's Disease. IV. H. Reiter.—p. 1282.
68 *Treatment of Epidemic Meningitis. (Zur Klinik und Therapie der Weichselbaumschen Meningokokkenmeningitis.) O. Götz and F. Hanfland.—p. 1284.
69 Operative Mobilization of Joints. (Zur operativen Gelenkmobilisation.) W. Röpke.—p. 1287.
70 Treatment of Amputation Stumps. (Behandlung der Amputationsstümpfe der Invaliden.) B. Dollinger.—p. 1289.
71 To Arrange Trucks for Carrying Wounded. (Ergebnisse der Beförderung Verwundeter auf Lastkraftwagen.) Flemming. —p. 1292.
72 Is There Danger of Undernourishment for the Tuberculous Under Present Conditions? (Ist eine Unterernährung der Tuberculösen augenblicklich zu befürchten?) W. Lublinski.—1293.

65. **Stretching the Stumps of a Nerve to Bridge a Gap.**—Bethe gives an illustrated description of work on dogs undertaken to see if it might not be possible to draw the stumps of a nerve together by gentle, long continued traction with rubber bands. His attempts were entirely successful. The animals played in their cage and ate with good appetite while wearing the elastic bands, and gaps in the sciatic nerve of from 3.6 to 5.8 cm. were thus closed up in six dogs. This is equivalent to a gap of 11 or 16 cm. in man. The method has also been applied in five clinical cases. The stretching was borne without special pain, and the healing proceeded smoothly in four of the cases; in the fifth, ascending neuritis developed. In the experiments on dogs, regeneration and restoration of function seemed to proceed as regularly in the stretched nerve as in the unstretched sciatic on the other side, conditions otherwise being the same. Function returned on both sides equally promptly. Nerves seem to stand traction without injury, comparatively speaking, when applied evenly and not too suddenly.

66. **Sources of Error in Estimating Diagnostic Agglutination.**—A number of authors have called attention to the rise in the agglutination titer when a person who has been vaccinated against typhoid acquires typhoid later. They regard this gradual rise as a sign that the intercurrent disease is surely typhoid. But Conradi and Bieling report some clinical cases with this gradual rise in the agglutinating property but which necropsy revealed to be pure tuberculous meningitis or other disease, without any signs of recent typhoid. To study the matter further they experimented with rabbits, the results of their experimental research and clinical findings all demonstrating that any intercurrent infection is liable to increase the agglutination titer in a person who has ever had typhoid or been vaccinated against it. The new process of elaboration of antigens started by the intercurrent infection revives the old process of production of antibodies which had settled down into quiet, reactivating it anew. And this occurs from a nonspecific bacterial stimulus. This increase in the nonspecific agglutinins under the influence of a fresh infection runs up rapidly but soon drops again after reaching its highest point. They warn in conclusion, "This increase in the agglutination titer cannot be accepted in the differentiation of typhoid in those who have been vaccinated against typhoid or who have ever had typhoid; it is merely an anamnestic seroreaction."

67. **Infectious Jaundice.**—Reiter relates further points in the biology of the *Spirochaeta nodosa,* the micro-organism which answers to the tests for the causal germ of infectious jaundice. He relates further that an active vaccine can be made with it which will protect against Weil's disease. The question now is to determine the intermediate host, and he urges in all cases of infectious jaundice to make a special study of possible hosts in the environment.

68. **Treatment of Epidemic Meningitis.**—Götz and Hanfland report their experiences with meningococcus meningitis in forty-five soldiers and sixteen civilians in the Tübingen region. Contagion by direct contact was known only in two of the total sixty-one cases. There was an exanthem in four cases. The routine treatment was by repeated lumbar puncture, the patient lying on his side, following with an injection of the antiserum. When the spinal fluid was full of pus, they injected after the lumbar puncture from 30 to 70 c.c. of warm saline, to rinse out the cavity, letting it slowly run in and slowly run out again. They repeated this two or three times in some cases; when the pressure in the spinal fluid was once more 100 mm. they then injected the antiserum. The mortality in the sixty-one cases was 24.59 per cent., but omitting five moribund cases it was only 17.8 per cent. In two cases they punctured the corpus callosum to get the antiserum into the ventricle, and the results were excellent in both. A number of the patients displayed a tendency to tachycardia for a long time although nothing organically wrong could be found in the heart. The tachycardia testified that the vagus was feeling the toxic influence of the disease, and hence suggested that the meninges were still suffering likewise, so that the serotherapy should not be dropped too soon. They finally learned from some disastrous experiences not to discharge the meningitis patient as cured until under prolonged surveillance the pulse, temperature, general condition, pressure in the lumbar fluid, and the cell count all showed normal conditions. In three of the entire number the tendency to tachycardia or high pressure persisted interminably, and these men were given long leave of absence on the assumption that some chronic meningeal irritation had been left by the infection.

Medizinische Klinik, Berlin

October 15, XII, No. 42, pp. 1091-1116

73 Accidental Heart Murmurs. (Ueber akzidentelle Geräusche am Herzen.) R. Fleckseder.—p. 1901.
74 Tetanus in the First Year of the War. H. Pribram.—p. 1094.
75 *Diagnosis of Stomach Affections without the Stomach Tube. (Magendiagnostik ohne Schlundröhre.) R. Landerer.—p. 1098.
76 Morbid Self-Accusation of Malingering; Two Cases. (Krankhafte Selbstbezichtigung der Simulation.) Serog.—p. 1100.
77 Roentgen Localization of Foreign Bodies. (Zur röntgenoskopischen Fremdkörperlokalisation.) F. Vogel.—p. 1103.
78 Polarization Microscope in Differentiation of Kidney Diseases. (Untersuchung des Urinsediments mit dem Polarisationsmikroskop mit Differentialdiagnose der verschiedenartigen Nierenerkrankungen.) F. Munk.—p. 1104.

75. **Diagnosis of Stomach Affections Without the Stomach Tube.**—Landerer quotes Boas' list of sixteen conditions in which the use of the stomach tube is contraindicated, but he does not agree with him that gastric neuroses are always a contraindication. It may be of prime importance to convince the patient by the stomach-tube findings that he has no organic gastric trouble. The specialist can tell at a glance that the neurasthenia is the primary trouble, but the general practitioner can affirm this only by exclusion. Roentgen examination reveals motor disturbances, and there are no contraindications for this. Aside from these methods of examination, much can be learned from inspection of the vomit, although it usually has stood for some time before it is inspected. If the reaction is alkaline or neutral, we cannot tell whether this is due to admixture of saliva, etc. But if it is acid, and the acid proves to be hydrochloric acid, then we know that this must have come from the stomach. If present in excessive amounts, hyperacidity is beyond question. The presence of lactic acid is not so conclusive in vomit as in the siphoned-out stomach content. Determination in

vomit of the digestion of starch is of little use as the saliva may have cooperated; admixture of blood is also unreliable. If rennin and pepsin are found, the findings are conclusive, but if they are not found, it is impossible to say whether they might not have been inactivated or destroyed by fermentation, etc.

All the findings in vomit are merely of presumptive import; similar findings in fresh siphoned-out stomach content are conclusive. When it is impossible to use the stomach tube, we must put the patient on a test diet and examine the stools. This is tedious as he has to stay in bed for three days and get only the unappetizing test diet. As the stomach gets upset ten times at least to the pancreas' once, the finding of undigested muscle fibers and of fat points usually to the stomach. Occult blood should always be sought if there is the least suspicion of ulcer or cancer. In case of dubious findings, Landerer exclaims, "Which is worse for the patient, to take a course of treatment for a suspected but really nonexistent ulcer or to have ulceration overlooked?" It is important further to estimate the effect of treatment of an ulcer by examining the stools for blood. No patient should be discharged as cured until this has given negative findings several times.

When a patient has good appetite and good gastric digestion but a tendency to diarrhea, this suggests a deficit of hydrochloric acid in the stomach. By giving a little hydrochloric acid in water, after a meal, it usually passes at once into the small intestine, but from there it may excite the normal reflex closure of the pylorus, and thus enable the food to be kept longer in the stomach and be better digested than would be the case without the therapeutic acid. This may explain the improvement under fat in some cases of achylia; the fat checks motor functioning and the food is kept longer in the stomach. Pain in the stomach that subsides when something is eaten is regarded as a sign of hyperacidity, but this is more certain when the pain can be checked by giving an alkali.

Münchener medizinische Wochenschrift, Munich

October 10, LXIII, No. 41, pp. 1445-1476

79 *Roentgen Treatment of Mammary Cancer; Single Exposure. (Die Strahlenbehandlung des Brustkrebses in einer einmaligen Sitzung. Festlegung der Karzinomdosis.) W. Friedrich and B. Krönig.—p. 1445.
80 Advantages of Duodenal Sound in Roentgen Examination after Gastro-Enterostomy. (Aufgaben und Schwierigkeiten der Röntgenuntersuchung Gastroenterostomierter. Lösung durch Verwendung der Duodenalsonde.) J. Freud.—p. 1447.
81 Retarded Pulse. (Ueber Pulsverspätung.) J. Neumayer.—p. 1449.
82 *Nasal Diphtheria. K. Ochsenius.—p. 1450.
83 *Perforation of Cholecystitis into Abdominal Wall. (Ueber extraperitoneale Perforation der Gallenblase.) C. Hörhammer.—p. 1451.
84 By-Effects with Intramuscular Injections of Menthol-Eucalyptol in Treatment of Pulmonary Tuberculosis. C. Pöhlmann.— p. 1452.
85 Beneficial Results from Vaccination against Typhoid. (Wert der Typhusschutzimpfung.) K. Walko.—p. 1461.
86 War Wounds of the Larynx. (Ueber Kriegsverletzungen des Kehlkopfs nach Erfahrungen dieses Krieges.) E. Allenbach. —p. 1464.
87 *Treatment of War Aphonia. (Weitere Heilungen von Stimmverlust im Krieg.) O. Muck.—p. 1466.
88 Empyema and Abscess after Wounds of the Lungs. (Zur Entstehung und Verhütung von Lungenabszessen und -empyemen nach Lungenschüssen.) M. Hirsch.—p. 1468.
89 Prophylaxis and Treatment of Gas Phlegmons. W. Rübsamen.—p. 1468.
90 Advantages of Transplanting Skin in Treatment of War Wounds. (Mehr Transplantieren!) Holzapfel.—p. 1469.
91 Improvised Rat Traps. (Rattenbekämpfung an der Front während des Stellungskrieges.) Kessler.—p. 1470.
92 Open Metal Trelliswork to Protect Wounds. (Wundgitter zur offenen Wundbehandlung.) C. Hamburger.—p. 1471.
93 Improved Principles for Artificial Legs. (Verbesserte Beinprothesen.) v. Burk.—p. 1472.
94 Device for Extension Treatment of Fractured Femur. (Extensionsapparat zur Behandlung von Oberschenkeldurchschussfrakturen.) M. Koralek.—p. 1473.
95 Substitute for Adhesive Plaster Extension Dressing. (Ersatz des Heftpflasterstreckverbandes.) O. Müller.—p. 1473.
96 Folding Litter-Chair. (Neue Verwundeten—Kranken—Trage.) Witzenhausen.—p. 1474.
97 Glycol as Substitute for Glycerin. (Neuer brauchbarer Glyzerinersatz.) C. Bachem.—p. 1475.

79. **Dosage for Roentgen Treatment of Cancer at Single Sitting.**—This communication from the Freiburg gynecologic clinic relates experiences which have led to the adoption of a special dose for hemorrhagic uterine affections, for cancer of the breast, etc. The iontoquantimeter findings are the gage. It is emphasized that for myoma and hemorrhagic uterine affections and for mammary cancer this method of treatment by a single dose should be preferred to all others.

82. **Nasal Diphtheria.**—Ochsenius has encountered in his private practice at Chemnitz during the last nine months thirty-two cases of pure nasal diphtheria. The majority were between 2 and 6 years old. In 88 per cent. he found that one side of the nose was alone affected at first. A tendency to repeated but slight hemorrhages from the nasal mucosa was evident in every case. This should always call for bacteriologic examination of the nasal secretion. The nose is obstructed with brownish scabs; a purely suppurative discharge is rare; in some of the cases there was moderate secretion with excoriations and scabs. Formed membranes were only very rarely expelled. The course was always favorable. Unless complications developed, the general health was but slightly impaired; the younger children alone were pale and languid. There were no appreciable complications except otitis media in two sisters. One child of 4 had likewise a diphtheric vulvitis, both healing within a week under antitoxin. He applied locally glycerin ointment or cinnabar salve. The longest period of positive findings in the secretions was eight weeks. Usually the bacilli disappeared quite early. The insignificant symptoms at first led to contagion of others, as the diphtheria was not suspected until the mischief was done. Two of the children developed diphtheria in the other side of the nose after an interval of five and ten weeks and a third child, three weeks later, developed typical diphtheria in the throat. One child of 3 presented severe symptoms of anaphylaxis for five days after injection of 1,500 units of horse antitoxin, thirty-six days after 500 units of beef antitoxin had been injected as a preventive.

83. **Extraperitoneal Perforation of the Gallbladder.**—The woman of 38 had complained for six years of occasional pains and vague discomfort on the right side and at the costal arch, but there was no jaundice and the pains did not spread. For the last six months the right side had been swelling until a tumor protruded from the costal arch nearly to Poupart's ligament, and an incision in the posterior sheath of the rectus revealed that cholecystitis had perforated into the abdominal wall, with escape of numerous gallstones. The contents were slightly purulent but not fetid. The large abscess was cleared out and then closed. The incision was then enlarged and the gallbladder removed, leaving a portion adherent to the intestines, first drawing it up with two rows of sutures and burying it in the peritoneum. The abscess cavity was then reopened, curetted and tamponed with iodoform gauze. Smooth recovery, with only a slight rise in temperature during the first few days. It is the only case of the kind known at the clinic (Leipzig) in ten years among 584 bile-apparatus cases. Hörhammer reviews the scanty literature on the subject, adding that the gallbladder contents have been known to slip down into the groin or thigh in such cases.

87. **Treatment of Functional Aphonia.**—Muck reports numerous cases in which the voice lost from a fright was restored again by a fright. For the latter he lowers a ball into the larynx. The scream of fright as the man feels he is suffocating, starts the voice reflex anew, and the aphonia is conquered at a single sitting. He has now a record of twenty-seven such cases.

Therapeutische Monatshefte, Berlin

October, XXX, No. 10, pp. 465-512

98 *Modern Treatment of Syphilis. (Die moderne Salvarsan-Syphilistherapie der Autoren.) O. Naegeli.—p. 465. Concluded.
99 Substitute for Cod Liver Oil. Riehn.—p. 476. Concluded.
100 Yeast in Infant Feeding. (Zur praktischen Verwendbarkeit der Hefe im frühesten Kindesalter.) Riehn.—p. 476. Concluded.
101 *Indications for and against Curetting the Uterus. (Die Ausschabung der Gebärmutter.) D. Pulvermacher.—p. 483.
102 Comparative Physiologic Tests of Digitalis Preparations. J. W. Hamner (Stockholm).—p. 484.

98. **Modern Treatment of Syphilis.**—The first instalment of Naegeli's article was reviewed in these columns, October 28, p. 1336. He here recapitulates his views and gives eight pages of bibliography, with titles in full, saying that the technic of salvarsan treatment was worked out in 1913, and the years since have brought no further material progress in it. He advocates beginning with small initial doses and continuing with moderate dosage. The total should be quite considerable at the first course, and the interval between courses or sporadic treatments should not be over two or three months, to ward off neurorecurrence. By combining salvarsan with mercury and eventually with iodid, the curative effect is enhanced without increasing the dangers, and the length of the treatment is shortened. He adds that salvarsan renders preeminent service in syphilis in pregnant women and in small children, and with syphilitic changes in the central nervous system.

101. **Indications for Curetting the Uterus.**—Pulvermacher never curets except to remove retained scraps after an abortion or proliferating decidua or to obtain scraps for microscopic examination with suspicion of cancer. He warns that under all conditions general anesthesia is required for it, and that when the mucosa lies directly on the muscle, without any submucosa, as in case of proliferation of decidua, great caution is necessary to avoid injuring the muscle. Hemorrhage recurring repeatedly at brief intervals is characteristic of this. If the muscle is injured during the curetting, the hemorrhages soon return. In such a case the uterus does not look much abnormal, but it bleeds at the slightest touch. The tubes and ovaries seem normal but the women show signs of intense anemia. When the uterus has suffered in this way from too vigorous curetting, he combines hypophysis extract treatment with arsenic, tamponing the vagina only in case the hemorrhage is profuse. On the other hand, he declares that the curet should never be used on the uterus merely in treatment of excessive menstruation. The ovaries are usually responsible for this and ovarian treatment is called for, supplemented possibly by tamponing the vagina. He remarks parenthetically, "The present changed mode of life and work seems to have modified in some way the correlation between the uterus and ovary." The second contraindication for curetting the uterus is when the tubes or ovaries are inflamed or enlarged. Curetting the uterus does not remove all the cause in such cases.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 29, XXXVII, No. 87, pp. 1361-1376

103 Experimental Cholemia; Action of the Bile on the Voluntary and Involuntary Musculature and on the Digestive and Urinary Apparatus. A. Berti.—p. 1366.

November 2, No. 88, pp. 1377-1392

104 Gradual Progress toward Improvement in Young Child with Congenital, Primary, Defective Development of Musculature. (Caso di amioplasia primitiva congenita.) A. Nizzoli.—p. 1380.

November 5, No. 89, pp. 1393-1408

105 Roentgen Localization of Metal Foreign Bodies. (La localizzazione dei proiettili di guerra nei tessuti.) C. M. Pavesi.—p. 1395.
106 *Medicolegal Examination of the Hymen. (Esame medico-legale dell' imene.) A. Breda.—p. 1404.

106. **Medicolegal Test for Intact Hymen.**—Breda treats vulvovaginitis in children and virgins by injecting a medicated fluid introduced through a fine catheter worked through the intact hymen. The reflux of the fluid thus injected into the rear of the vagina causes the hymen to bulge outward, and thus shows up its actual condition most instructively.

Policlinico, Rome

November 5, XXIII, No. 45, pp. 1301-1326

107 *Treatment of Mucomembranous Colitis. (Terapia dell'enterocolite muco-membranosa.) A. Capparoni.—p. 1301.
108 Treatment of Syphilis in Women. G. Massimi.—p. 1309.
109 Backache. (I dolori di schiena.) G. Dragotti.—p. 1310.
110 Atrophy of Leg Muscles from Long Wearing of Tight Military Leggings. (L'atrofia della gamba in seguito all-uso prolungato delle mullettiere.) A. Majoli.—p. 1314.

November Medical Section No. 11, pp. 377-408

111 *Auscultation by the Mouth with Percussion of Sternum and Spine in Diagnosis of Disease in the Upper Mediastinum. (Dell'ascoltazione orale. II.) C. Frugoni and G. Tognini.—p. 377.
112 Prophylactic Vaccination against Typhoid and Cholera. C. Moreschi.—p. 393.
113 *Pernicious Anemia. (Contributo allo studio clinico della anemia perniciosa.) A. Roccavilla.—p. 399. Concluded.

107. **Mucomembranous Colitis.**—This affection is frequently mistaken because the patient's description of his disturbances is not clear, and hysteria, neurasthenia, a gastric neurosis or syphilis may be incriminated. Every patient with gastric trouble or neurasthenia should have mucomembranous colitis excluded as one of the first points in the diagnosis. One patient came into Capparoni's hands after she had been treated for seven years for endometritis, to which her dyspepsia, her abdominal pains and nervous disturbances had been attributed. There was constipation, and the afternoon temperature was often slightly febrile. The findings in blood and urine were normal, but the tenderness of the colon gave the clue to the trouble, and systematic dietetic measures, with local sterilization of the bowel, gradually corrected conditions to clinically normal by the end of two years. He warns that milk and fruit and fresh vegetables must be prohibited, as also everything tending to increase the uremia, to which there is usually a tendency in these cases. Among the local measures are enemas, taken reclining, of a 1 : 1,000 solution of salicylic acid, or a teaspoonful of ammoniacal ichthyol to a liter of water. Dyspepsia should be combated by small doses of alkalines ten minutes before meals. Castor oil is the only purgative permissible; it may be given in a single large dose of 15 gm. with a little belladonna. Iodid and arsenic may be indicated if there is a lymphatic tendency. The nervous disturbances may call for special aid to restore tone to the nervous system, and for this he uses 0.05 gm. phosphorus in 50 gm. olive oil, injecting 2 c.c. daily, keeping this up for three months with intermissions of a month or so. One woman of 35 presented the clinical picture of neurasthenia along with mucomembranous colitis and extreme visceroptosis, all of which subsided under the above treatment. Her health has been good during the ten years since. Another woman of 35 has also been cured for several years to date. She had presented the same clinical picture, and it had been ascribed to hysteria by her physician. She was in the hospital eight months for treatment, and continued the course after she returned home. With mild nervous disturbances, the phosphorus can be given by the mouth. He prescribes it in the form of neutral sodium phosphate. He discusses the various complications and severe types that may be encountered, and the association with gout, migraine, etc., dwelling in particular on the pseudo-appendicitic attacks.

111. **Oral Auscultation.**—Frugoni insists that the ear can be trained to recognize instructive shades of difference in listening at the patient's open mouth while the sternum and spine region are percussed. Enlarged tracheobronchial glands, and tumors in the upper mediastinum modify the findings most characteristically.

113. **Pernicious Anemia.**—In this concluding portion of his article Roccavilla refers to his fourth case of pernicious anemia which was of the rare type of a leukanemic syndrome. He discusses the nature and pathogenesis of pernicious anemia in general, ascribing quite an important rôle to the spleen, but not for the usually accepted reasons. The removal of the spleen leads to a considerable increase in the cholesterin in the blood stream. This is a distinct advantage, he declares, as pernicious anemia is essentially due to a lack or rather a perversion of the blood colloids in general and of free cholesterin.

Riforma Medica, Naples

XXXII, No. 33, pp. 893-920

114 War Surgery. (Appunti di chirurgia de guerra.) G. Marsiglia. —p. 893.
115 Case of Traumatic Hallucinations. V. Desogus.—p. 915.

No. 34, pp. 921-948

116 Color Reactions of Cholera and Other Germs. (Reazioni del vibrione del colera e di altri germi con sostanze coloranti decolorate.) A. Azzi.—p. 921.
117 Fourth Disease; Fifteen Cases. (Malattia di Filatow-Dukes.) E. Donetti.—p. 924.

No. 35, pp. 949-976

118 *The Toxins of Fatigue. (Kenotossine.) L. Ferranini and S. Fichera.—p. 949.

118. **The Toxins of Fatigue.**—This research on the gastrocnemius of frogs was undertaken to determine the modifications in the electric responses after fatigue of the muscle. A large number of tracings are given, the results confirming the depression of the excitability and of the contracting power and general energy of the muscle under the influence of fatigue toxins.

Brazil-Medico, Rio de Janeiro

October 14, XXX, No. 42, pp. 329-336

119 *Iodid Treatment and Intravenous Salicylic-Iodotherapy. A. A. da Matta.—p. 329. Commenced in No. 41, p. 321.
120 *Bacillus Lactis Aerogenes in Brazil; Two Cases. E. Gomes.—, p. 330.

119. **Intravenous Iodid-Salicylic Medication.**—Da Matta describes experiences in Brazil with intravenous injections of sodium iodid, all apparently confirming the harmlessness of injection of a 10 per cent. solution. Pereira has reported injection of 475 gm. of sodium iodid in a case of general paralysis in twenty-two injections in the course of forty-seven days, without appreciable disturbances. In Kemplerer's experience, a total of 100 injections of from 5 to 10 gm. of the sodium iodid in a 10 per cent. solution, in different patients, were tolerated without untoward by-effects, at most redness of the face. The injections were made two or three times a week. In some cases of general paralysis he injected from 30 to 50 gm. at a dose, and in other cases he injected 20 gm. daily. When the doses surpassed 15 gm. there was liable to be, a few hours after the injection, slight manifestations of iodism, slight headache, conjunctivitis, etc., which soon subsided. With doses of 20 up to 50 gm. there was slight, transient acceleration of the pulse. Da Matta comments on the difference between the by-effects when given by the mouth or in a vein. By the mouth large doses are liable to irritate the lining of the digestive tract and to induce severe iodin poisoning. For this reason he began in 1914 to give sodium iodid by intravenous injection, and has had no mishap in many dozens of such injections. Doses of 10 or 20 gm. are tolerated by intravenous injection in patients unable to stand the smallest quantity in the stomach. The intravenous injection of a 10 per cent. solution ensures the maximum of advantages from iodid treatment with the minimum of disadvantages. He starts with 5 gm., gradually increasing to 20 gm., repeating the injections daily or every other day or at longer intervals. As a general rule he never gives over 15 gm. at a single dose.

In 1915 da Matta combined sodium salicylate with the sodium iodid, and is enthusiastic over the results obtained with this simple treatment of acute articular and muscular rheumatism and in relieving the pains in many chronic cases of rheumatism and gout. He introduces the needle into a vein in the arm and injects 100 c.c. of the 5 or 10 per cent. solution of sodium salicylate, made with distilled and sterilzed water. Then he injects through the same needle 20 or 30 c.c. of physiologic solution and follows this with 50 or 100 c.c. of the 10 per cent. solution of sodium iodid. This has been his practice during the last year at the Hospital de Misericordia at Manaos, Brazil. The patients with acute articular rheumatism lost their pains in a few hours and the pyrexia soon followed. In four cases the results, he says, were marvelous, the patients being able to get up in twenty-our hours. One patient with chronic deforming rheumatism was relieved by a single injection of the pains which had een tormenting him, preventing all sleep. Da Matta gives he injections in a series, the salicylate in 5, 10, 15 and 20 gm. oses, alone or followed by the physiologic saline, and the odid in doses of 5 or 10 gm., both in a 10 per cent. solution, epeating the injection every second or third day or at longer ntervals. When given merely to combat pain, he gives the alicylate in from 5 to 10 gm. doses to 3 or 6 gm. of the iodid.

120. **Cystitis Caused by Bacillus Lactis Aerogenes.**—Gomes' wo patients were a young child and a woman who had been ept long on a strict milk diet. In both the cystitis was the work of this bacillus. The woman had been put on a milk et for slight albuminuria in pregnancy, and the cystitis that eveloped was accompanied by high fever for fifty days. nder vaccine therapy the woman recovered, but Gomes thinks the suppression of milk had more to do with the recovery than the vaccine therapy.

Semana Medica, Buenos Aires

XXIII, No. 35, pp. 195-222

121 Present Status of Cholelithiasis. (La calculosis biliar.) F. Mastrosimone.—p. 195.
122 Vaccine Therapy of Pneumonia. (Sobre 5 neumococcicas tratadas con el Haptinogeno Neumo Mendez.) J. C. Mira.—p. 211.

No. 36, pp. 223-250

123 Midwives in the Prophylaxis against Venereal Disease. (Sobre profilaxis social de las enfermedades venereas. Participacion de la partera en la lucha preventiva contra la sifilis y la gonorrea.) J. A. Beruti.—p. 223.
124 Infantile Mortality in Mendoza Province. C. Ponce.—p. 231.
125 Blue Vision after Cataract Operations. (La vision azul en los operados de catarata.) F. M. Urra.—p. 240.

No. 37, pp. 251-276

126 Epidemic of Influenza. (A proposito de la epidemia actual de grippe.) R. A. Bullrich.—p. 251.
127 Toxicity of Curare for the Common Frog and Toad and for the Guinea-Pig. B. A. Houssay and E. Hug.—p. 259; (La curarizacion del Leptodactylus ocellatus L. Gir.) B. A. Houssay and E. Hug.—p. 261.
128 Earache. (Breves consideraciones sobre las otalgias.) A. S. Lagomarsino.—p. 265.
129 Concrete Plasmogenesis. V. Delfino.—p. 267.

Russkiy Vrach, Petrograd

XV, No. 38, pp. 889-912

130 Skin Diseases in Wartime. (O bolieznyakh kozhi v voennoe vremya.) V. V. Ivanoff.—p. 889.
131 Medicolegal Expert Testimony in Suits for Divorce. (O sudebnomed. expertizie po brakorazvodnim dielam.) L. Bertenson.—p. 895.
132 Blood Changes Under Influence of Asphyxiating Gases. V. I. Glinchikoff.—p. 900.
133 War Wounds of the Spine and Operative Treatment. (Ognestrieln. raneniya pozvonochnika i ego soderzhimago i ikh chir. liechenie.) A. L. Goberman.—p. 905.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

October 28, II, No. 18, pp. 1533-1628

134 *The Physiology of Sleep. (Over de physiologie van den slaap.) H. Litwer.—p. 1541.
135 Boerhaave as a Rhymester. (Boerhaaviana. II.) E. C. van Leersum.—p. 1557.
136 *Wassermann Test in Malaria. G. A. Prins.—p. 1562.
137 Contraindications for Trephining the Sclerotic. (Is trepanatie van de sclera gevaarlijk bij tot dichtbij het fixatiepunt voortgeschreden gezichtsveldbeperking?) G. F. Rochat.—p. 1567.

November 4, No. 19, pp. 1689-1768

138 Research on the Tonicity of Muscle and on the Innervation Therefor. (Spiertonus en spiertonusinnervatie. I. Pseudomotorische zenuwwerkingen en tonusinnervatie. IV. Het pootverschijnsel van Sherrington; een pseudomotie der spieren der ledematen, benevens samenvattende beschouwing over pseudomotorische verschijnselen en tonusinnervatie.) G. van Rijnberk.—p. 1689.
139 *Endocarditis Lenta. L. P. Daniels and C. Elders.—p. 1696.
140 The Physiologic Function of the Tonsils and the Tonsillectomy Question. (Het vraagstuk der tonsillectomie.) P. J. Mink.—p. 1703.
141 Boerhaave's Practice. (Boerhaaviana. III.) E. C. van Leersum.—p. 1712.
142 *Present Status of Prophylaxis of Scarlet Fever. (De tegenwoordige roodvonkbestrijding.) L. Heijermans.—p. 1719.
143 Painless Birth of Twins. (Onpijnlijke weeën.) S. Wartena.—p. 1722.

134. **Causation of Sleep.**—Litwer gives the arguments for and against the five principal theories as to the causation of sleep, saying of the vasomotor theory that Spehl denounced it on account of the hyperemia in the brain which accompanies sleep under the influence of chloral, and Mosso found the arterial pressure in the brain high during sleep and lower during waking hours. Richet reported that he sometimes found congestion in the brain and sometimes anemia in the brain during sleep, while there can be anemia of the brain without sleep and congestion without sleep. Hence sleep is not altogether a matter of the circulation in the brain. The inhibition theory explains both hypnosis and ordinary sleep as a psychologic process. It is started by fatigue directly, and, indirectly, by the idea of sleep, by sedative drugs, by electricity, and by extremes of temperature (hibernation). If the psychologic process started by the idea of sleep were all that is necessary, then it might be possible to will not to

sleep. The osmotic theory is based on Devaux' assumption of a connection between fatigue, the necessity for sleep, and retention of interstitial water throughout the body, especially in the brain. Another theory assumes that the neurons retract and thus communication between them is interrupted, but Litwer remarks that it is not proved as yet that they ever communicate directly. His comment on the various theories is that they are all too exclusive; probably there are various factors at work in the production of sleep. Some are more powerful in certain persons and others in others. Sleep at night is probably caused by fatigue and the idea of sleep at night inbred through countless generations. Bouchard's statements in regard to the presence of narcotic substances in the urine are invalidated by the fact that the fluids he used in his experiments had an osmotic tension from two to seven times higher than the body fluids. Litwer repeated his experiments, using isotonic fluids, and was unable to detect any narcotic substances under the conditions of the tests.

136. **Wassermann Reaction in Malaria.**—Prins found the Wassermann reaction positive in four patients with malarial fever, but as the disease subsided the Wassermann test became permanently negative. In another case the persistence of the reaction after recovery from the malaria suggested concomitant syphilis, confirmed by the course of the case. The peculiarly intense response to the test in this case was undoubtedly due in part to the malaria. When a person known to have been exposed to malaria and with no history of syphilis reacts positively to the Wassermann test, Prins regards this as an indication of masked malaria and gives quinin in consequence. The results have always sustained this assumption.

139. **Subacute Infectious Endocarditis.**—Daniels and Elders review the literature on endocarditis lenta and report a case in a woman of 34 with the necropsy findings. She had had acute articular rheumatism fourteen years before. Her present sickness began with pains in the thighs and arms, frequent somnolency, and she tired easily. The *Streptococcus viridans* was cultivated from the blood, and she died in six months with symptoms of mitral and aortic insufficiency.

142. **Prophylaxis of Scarlet Fever.**—Heijermans remarks that scarlet fever is epidemic again in Amsterdam at present, and seems to be spreading more than in last year's epidemic. The scarlet-fever hospitals are overcrowded and barracks are built to shelter those for whom there is no room in institutions. Prompt isolation and placarding of the houses are enforced but do not seem to check the epidemic, and he queries whether this is after all the best means of prophylaxis. We know nothing positive of the scarlet-fever germ and still less of its mode of transmission. All our measures are simply empiric, and their failure to check the epidemic can mean only that they are not effectual as at present applied. The dread of being quarantined and business disturbed leads to concealment of cases; medical help is not sought, and the chances of contagion are multiplied. He emphasizes that measles and whooping cough are far more fatal than scarlet fever, and yet no one thinks of collecting these cases in the hospitals. There was no mortality in the scarlet fever epidemic of last year; it averages 2 per cent. this year.

It is peculiar also to scarlet fever that it is most prevalent among the children of the well to do, entirely the reverse of measles and whooping cough. Children who have had scarlet fever sometimes infect others on returning from the hospital, while there may be no contagion from children kept at home. Every physician knows of children who have developed acute nephritis a few days after their return from the hospital. Another disadvantage of the routine sending to the infectious diseases hospital is the difficulty of a positive diagnosis of scarlet fever. Many children have been sent there who did not have scarlet fever at all. And there is no evidence that institutional treatment wards off complications. Measles requires careful tending more than scarlet fever. Bed rest and dieting are all that is needed for the latter in most cases. Scarlet fever has been of a very mild type in recent epidemics. He thinks it would be much better to have the children kept at home. They are not sick enough to need much medical care. The physician can look in to control the cases once or twice, or certain physicians might be assigned to keep an oversight over all the scarlet-fever cases in the city. In short, he declares that scarlet fever should be managed differently. There should be notification of cases but no placarding of houses. The crowding of scarlet fever cases in the hospitals should stop, and only cases of exceptional severity should be sent to the hospital. The expense of these wholesale preventive measures he regards as a waste of money, at least as long as the epidemics are as mild as they have been of late years.

Hospitalstidende, Copenhagen

November 8, LIX, No. 45, pp. 1085-1108

144 *Tetanus Consecutive to Lesions of the Orbit and Eyeball. E. R. Schneider.—p. 1085.

144. **Tetanus Following Injury of the Orbit and Eyeball.**—Schneider has been able to find only sixty cases of tetanus developing after a lesion of the eyeball or orbit in the literature of the last hundred years. He has himself encountered a case which he here reports, and likewise another unpublished case from the records of the Copenhagen hospital. In 1912 Permin compiled the 371 cases of tetanus known to have occurred in Denmark, but there was no eye case among them. Schneider describes the clinical picture and reviews the literature on the subject.

Ugeskrift for Læger, Copenhagen

November 2, LXXVIII, No. 44, pp. 1931-1968

145 *The Working Capacity with Therapeutic Pneumothorax. (Arbejdsdygtighed hos Pneumothoraxbehandlede.) A. Koefoed.—p. 1931.

November 9, No. 45, pp. 1969-2008

146 Tanning of the Skin and Other Changes in Cadaver Buried in Turfpit. (En ejendommelig Forandring af Lig ved Henliggen i Tørvemoser.) V. Ellermann.—p. 1969.

147 *Poisoning with Combination of Causes of Death. (Forgiftningstilfælde med kombineret Dødsaarsag.) K. Sand.—p. 1978.

145. **Earning Capacity with Induced Pneumothorax.**—Koefoed gives the details of thirty-three cases in which an artificial pneumothorax was induced in treatment of unilateral pulmonary tuberculosis. All have been dismissed from treatment for six months at least and the majority for from one to five years. All belonged to the working classes and all are dependent on their own labor for their support, and their employment is under somewhat unhygienic conditions in most of the cases. Their earning capacity is little if at all impaired, but the injected gas is absorbed much more rapidly when the patient is working than when quiet in the sanatorium, and the lung expands again sooner. He says that artificial pneumothorax has been attempted in 200 cases at the sanatorium (Silkeborg, Denmark) but it could be completed in only 110 cases. In this group 31.3 per cent. have full earning capacity. In 37.4 per cent. the progress of the disease was not arrested and the patients have died since. In the ninety cases in which it proved impossible to induce the pneumothorax, 57.9 per cent. have died since, and only 14.4 per cent. are still self-supporting.

147. **Poisoning with Other Causes Cooperating in the Fatality.**—In the first of the two medicolegal cases reported by Sand, there was chronic lead poisoning from the use of white lead by a quack in the prolonged treatment of a skin affection in a child, but pneumonia was the immediate cause of death. It is possible that the lead poisoning may have induced the pneumonia, and it certainly must have reduced the child's resisting powers, and thus have contributed to the fatal outcome. The kidneys showed serious injury from the lead. In the second case the acute poisoning was from the fumes of hydrogen cyanid generated in ridding a room of vermin. A liter of sulphuric acid and 0.5 kg. of potassium cyanid had been used in the room; all the outlets had been sealed except the opening around the water-closet pipe from a bathroom on the floor above. The child had been in this bathroom only five minutes when she was found dead. The child's resisting powers had been depressed by a pulmonary affection so that it was more susceptible to the action of the poisonous fumes.

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CERTAIN ASPECTS OF BRONCHIAL, PULMONARY AND PLEURAL DISEASE

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There are two general aspects of the subject to which I would first call attention, and they are of such a simple and elementary character as often to have escaped the attention they deserve. I refer to the diagnosis of bronchopulmonary or pleural disease by the universally applicable methods of history taking and physical examination, which are, after all, the most valuable means of investigation, and as such merit the most careful study.

I would emphasize, as regards the history, the important diagnostic value of the evolution and progress of individual symptoms, and more especially the careful inquiry concerning the order of appearance of the earliest manifestations. A striking example of the value in differential diagnosis of attention to the march of events may be found in a history of sudden onset of pain in the side, cough with bloody expectoration, and chill or chilliness, this triad of symptoms being common to both lobar pneumonia and pulmonary infarction, but most suggestive of the former when accompanied or followed within a few hours by a rapid rise of temperature, and of the latter when the elevation of temperature takes place gradually within a day or two. If the embolus, giving rise to the infarction, comes from a latent venous thrombosis, only careful attention to the evolution of the initial symptoms may suggest the diagnosis. Of other conditions in which the history is of prime importance, the diagnosis of aspirated foreign bodies, the distinction between bronchial and cardiac asthma, the detection of the underlying cause of an apparent chronic bronchitis, and the determination of the etiology of hemoptysis and of pleurisy may be mentioned.

Concerning the physical signs of pulmonary disease, it is possible to make a very simple generalization, useful for purposes of teaching physical diagnosis, by grouping together those conditions in which, as in lobar pneumonia with patent bronchi, there are dulness, bronchial breathing, increase of voice, whisper and tactile fremitus. These physical signs are common to consolidation of the lung from such other causes as bronchopneumonia, pulmonary infarction, and retraction or compression of the lung in consequence of accumulation of fluid in the adjacent serous sacs. In a second group, as in the presence of pleural effusion, there is dulness and, owing to the lack of communication of the involved region with the bronchi, diminished or absent breathing, voice, whisper and tactile fremitus. This group of signs obtains in massive pneumonia, pulmonary or pleural tumors, pulmonary cysts and atelectatic areas arising in consequence of bronchostenosis. If resonance be substituted for dulness in the second group, the findings are consistent with pneumothorax, which completes the list of important pathologic conditions.

ASPIRATED FOREIGN BODIES

The first of the special subjects to which I would refer may be illustrated by the problem presented by a child with the history of "having swallowed something and choked." In such a case it is highly important to inquire concerning the evolution of the initial symptoms and to determine whether, as commonly happens, paroxysmal cough, dyspnea, suffocation and cyanosis were among the earliest manifestations, followed in turn by comparative freedom from symptoms for a few days and then persistent cough and expectoration, and to distinguish this complex, which suggests an aspirated foreign body, from the less frequent initial dysphagia, and freedom from cough and dyspneas, with the later development of cough and expectoration, arising in consequence of the impaction of a foreign body in the esophagus and subsequent rupture into the air passages. Aspirated foreign bodies gain access to the right primary bronchus or its branches in a large proportion of cases. The physical signs are those of atelectasis, and the localization is greatly assisted by Roentgen examination.

Persistence of the foreign body is almost invariably followed by chronic bronchopulmonary suppuration. In connection with treatment, three matters deserve special emphasis: In the first place, the chance of spontaneous expulsion, contrary to a too prevalent belief, does not justify delay in treatment. Secondly, the usual therapeutic procedures, a blow on the back, shaking the patient and the use of emetics, should not be employed. Finally, immediate effort should be made to extract the foreign body with the assistance of the bronchoscope. No community can be regarded as properly protected without one or more physicians skilled in the use of this instrument, and there are broad stretches of the country still unprotected and numerous lives lost in consequence each year.

POSTOPERATIVE PULMONARY CONDITIONS

A closely allied subject is the occurrence of pulmonary complications following operations under general anesthesia. Their incidence seldom falls below 2 per cent. even in the best conducted clinics, and not infrequently rises as high as 3 per cent. or more. A greater relative frequency is usually noted during the colder months of the year and after abdominal operations. It may in general be said that about one quarter of all deaths following operations under general anesthesia are due to lung complications, of which bronchopneumonia, and less often lobar pneumonia, are the most common and serious. A more serious aspect is presented by pulmonary abscess, which has followed the removal of tonsils or adenoids, the extraction of teeth, and operations on the nasal septum or about the mouth in nineteen out of 206 cases of pulmonary abscess in our series. Symptoms usually begin from one to four days after operation, and the right lower lobe was involved in about one half of the cases. Nine patients died. Owing to the scattered sources of this material, it is impossible to say out of how large a number of operations on the mouth or nasopharynx these nineteen cases have occurred, but it is sufficiently disturbing to find about one in every ten cases of pulmonary abscess due to this cause, and at the same time to believe that the accident might have been prevented by the exercise of greater caution in the selection of the time for, and in the performance of, the operations.

While it is not always possible in postoperative pneumonia and abscess to determine the cause, yet it is probably fair to say that an acute infection of the respiratory tract existing at the time of the operation is responsible for a considerable proportion of the surgical cases, and that the aspiration of infected blood or tissue is the usual source of the complication after operations on the mouth or nasopharynx. It should be an invariable rule, therefore, never to operate in the presence of an acute infection of the respiratory tract, no matter how mild this may appear to be, without due consideration of the danger. The mouth should be carefully cleaned before operation, and the inhalation of infected material should be prevented during the operative procedures.

ETIOLOGY OF CHRONIC BRONCHITIS

From a study of our necropsy cases I have been surprised to find how seldom the clinical diagnosis of "chronic bronchitis" is justified other than as a relatively unimportant secondary manifestation of a more serious underlying condition. Of 161 cases[1] with persistent cough, expectoration and râles during life, 103 (63 per cent.) were found at necropsy to have cardiac failure from valvular, myocardial or pericardial disease, arteriosclerosis or chronic nephritis as the probable explanation of the pulmonary symptoms. Pulmonary tuberculosis was responsible for thirty-one cases, including twenty-two with chronic ulcerative tuberculosis and nine with the miliary form of the disease. Nontuberculous pulmonary infection (subacute or chronic bronchopneumonia, lobar pneumonia with abscess and abscess or gangrene) accounted for fifteen more cases. Malignant disease of the lung or mediastinal glands was found in explanation of five. The seven remaining cases are of special interest as representing the only ones out of the group in which bronchial disease alone could account for the "chronic bronchitis." In six of these a study of the records indicated that bronchial asthma was the cause of the clinical manifestations, and the last case was one of syphilis of the trachea and bronchi. Thus out of the entire group not one was found in which a clinical diagnosis of "chronic bronchitis" alone could have been regarded as in any way adequately describing the actual pathologic condition. Nine instances of "winter cough" in the series are of interest. Seven proved to be of cardiac origin, one was due to pulmonary tuberculosis, and the last to syphilis of the trachea and bronchi.[1] In the determination of the cardiac or pulmonary origin of the symptoms, attention to the sequence of the earliest manifestations is of importance. Those cases in which dyspnea is the first symptom, followed after a longer or shorter period by winter or persistent cough, will usually be found to be due to cardiac failure while, when cough and expectoration are initial symptoms and dyspnea is added later, a pulmonary and infective origin is usually to be suspected.

BRONCHIAL ASTHMA

Of asthma the most interesting aspect is its apparent dependence on a state of hypersensitiveness, as suggested by the similarity of its manifestations to anaphylaxis experimentally produced in animals by the injection of alien protein. This most promising of the theories of asthma has already received support from the recognition of occasional instances of bronchial asthma due to hypersusceptibility to eggs. Attacks following exposure to emanations from certain animals and especially from horses are of interest and importance in this connection.[1] Goodale[2] suggests that there are infectious types due to sensitization to bacterial proteins arising in consequence of bacterial infection of the upper air passages. While the anaphylactic theory of bronchial asthma cannot yet be said to have yielded far-reaching results in solving the problem, it opens an interesting field for further study and should serve to emphasize the already long recognized, but too little heeded, danger of anaphylactic shock following the use of diphtheria antitoxin in patients with asthma. Within the past few years, six instances of death and one of collapse following the injection of diphtheria antitoxin in patients with asthma have been brought to my attention. All patients in whom the use of diphtheria antitoxin is under consideration should be questioned regarding a previous history of asthma or susceptibility to the presence of horses. Preventive inoculations of those suspected of anaphylaxis should be avoided, at least until the patient's susceptibility to diphtheria has been proved by the Schick test. As only about 20 per cent. of patients are thus found susceptible, prophylactic injection of serum in patients with asthma is not likely to be a frequent necessity. In patients with asthma to whom it is deemed necessary to give antitoxin for prophylaxis or treatment, the attempt should first be made to prevent anaphylactic shock by the injection of a small amount of the serum (from 0.1 to 0.25 c.c.) under the skin, and by the use of additional serum in the refractory stage which follows. In the experiments of Besredka,[3] about four hours were required in animals to produce the refractory stage by subcutaneous injection. Repeated small doses (0.5 c.c.) at half hour intervals thereafter until the required number of units is reached may be administered. More exact data on the nature and prevention of anaphylaxis are much to be desired.

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[1] Lord, F. T.: Diseases of the Bronchi, Lungs and Pleura, Philadelphia, Lea & Febiger, 1915, p. 95.

[2] Goodale: Boston Med. and Surg. Jour., Feb. 17, 1915.

[3] Besredka: Ann. de l'Inst. Pasteur, xxiv, No. 12, p. 879.

HEMOPTYSIS AS A SYMPTOM

Another subject may be illustrated by the history of a man, aged 46, who entered the hospital with a history of having coughed up a lump of blood as big as an egg, after rowing a race, twenty-four years before, and without preceding or subsequent pulmonary symptoms. This patient died following an operation for cancer of the stomach, and at necropsy obsolete tuberculosis of the lungs and bronchial glands was found as the probable explanation of the hemoptysis. This case is typical of what may be spoken of as "hemoptysis out of a clear sky." Of 856 cases of hemoptysis,[4] of which 549 were clinical and 307 necropsy cases, thirty (twenty clinical and ten necropsy cases) belong in this group with hemoptysis out of a clear sky or when cough and scanty expectoration alone cloud it. In all but one of these cases the cause was demonstrated to be pulmonary tuberculosis by the finding of tubercle bacilli in the sputum during life or of the lesions of tuberculosis at necropsy.

In the one exception in this group, the cause was syphilitic ulceration of the trachea and bronchi with fatal hemoptysis from rupture of a branch of the pulmonary artery through the right primary bronchus. Other authentic causes of bleeding in cases of this class, such as that following the ulceration and rupture of tuberculous glands into the air passages, new growth of the bronchial wall, echinococcus disease of the lung and endemic hemoptysis, may be mentioned. Hemoptysis in the presence of more marked symptoms of pulmonary or other disease is due to a variety of causes, of which the following in the probable order of frequency may be mentioned: Pulmonary tuberculosis doubtless heads the list and then in sequence, to judge from our necropsy cases, chronic passive congestion, lobar pneumonia (not bronchopneumonia) pulmonary infarction, nontuberculous pulmonary suppuration (abscess, gangrene and bronchiectasis), aortic aneurysm, new growth of the lung, and ulceration of the trachea and bronchi. Other causes than these are rare. Vicarious menstruation is still occasionally mentioned, but no example is found in our records, and I do not believe it can properly be regarded as a cause apart from some pulmonary lesion which is tuberculous in the great majority of cases. Hemoptysis in the course of disturbances of the nervous system, in persons with the so-called "arthritic diathesis" (Sir Andrew Clark's type) and in those with high blood pressure is likely to be found due to one of the above mentioned causes.

It is of interest to note in connection with this subject that of thirteen cases in which hemoptysis appeared to be concerned in the death of the patient, the fatal termination was due to loss of blood or suffocation in five, while in the remaining eight, all of which were tuberculous cases, the bleeding seemed to be responsible for rapid extension of the tuberculous infection. In fact, this seems to be the chief danger in hemoptysis due to pulmonary tuberculosis, and suggests greater caution in the use of morphin in hemoptysis due to tuberculosis. If morphin is successful in suppressing the impulse to cough when infected blood has been aspirated into neighboring or remote parts of the lungs, it will favor the retention of infected material. It should therefore be used only for very definite indications, such as irritative, harassing and unproductive cough or extreme nervousness.

LOBAR PNEUMONIA

Lobar pneumonia presents many different aspects of special interest today, from the activity of many workers and the encouraging progress already made. Through the work of Cole and his associates at the Rockefeller Hospital, we now know that the disease is not ordinarily due, as was formerly thought, to infection with strains of pneumococci commonly found in the mouth, but to fixed types of pneumococci, recognizable by agglutinative, immunologic or cultural tests in about 80 per cent. of the cases, and to strains indistinguishable from the ordinary mouth organisms in the remaining 20 per cent. It has also been shown that these fixed strains of pneumococci have a limited distribution, being found in patients with lobar pneumonia and in the mouth sputum of healthy persons intimately in contact with pneumonia patients. Although further observations on the distribution of the fixed strains in health and disease are desirable, it seems probable that the infective agent in lobar pneumonia is more nearly restricted to the neighborhood of the pneumonia patient than has previously been thought. Inasmuch as the pneumococcus can be regarded as maintaining its existence only by passage from person to person, the spread of lobar pneumonia probably takes place by the intervention of healthy carriers between one patient with the disease and another, less often by direct contagion from patient to patient. If this is true, the more careful supervision of patients with pneumonia, including isolation and greater care in the handling of infected material, may be expected to diminish the incidence of the disease.

It seems probable that such acute respiratory infections as ordinary "colds," so-called influenza, bronchitis and sore throats play a not inconsiderable rôle as predisposing factors in the etiology of lobar pneumonia, since the highest morbidity from pneumonia coincides in point of time with those colder months of the year when the acute respiratory infections and exacerbations of the chronic infections are most prevalent and a definite history of acute and preceding respiratory infection can be obtained in a large proportion of all cases of lobar pneumonia. It is, therefore, to these simpler infections that we should turn our attention, and insist on a wider appreciation of their contagious nature and the means of prevention, greater caution against fatigue and exposure during their course, and isolation of the more severe types when possible.

Of the more technical matters in connection with the pneumonia problem, Peabody's[5] finding of a reduction of the oxygen capacity of the blood, which he ascribes to the formation of methemoglobin, in connection with severe infections with the pneumococcus, is of interest in partial explanation of the cyanosis so often seen in the course of lobar pneumonia. The importance of the varying degrees of acidosis which may be demonstrated in lobar pneumonia must be left for the future to decide. An adequate explanation of the crisis in pneumonia would go far toward solving many problems of the disease. The demonstration of the appearance of protective substances in the blood at the time of the crisis or during convalescence by Neufeld and Haendel,[6] and by Dochez[7] by means of animal experimentation is significant in this connection. The use of both pneumococci and serum from the same patient is of importance in their recognition. The nature of the protective substances is still unsettled, but Bull's[8] work suggests that to the agglutinins a greater importance must be ascribed than has hitherto been believed. It is doubtful, however, if the humoral factors entirely serve to explain the recovery, and important changes may be taking place in the lung itself. The involved region is to be regarded as an area which is in a measure isolated from other parts of the body. Proteolysis takes place within this region in consequence of an enzyme derived from the leukocytes. A local increase in the acidity, as indicated by the determination of the H-ion concentration of the involved region, may have an inhibiting effect on the growth of the pneumococcus, or be a favoring factor in the action of the proteolytic enzyme.[9] Beyond the infection and toxemia, the more immediate cause of death in pneumonia has been the subject of investigation. Newburgh and Porter[10] have shown that neither the heart muscle nor the vasomotor center is functionally impaired in pneumonia. Newburgh, Means and Porter[11] have demonstrated that there is impairment of the respiratory mechanism, as indicated by a greatly diminished reaction to carbon dioxid, and that this depression of the respiratory mechanism may be prevented by section of the vagus nerves.

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[4] For a more detailed report of these cases, see Transactions of the National Association for the Study and Prevention of Tuberculosis, 1916.

[5] Peabody: Jour. Exper. Med., 1913, xviii, 1, 7.

[6] Neufeld and Haendel: Ztschr. f. Immunitätsforsch., 1909, i, 168; Arb. a. d. k. Gsndhtsamte., 1910, xxxiv, 166.

[7] Dochez: Jour. Exper. Med., 1912, xvi, 665.

In the specific treatment of pneumonia with quinin and with serum, there is a hopeful prospect of success. Since Morgenroth and Levy's experimental investigation of the chemotherapy of pneumococcus infections, further studies have been made with ethylhydrocuprein. This derivative of quinin protects mice against subsequent infection with the pneumococcus, and exhibits definite curative action in infected animals when administered early in the course of the infection. A striking pneumococcidal action is observed in vitro in very high dilutions. Moore and Chesney[12] have demonstrated inhibition of the growth of pneumococcus in the separated serum from patients who are given the drug. The dose should not exceed 1.5 gm. in twenty-four hours. A collection and summary by Leschka[13] of reported cases of pneumonia treated with ethylhydrocuprein showed that in 204 cases in which this treatment was used within the first three days, the mortality was only 5 per cent., while of 119 cases in which it was employed after the first three days, the mortality was 20 per cent. Transient amblyopia is observed in a small proportion of the cases. Among the last fifty cases of pneumonia due to infection with Type I pneumococcus at the Rockefeller Hospital and treated with the homologous serum by Cole, only two patients have died.

305 Beacon Street.

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[8] Bull.: Jour. Exper. Med., 1915, p. 457.

[9] Lord: Tr. Am. Soc. for Clinical Investigation, May 8, 1916.

[10] Newburgh and Porter: Jour. Exper. Med., Aug. 1, 1915; Am. Jour. Physiol., August, 1914.

[11] Newburgh, Means and Porter: Boston Med. and Surg. Jour., March 30, 1916.

[12] Moore and Chesney: Proceedings of the Society of Serology and Hematology, New York Jour. Immunol., 1916.

[13] Leschka: Berl. klin. Wchnschr., Nov. 11, 1915.

Necropsies and the Law.—The scientific value of autopsies and their corrective influence on surgical diagnosis and treatment are such that every hospital should appoint a member of its medical or administrative staff to assist in procuring them, and should also take an active part in the movement to obtain more liberal autopsy laws.—S. S. Goldwater, M.D., *Modern Hospital,* November, 1916.

A COMPARATIVE STUDY OF SALVARSAN AND NEOSALVARSAN IN THE TREATMENT OF SYPHILIS [*]

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In the recent past a rumor has been circulating that neosalvarsan is not so potent or efficient a remedy for syphilis as old salvarsan. This has gained credit especially in the city of New York and its environs. How or where this apparently unverified report had its inception is a mystery; it seems that the chief mode of dissemination has been by word of mouth, as very few substantiated statements regarding the comparative value of the two products can be placed.

Whenever a medical colleague has made the statement that he thought the new salvarsan not so good as the old, and the usual "why" was put to him, the usual answer was that "somebody told him so."

The writers of this article must confess now, though the work has been done with minds open to conviction, that they knew from experience that there was practically no difference in the therapeutic efficiency of the two products. If possible they know it better now. This knowledge, however, was based on purely clinical grounds, as up to this time no careful comparison on a given number of cases had been made by them in order to observe the effect on the complement fixation reaction.

Eventually, curiosity became sufficiently aroused, and since the facilities in the dermatologic department are splendid for this class of work, both as regards material and equipment, the study was begun.

The work was started on Jan. 1, 1915, and it was intended that it should progress until Jan. 1, 1916, exactly one year. Unfortunately the supply of salvarsan and neosalvarsan became exhausted; therefore the work was curtailed, and so it really extends over a period of only seven months. On the former date the following order was given to the department of dermatology:

> For the purpose of comparison of the clinical and serologic results of salvarsan and neosalvarsan administration, beginning Jan. 1, 1915, Dr. Hailperin's division will administer neosalvarsan, and Dr. Cherry's salvarsan (old salvarsan) under the following general procedure:
>
> 1. Secure an original Wassermann.
> 2. Administer no preliminary specific treatment.
> 3. Inject intravenously one-half dose of selected drug.
> 4. Secure blood for Wassermann examination before administration of second intravenous injection, and then inject full dose of selected drug.
> 5. Repeat procedure No. 4 for the occasions of the third and fourth intravenous injections.

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[*] From the Dermatological Department of the University and Bellevue Hospital Medical College.

[*] Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[*] Because of lack of space this article is abbreviated in The Journal by the omission of the tables. The complete article appears in the transactions of the section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

6. After the fourth (or last, whatever its number) injection, begin with mercury.

The idea is to discover how quickly a negative Wassermann is secured, its permanency and the clinical results.

The report is based on the treatment of 110 patients to whom 397 injections were given, and on whom 337 Wassermann tests were performed. This number of cases to the clinic seems small, but it is ample from which to draw conclusions. The University and Bellevue clinic is very rich in syphilis, and the moderate number furnishing the basis for this paper is due to two reasons: first, the exhaustion of the supply of salvarsan; second, the class of patients can ill afford to pay the price of the drug; therefore only a small percentage can take advantage of the treatment.

All the stages of syphilis, primary, secondary and tertiary are represented, as will be seen by the accompanying table. Nearly all were examples of cutaneous and mucous membrane syphilis. In the series there was one case of primary syphilis with a negative Wassermann reaction, which will be referred to later. A large percentage of the patients had four injections; in fact several were carried up above this number, six, seven, eight and nine injections being given. On the other hand, a few ceased their visits to the clinic before the course was finished, some of them taking three, some taking two and some taking only one injection. The majority, however, took the full course, and the conclusions are founded on this group. The classified table gives them in detail.

The method of administration was the usual one and can be dismissed in a few words. Freshly distilled sterile water was always used. The salvarsan, after being neutralized with a 15 per cent. sodium hydroxid solution, was administered in 150 c.c. of water; the neosalvarsan was given in 50 c.c.

The intravenous puncture method was always employed, and the solution allowed to flow in by gravity. The dosage, as can be seen by the directions given to the clinic assistants, was for the patients taking salvarsan 0.3 gm. as the initial treatment and 0.6 gm. at the subsequent injections.

For those taking neosalvarsan 0.45 gm. was given at the initial treatment and 0.9 gm. for the last three. All injections, with few exceptions, were given at intervals of one week.

In every case mercurial treatment was instituted as soon as the last arsenical injection had been given.

One group of patients was put on intramuscular injections of mercury salicylate, beginning with 1 grain, and going up as high as 2½ grains in some instances.

The other group was treated by mouth administration, some getting tablets of mercuric chlorid in increasing doses, while others (tertiary cases) received the mixed treatment of the clinic, increasing gradually both the mercury and the potassium iodid.

Like all syphilitics, these patients were very careless concerning their attendance, ceasing their visits or becoming irregular a short time after the last salvarsan treatment. For this reason later Wassermanns, that is Wassermanns after several months of mercurial treatment, could not be procured except in a small number of cases. Should these data be secured later in a sufficient number of cases, they will be used in a subsequent communication.

In the beginning no intermediate Wassermanns were performed; two were made in each case so far as the patients could be managed; a preliminary one before treatment, the second following the last injection. This procedure was done in forty cases, when it seemed wise to make a slight change in the general plan. This change consisted in doing the complement fixation test four times in each case, and perhaps more if it could be accomplished. The first test of the four was only preliminary, whereas the second gave the reaction of the blood one week after the first injection; the third test gave the condition of the blood after two injections, and the fourth furnished this information after three injections had been given. Later Wassermanns were obtained whenever possible, but as said before, the patients were rather refractory.

As before mentioned, there were 110 patients comprising the study, sixty-nine receiving neosalvarsan and forty-one salvarsan; twenty-two patients taking neosalvarsan did not return for a subsequent Wassermann test; consequently they are not used in drawing the comparison. This leaves forty-seven patients forming the basis of the work with neosalvarsan. Of the forty-one patients receiving old salvarsan, five received only one injection each, after which they did not return for further examination and treatment; they are therefore excluded from the report. Deducting these, there remain thirty-six cases representing the work with salvarsan.

The plan of interpretation of results was to record the effects under three heads: (1) clinical; (2) reactive; (3) serologic.

1. Clinical: Without bias and from careful observation made in every conceivable way, one cannot see any difference in the therapeutic value of the two preparations. In all cases of syphilis reported in this study and those treated for years previously, regardless of the stage of the disease, the disappearance of the lesions has been as rapid and complete from the use of neosalvarsan as from the use of the older drug, salvarsan. In the minds of the writers this is a settled fact.

It was noted also, though it is an old story, that the mucous membrane lesions healed very quickly indeed, regardless of which salvarsan was used, and ever so much more rapidly than in the old days of mercury alone. There was also noticed another point, which has been mentioned by one of the writers and perhaps by others, that the papular type of the disease, both the miliary and the lenticular, fades very slowly; in fact the retrogression is just as slow following the use of the arsenical preparations as it was in former days from mercury.

2. Reactive: A short paragraph will be sufficient to record the experience with immediate ill effects. Nearly all patients taking salvarsan or neosalvarsan intravenously have reactions in some degree, be they ever so mild. Most of the patients taking as many as four injections had a mild reaction after one or two treatments. It was most unusual to see this mild reaction follow all four treatments. The number of reactions was much greater following the use of salvarsan than from neosalvarsan.

It is strongly believed by the authors that the quantity of water has some bearing on the constitutional disturbance following the treatments, though no attempt has been made to prove it. The greater number of reactions following old salvarsan may be due in part to the larger quantity of menstruum employed; in several of these cases the reaction was very severe. All the reactions following the neosalvarsan were mild in character. After all this, the by-effects of either the old or new preparation are not considered of any serious import, and not at any time were they considered of enough consequence to interrupt the treatment.

3. Serologic: The effect on the complement fixation test was the main reason for this work, which has been long and laborious. By this it was expected to gain some valuable information; it has been gained, though in one sense it is very disappointing, not to say discouraging. Still, from the standpoint of comparing the two preparations of salvarsan it is of extreme importance. From the great number of injections (397) on 110 patients only seventeen negative Wassermanns were obtained, fourteen with neosalvarsan and three with old salvarsan. From this it is evident that both preparations gave very poor results, and it seems at first glance that the new salvarsan has a decided advantage over the old. This is not exactly accurate, however, as four of the negative Wassermanns from the neosalvarsan were obtained after six or more injections, whereas none of the patients treated with old salvarsan received more than four injections.

Discarding the neosalvarsan patients taking six or more injections and considering only those taking four or less, there would remain only ten negative results from the neosalvarsan and three from salvarsan, still giving the new preparation quite an advantage, but not so pronounced.

Looking at the tabulation from a different angle and considering only those patients receiving three and four injections, there were twenty-six neosalvarsan and twenty-eight old salvarsan cases; out of the former group ten negative blood tests were obtained, or 38 per cent., and from the latter, two negative bloods, or 7 per cent.

Confining the comparison still further and considering only the patients receiving four injections, it is seen there were twenty-two taking neosalvarsan and twenty-six receiving salvarsan. From this group of twenty-two neosalvarsan cases, nine negative blood tests were obtained, or 40 per cent., and from the group of twenty-six salvarsan cases two negative blood tests were recorded, a little more than 7 per cent.

In a certain small percentage of the remaining cases, after deducting the negative results, an impression was made on the serum reaction inasmuch as a positive reaction was produced. There were six such reactions in the neosalvarsan group and four in the series treated with salvarsan. In the whole study there were several examples of provocative Wassermanns, either beginning with a negative and producing a positive, or causing the reaction to become more intense; that is, starting with a one plus and producing a four plus.

Viewing the work from the standpoint of the stage of syphilis treated, one sees that there were six negative serum reactions obtained in the collection of cases in the secondary stage, all produced by neosalvarsan; eight negative reactions in the group of tertiary cases, six produced by neosalvarsan and two by salvarsan; and one negative blood reaction in the small group of hereditary cases, which was effected by salvarsan.

On close scrutiny of the tables it will be noticed that several of the negative Wassermanns were made negative only after several months of mercurial treatment.

One case of aborted syphilis will be observed in the tabulation. This was a primary case and is not included in the deductions, since the patient's Wassermann was negative at the beginning and has remained so ever since. It might be interesting to note that this patient had a small but rather typical initial lesion on the under surface of the prepuce; the incubation period was three weeks and the duration of the lesion two days. He had absolutely no secondary symptoms, and his Wassermann was negative; the smear showed a field with enormous numbers of spirochetes. Four injections of salvarsan were given to him, followed by mercury, and his serum reaction has remained negative up to this writing. It has been tested several times, and it is reasonably sure that a cure has been effected in this case.

It is desired to call attention to only two articles with the same theme as the objective; these have been fixed in mind for some time. There are probably others, but no attempt has been made to review the literature; in fact it was intentional on the part of the authors to avoid literature references, especially while the work was in progress.

The first of these articles, by Whitehouse and Clark,[1] states that in their work they obtained almost 20 per cent. more negative blood tests from the use of old salvarsan than they did from the new; and in their conclusions it is estimated that it will take five neosalvarsan injections to bring about the same result as four salvarsan injections.

The second article, by Nelson and Haines[2] of the United States Army, gives the results of a very careful piece of work, stating that the effect on the Wassermann reaction from the use of salvarsan is double that from neosalvarsan. From the series of patients receiving salvarsan 64 per cent. negative serum reactions were produced as against 33 per cent. from the patients receiving neosalvarsan. It is plainly seen that this report from the University clinic is at wide variance with the above authors, especially the latter. An explanation of the variance is beyond the writers of this paper. The work must tell its own story, with assurance from the workers that it was most carefully performed.

Practically all the points of consequence or interest have been covered, and there is little else to add except to draw a few conclusions. The work has been exacting and tiresome; whether it adds anything of special value to the sum total of information on this subject is left for others to decide. It demonstrates conclusively that there is no great difference in the therapeutic value of the two preparations of salvarsan. According to this report neosalvarsan is superior. It also presents a number of points of interest for future study, one of the most important of which is the following problem: If a patient's Wassermann reaction remains positive after four or six salvarsan injections, and only becomes negative three or four months after mercurial treatment has been instituted, how much credit is due the salvarsan and how much can the mercury claim?

Does the salvarsan have a latent effect? Does it produce a negative serum reaction some time after the last of a series of injections without the supportive treatment of mercury?

It is desired to state that the antigen used in the complement fixation tests was not strengthened or fortified by the addition of cholesterin.

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[1] Whitehouse and Clark: Jour. Cutan. Dis., 1913, xxxi, 633.

[2] Nelson, Kent, and Haines, E. F.: Observations of the Results of Seven Months' Experience with Salvarsan in the Treatment of Syphilis, The Journal A. M. A., Dec. 26, 1914, p. 2277.

CONCLUSIONS

1. A course of four injections of either salvarsan or neosalvarsan is inadequate treatment.
2. A series of injections of salvarsan, either old or new, not followed by mercurial treatment, produces extremely few negative serum reactions.
3. From four to six salvarsan or neosalvarsan injections, even when followed by mercury, produce only a comparatively small percentage of negative serum results.
4. According to this study neosalvarsan is superior to salvarsan, being much easier of administration, less likely to cause severe reactions, and producing a greater percentage of negative results.

NOTES ON THE TEACHING AND TREATMENT OF SYPHILIS *

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MINNEAPOLIS

In the campaign against syphilis, already well advanced in some parts of the United States, the rôle of the medical school should be one of the greatest importance. Not only are thousands of cases treated in their clinics and dispensaries, but on their teaching depends the ability of their graduates, who in turn should play an active part in eradicating this disease.

While much has been written on syphilis during the past few years, those of us who have much to do with this problem realize that ignorance of the subject is not limited by any means to the laity, and that a repetition of statistics showing its magnitude may well be tolerated.

PREVALENCE OF SYPHILIS

Osler has said that syphilis ranks next to tuberculosis, pneumonia and cancer from the standpoint of mortality. Gerrish[1] in 1911 estimated that 10 per cent. of the population of New York are syphilitic. Fisher[1] in 1913 estimated that 18 per cent. of the people of the United States are syphilitic.

Out of 111 cases admitted to a children's hospital in Boston, Lucas[2] found 31 per cent. syphilitic. In a children's hospital in Chicago, where syphilis was supposedly not admitted, Churchill[2] found 30 out of 102 patients had a positive Wassermann.

In the army Reasoner made a survey of one regiment showing 5 per cent. syphilitic, while Bartlett in a year's study found 10 per cent. of one command infected.

In medical wards in which patients are not admitted primarily for syphilis 30 to 40 per cent. of positive blood tests are found. Therefore it seems conservative to say that there are at least 10 million syphilitics in the United States. Church[3] estimates it at 20 millions.

TIME LOST BY SYPHILITICS

In this vast army the loss of valuable time must be an important economic factor. In a study of 4,134 cases occurring in officers of the Austrian army between 1880 and 1890 Mattauschek and Pilcz[4] found that up to 1912, 70.64 per cent. had succumbed to their syphilis or were chronic invalids. Patterson[1] made a survey of the hospitals of Chicago in an attempt to show the loss of time to syphilitics in their earning years.

TABLE 1.—TIME LOST BY SYPHILITICS IN HOSPITALS

Hospital	Year	No. Cases	Days Lost
Presbyterian	1911-12	46	961
Michael Reese	1912-13	107	1,562
Wesley	1912-13	52	593
Cook County	1912	917	19,389
Total		1,122	22,505

This shows that 1,122 patients lost 22,505 days, or an average of about three weeks per patient. Stokes[5] found that in 1912 there were 147,787 sick days in the navy on account of venereal diseases. This is equivalent to the disablement for five months of a dreadnought with a crew of 1,000 men.

ESTIMATED COST TO CARE FOR SYPHILITIC INSANE

Some idea of the cost in money may also be estimated. A number of investigators have made surveys of asylums. Ivey[6] among the negro insane in Alabama found 25 per cent. of 357 males and 29 per cent. of 349 females to have a positive blood serum. Watson[6] in the Oregon State Asylum found nearly 20 per cent. of 470 patients examined positive. Mitchell,[6] using the Wassermann test for over a year in the Warren State Hospital, found 18.5 per cent. positive among admitted females and 22.3 per cent. positive among admitted males. From these figures it is fair to assume that at least 20 per cent. of our insane in institutions are syphilitic. The U. S. Government Reports[7] for 1910 show 187,791 insane in asylums. In a former survey (1904) it was shown that the per capita cost was $160 a year. We can therefore estimate that over 30 million dollars was spent in 1910 by the state, and of this not less than 6 million went to care for syphilitics whose insanity might have been prevented.

COMPARISON OF CLINICS

Several years ago a committee appointed by the American Medical Association made certain recommendations regarding the teaching of syphilis; more recently a committee of the American Hospital Association made recommendations regarding dispensaries treating syphilis and gonorrhea. In substance the following points were emphasized: that there should be better hospital facilities for teaching and treating syphilis; that the present custom of teaching syphilis in various departments should be abandoned; that if practical it should be taught by itself or in conjunction with dermatology; that the dispensary should have a medical staff sufficient in number and training, enough well-arranged rooms, laboratory facilities, equipment of instruments and apparatus, clerical and sometimes nursing service, and social service.

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* From the Department of Dermatology and Syphilis, University of Minnesota Medical School.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

[1] Quoted by Patterson, James: An Economic View of Venereal Infections, The Journal A. M. A., Feb. 28, 1914, p. 668.

[2] Quoted by Nichols, Henry J.: Syphilis as a Public Health Question, The Journal A. M. A., May 16, 1914, p. 1525.

[3] Church, Archibald: Some Modern Views of Syphilis of the Nervous System, The Journal A. M. A., May 20, 1916, p. 1596.

[4] Quoted in editorial in The Journal A. M. A., Nov. 1, 1913, p. 1636.

[5] Stokes, C. F.: Boston Med. and Surg. Jour., 1914, clxxi, 33.

[6] Quoted by Vedder, Edward B., and Hough, W. H.: Prevalence of Syphilis Among the Inmates of the Government Hospital for the Insane, The Journal A. M. A., March 20, 1915, p. 972.

[7] U. S. Government Reports for 1904 and 1910, Insane in Public Institutions.

With the foregoing as a basis let us compare ten Class A schools which the writer recently visited. Only two have special departments for teaching and treating syphilis, although at three others syphilis is practically controlled in the department of dermatology and syphilis. At the other five syphilis is taught and treated in all departments. In this number, it is customary for skin syphilis to be sent to the dermatology, initial lesions to the genito-urinary department, eye lesions to the eye department, etc., and no effort is made after the diagnosis is settled to refer or transfer these patients to any one clinic where they will get routine treatment. This can result only in both improper and conflicting teaching and poor treatment. At five colleges the syphilis or skin and syphilis department has its own laboratories in which Wassermann tests and spirochete examinations may be made. At the other five these examinations are made in the general laboratory. Under the latter condition it is reasonable to believe the results are not so good, spirochete examinations are not immediately available and Wassermann tests are done only once or twice a week.

Seven colleges furnish sufficient room adequately and decently to handle patients, but not all of these have sufficient assistants and equipment to maintain a thoroughly well-kept record. At only four colleges are beds available for syphilis, although at three others patients can be put into municipal hospitals and remain under control of the men in charge of the college clinic. This means the opportunity of confining very infectious patients until the symptoms can be cleared up; at the other three, patients must necessarily be allowed to go their way infecting others as they please, for the two or three weeks necessary to sterilize the lesions.

At six of the clinics some one of the arsenical preparations is given as a routine, provided the patient is willing and able to pay for it. At three it is given only in selected cases as a routine, and in one, only to clear up symptoms.

In only one clinic is emergency salvarsan available; here it is possible, if a very infectious patient is admitted, at once to administer salvarsan, whether the patient can pay the cost of it or not. This is quite an important point, for many patients make but one visit and if they go away even with one dose of salvarsan a great deal has been accomplished toward clearing up the lesions.

At five schools a social service department is maintained, and an attempt made to follow up and control patients. At the other five no effort beyond that of the busy clinician is made to bring the patient back and no calendar record is kept. Without social service no clinic can hope to control its syphilitics anywhere nearly long enough to give adequate treatment.

In the matter of hours devoted to teaching it is very hard to make estimates, owing to the fact that in most schools syphilis is taught in all departments as it happens to come up. At Johns Hopkins, where a clinic on syphilis has been established this past year, eleven hours of lectures are given in the third year, and an elective of one unit in the fourth year comprising sixty-six hours in the clinic. At Harvard eight hours of didactic lectures on syphilis are given, and eight hours of clinical lectures, with a section clinic of eighteen hours. At Ann Arbor a course of twenty lectures is given on syphilis in the third year, followed by clinics on skin and syphilis in the fourth year.

These three are the only colleges in which a systematic course on syphilis is given; at the other seven a certain amount of time is given to syphilis in the skin or genito-urinary department, but no attempt is made to cover syphilis in its entirety.

RESULTS OF CLINICS

Unfortunately, I am unable to give statistics of all of these schools to show the results of their work. I can, however, give enough to show the difference in efficiency in some of these clinics.

Corlett[8] found that 165 patients admitted to the Lakeside Dispensary in 1911 did not return in 1912; this number was 49 per cent. of all patients admitted. They averaged 3.2 days' treatment. This study was made previous to the inauguration of their social service department, and I am sorry I have not figures at hand to show how much improvement has been made.

Dr. Ormsby[9] has been kind enough to furnish me with statistics of the clinic at Rush. Of 493 patients admitted in 1915, only 78 were carried into 1916. Out of 471 patients visiting the dispensary, only 32 per cent. were referred into the skin and venereal clinic and about 85 per cent. made fewer than ten visits. Recently this clinic has been entirely reorganized with very complete laboratory facilities and a social service department and there can be no question that the result will show the difference.

At Minnesota our records show that of 179 syphilitics admitted to the department of dermatology and syphilis during 1915, only forty-nine were carried into 1916, a loss of 72.6 per cent. Of the 130 patients lost, sixty-two had active lesions on admission, but it is estimated from the case records that about 60 per cent. of these had treatment enough before leaving to clear up the lesions. This means that 40 per cent. of the patients who left took their active symptoms with them. About 70 per cent. of the patients made fewer than ten visits, although the 179 averaged 7.7 visits. The average treatment received by these patients was 10.18 injections of mercury, 27 inunctions and 2.2 doses of neosalvarsan.

Since this survey was made our clinic has been moved into larger quarters, where patients can be very much better taken care of. Also, one of the clinicians is attempting to see every syphilitic patient every time; this personal contact undoubtedly helps to retain patients. Social service, with a follow-up system, has been started and the results already attained have made a marked decrease in our percentage of lost cases, a very clear demonstration of the value of this department. Furthermore, not a case under treatment when this service was inaugurated has passed out of control in the period of two months' operation. Compare the foregoing figures with those at Harvard, where there is a clinic for syphilis alone and a most efficient social service.

The report[10] just issued shows that of 1,118 new admissions in 1915, less than 10 per cent. were lost. Of a total of 3,358 patients making 18,063 visits, 9.6 per cent. were lost. The result that any competent staff might obtain in a well-equipped clinic is quite apparent; there should not be a difference of from 60 to 70 per cent. in efficiency between the schools covered in this brief survey.

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[8] Corlett, W. T.: Syphilis in the Curriculum of Medical Schools, Jour. Cutan. Dis., 1914, xxxii, 117.

[9] Personal communication to the author.

[10] Tenth Annual Report of the Social Service Department of the Massachusetts General Hospital, p. 16.

CONCLUSIONS

Syphilis, from a sociologic, economic and mortality standpoint, is one of the greatest problems before our profession.

Physicians have the opportunity to take the initiative in stamping out this disease and should not wait for outside organizations to force it on them.

Medical schools have a double opportunity to do their share, first, by adequately treating the patients coming to their dispensaries, second, by furnishing such instruction to their students that they also may be depended on to treat syphilis correctly.

The majority of schools have competent men in charge of this work, but results in many cases are not obtained on account of the school not furnishing sufficient assistants and adequate equipment. The prevalence of the late manifestations of syphilis is obvious proof that the profession has not treated syphilis adequately; there is no excuse for a continuance of these methods.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. REASONER, COLE, SUTTON, WILE AND ELLIOTT, SCHAMBERG, KOLMER AND RAIZISS, TRIMBLE AND ROTHWELL, AND IRVINE

Dr. William Allen Pusey, Chicago: I was very much interested in Dr. Cole's paper on extragenital chancres, and when he mentioned the many sources of extragenital infections I was reminded of one source of infection which had been brought to my mind by a case occurring in a laryngologist, and it is of sufficient importance to call laryngologists' attention to the danger. This was a case almost certainly contracted by the involuntary testing of the temperature of the laryngoscope on the back of the hand after it had been introduced into the mouth of a syphilitic patient. There happened to be an abrasion at the point of contact and the laryngologist came to me with a chancre at the site a couple of months afterward. Many extragenital chancres are so atypical that they are apt to go unrecognized, and I am sure among physicians such unrecognized extragenital chancres are a source of some of the cases of syphilis without the history of a chancre. Within a few weeks I have seen a chancre on the hand of a physician which would have escaped recognition and the patient would never have known he had syphilis until something developed later, if it had occurred in the days before we could demonstrate the spirochetes, or had the Wassermann reaction. In my experience in private practice chancres of the lip have not been nearly as frequent as they are in statistics. Dr. Cole called attention to the importance of wearing gloves when examining syphilitic patients. I think a much more practical safeguard is to be careful to seal up with collodion abrasions and fissures about the hands. It is not practical to have rubber gloves always on the hands when examining syphilitic patients. This is especially true of dentists, who are most exposed to this danger. The safeguard which is practical, and which we should all avail ourselves of, is to avoid breaks in the epidermis as far as possible, and to seal them up immediately when they occur. While I hold no brief for the barber, I would mention the infrequency with which I have seen chancres about the face which seem traceable to the barber shop. It is surprising that they are not more frequent.

As to the rarity of the extragenital chancre in the negro, which Dr. Reasoner mentioned, I can recall at least two such cases, and I have seen nothing like three thousand cases of chancre in the negro, as Dr. Hazen has. The infrequency of this type of extragenital chancre in the negro would, I think, be very unsafe grounds on which to base any reasoning as to the insusceptibility of the negro. It may be due to the fact, for example, that the negro is not apt to spend any time in amatory preliminaries. As to the efficacy of treatment in preventing the tertiary manifestations of syphilis, I am quite in accord with Dr. Wile and Dr. Elliott, but I would call attention to the fact that their group of cases is not large enough and the time is too short to draw any deductions as to the superior value of present methods of treatment in preventing tertiaries over the older methods with mercury alone. I think they have omitted the most important cause of precocious tertiary manifestations at the present time; namely, insufficient early treatment with salvarsan. I was glad to hear the conclusions of Dr. Trimble and Dr. Rothwell that they found that the effects of salvarsan and neosalvarsan were the same. That was in accord with my impression.

Dr. Udo J. Wile, Ann Arbor, Mich.: We must admit that certain strains of spirochetes have a predilection for certain tissues. Bacteriologically, we have the analogy in the streptococcus, different strains of which give rise to different forms of streptococcus infection. Morphologically, I have been unable to satisfy myself that there are any differences between the so-called neurologic strain and the strains which invade other parts of the host. The supposed morphologic differences are due to the physical changes of the organism in accordance with the medium in which they are studied. A point of interest in connection with the production of the experimental chancre is, that it is not necessary to have a nodule in the testes of the animal in order to prove infection. Within the last year, I have been able to inoculate six out of nine rabbits with the spinal fluid of two cases with general paresis, three of acute cerebrospinal syphilis and one of tabes dorsalis. In one of these cases spirochetes were found in the testes of the rabbit as early as the third day after inoculation; in the remainder the organisms were found within five days after inoculation. In none of the cases, however, did nodules ever develop in the testes. The spirochetes remained present for one month, then they disappeared, returning after a few days, then disappearing again completely. As no organisms were demonstrated in the spinal fluid itself before inoculation it occurred to me that they might have existed there in a resting stage. Their transference to the testes allowed them to develop in this favorable soil for a short time, after which they again lapsed into a resting stage. As to the teaching of syphilis, we can never hope to develop in this country syphilologists of the type of Ricord, Fournier, and Hutchinson until our investigators have the opportunity of familiarizing themselves with syphilis in all its stages. We certainly can profit by the help of the other special departments but the syphilographer today should be an internist, should know more than a little about neurology; he should be able to examine the fundus of the eye and be well posted in other fields of medicine in order to recognize, treat and teach syphilis intelligently.

Dr. Walter James Heimann, New York: The crowning outrage in medical education in this country is the teaching of dermatology including syphilis. The following is an outline of how the subject is taught in a Class A institution in New York, of which I am in a position to speak with authority. Syphilis in all its forms is treated in the dermatologic department, is supposed to be taught in the genito-urinary department, and is actually taught in a coordinated manner nowhere. Twenty-eight hours are allowed for this alleged course. This state of affairs is typical enough of all but three or four of our undergraduate schools. The most serious aspect of syphilis is the fact that it attacks youth, and unless properly understood and treated persists throughout life. Thus we as dermatologists should make ourselves heard in protest against slovenly methods of instruction. To attempt to teach dermatology in twenty-eight hours in the last year of a medical course is absurd. The average student does not know what a chancre looks like—not to speak of the spirochete. He knows nothing of the practical application of the Wassermann reaction, and has not learned from any one instructor consistently how to treat the disease. He does not know the therapeutic function of salvarsan or the difference in action between salvarsan and mercury. His confusion is almost worse than his ignorance, because in spite of his degree of Doctor of Medicine he is unprepared, on graduation, to make a diagnosis or prognosis of the disease, or to treat it intelligently. In my opinion the study of syphilis should be concentrated in a single department, preferably the dermatologic because dermatologists have devoted most time to the subject, and are at present didactically best equipped. Dermatologists have been pushed into the background in medical schools, and frequently are not even faculty members in spite of the fact that they treat and should teach one of the most serious known diseases, and one which if understood by physicians at large would be readily curable, but which if unintelligently managed leads to the direct consequences.

Dr. Philip Kilroy, Springfield, Mass.: I do not think there is any need to add to the already existing fear of the so-called accidental infections with syphilis. Cleanliness is desirable and the safeguards to which Dr. Pusey called attention are admirable, but I do not think anybody ever contracted syphilis in a restaurant, or in a telegraph office while handling dispatches, or from a soiled towel. I think the danger of infection from these indirect or impersonal sources is so slight as to be almost negligible.

Dr. L. H. Cook, Bluffton, Ind.: About fifteen years ago I saw an instance in which syphilis was spread by osculation. A young man came to my office with a sore on his lip. I recognized it as a chancre and cautioned him. Six weeks later a young woman came to me with a similar lesion on the lip, and on questioning her I learned that she associated with this young man. A couple of months later her two younger brothers, perhaps 7 and 9 years old, visited my office, and both of them had a chancre of the mouth acquired either through kissing their sister or using the same tableware. I should like to have some one tell us when we can say our syphilitic patients are well.

Dr. Samuel E. Sweitzer, Minneapolis: Dr. Cole's paper reminds me of two initial lesions that I saw recently in physicians. One was at the inner canthus of the eye, and it had remained unrecognized until secondary symptoms appeared. The other was on the septum inside of the nose. Referring to Dr. Wile's paper, I have for many years been interested in the subject of tabes and I have never met with a tabetic who had gummatous lesions. In connection with the paper of Drs. Trimble and Rothwell I believe that the reactions after both salvarsan and neosalvarsan are greatly increased when they are given with large amounts of water. I use 10 c.c. for neosalvarsan and 20 c.c. for the old salvarsan. Social service work in connection with cases of syphilis would have been instituted long ago in Minnesota, but we did not have sufficient funds. We are now using this system to our great advantage. In the treatment of syphilis in Minneapolis the patients are referred first to the dermatologic department in the hospital, and then, if the eye, nervous or other complications occur, the patients are referred to the proper specialists, which I think is very desirable when local lesions connected with any particular organ develop.

Dr. Richard L. Sutton, Kansas City, Mo.: With regard to the possible cause of dyschromia, a recent letter from Prof. B. M. Allen, of the University of Kansas, is of interest. Dr. Allen writes:

"I much appreciate your letter of May 17 relative to my work on the removal of the pituitary glands from tadpoles. I am only sorry that my work has not gone far enough to give you very conclusive data. The operations were performed upon very young tadpoles. The anlage of what corresponds to the anterior lobe of the pituitary gland was removed while still growing in from the surface ectoderm. As a result I found that the black pigment cells were contracted to mere points while the silvery colored cells (iridiophores) became gradually expanded. Upon superficial examination I do not think that there was any change in the relative number of these two cells, but there is a tremendous change in their relative expansion. I have controlled this experiment carefully in several ways. In the first place, of many lots of operated tadpoles, two or three were found in which this color change had not taken place. Upon sectioning these I found that I had failed to completely remove the pituitary tissue, while sections of the silvery tadpoles exhibited no trace of it. Furthermore, the experiment was controlled by making the proper incision but leaving the pituitary anlage intact. In these there was no color change. Aside from the question of the modification of these pigment cells, the results were interesting in that the tadpoles showed that there is a marked inhibition in the development of the tadpole. This becomes evident about twelve days after the operation, and most of them die within the next two weeks. I have abundant material along these lines and hope to reach quite satisfactory detailed results."

Dr. Franklin W. Cregor, Indianapolis: In the institution with which I am connected, we teach and treat syphilis in the department of dermatology. That there may be some standard, and because the patients must pay for the drug, we insist on at least two doses of salvarsan or neosalvarsan. Patients then receive courses of mercury, the amount of which depends on the weight of the patient. These are followed for a period of eight days by iodids, then a rest period, amounting to seven courses over a period of three years. Wassermann tests are made after every second course. Patients are placed in the social service and are told that, if they do not return when they are advised to do so some one will be out to see why they have not returned. Our records are kept carefully and we hope ere long to make report of the work accomplished. Experience teaches us that safety comes only after intensive treatment over a long period of time, and that the great fault of the profession is that they are too ready to compromise with the convenience of their patients and discontinue treatment.

Dr. H. C. Baum, Syracuse: I have long suspected that there were different strains of spirochetes and that these strains selected different tissues. I have under observation at the present time two men who infected their wives with syphilis and subsequently both husbands and wives developed syphilis of the central nervous system. In regard to extragenital chancres I am personally impressed with the fact that the common communion cup offers opportunities for the transmission of syphilis. I have under observation a woman who developed a primary lesion on the lip twenty-eight days after taking communion: she had not been away from home nor otherwise exposed to contagion. I also have in mind a young physician who was examining a syphilitic patient when the latter coughed and some of the expectoration struck him in the eye; he immediately washed the eye but about a month later developed a primary lesion near the outer canthus. I recall the case of a scrubwoman who worked in a brothel and developed a primary lesion of the eye. With Dr. Halstead I saw a primary lesion in the nose resulting from the use of an unclean nose speculum employed by another physician. I have also seen recently a dentist with a primary lesion on the finger. Another recent case was that of the daughter of a boarding mistress who developed a chancre of the lip three weeks after she had been kissed by a middle-aged boarder.

Dr. David Lieberthal, Chicago: The largest majority of cases of primary lesion on the fingers occur not infrequently in medical men and midwives. I wish to record a case of extragenital chancre, occurring on the calf of the right leg after a skin graft, which was made to cover a defect caused by the application of a hot-water bag. In connection with the late manifestations of syphilis, the observations of Dr. Wile support the findings and conclusions of Fournier. The less intensive the treatment, the greater the changes of late manifestations. In drawing conclusions and tabulating our cases we must have reliable material. The testimony of dispensary patients, as regards the value of treatment, is rather worthless, as most of them cease their visits as soon as they are freed from outer lesions. The same is true of a certain class of private patients. The other group of private patients, however, who remain faithful to the last, give the best opportunity to ascertain the true results. In twenty-two years of experience with the latter class where treatment was instituted at an early stage and continued intensively over a long period of time, I observed no case of late syphilis. These patients remained well clinically as well as serologically.

Dr. Harold N. Cole, Cleveland: A number of cases of chancres about the eye have been reported, and medical men should always be careful about rubbing their nose or eyes with the examining finger or allowing patients to cough in their face. I have only seen one case of extragenital chancre in the negro, the patient being a man who used his hand in cleaning urinals. I do not see why negroes should not be subject to extragenital chancres as often as we are. I agree with Dr. Irvine that syphilis should be taught by the dermatologist, who sees these cases early and recognizes them early; furthermore, the subject should be taught in a single department in order to follow up these patients intelligently. Medical schools spend weeks and months in teaching the diagnosis and treatment of syphilis in the late stages, when little can be done; whereas the same amount of time, used in the earlier stages, would be of infinitely more value.

Dr. Jay Frank Schamberg, Philadelphia: Concerning the comparative value of salvarsan and neosalvarsan, it is very difficult to draw conclusions unless the series of cases was extremely large. One case of syphilis is not like another. The location of the spirochetes in the tissues and their accessibility to medicaments are important factors, influencing the therapeutic results: most of the clinical reports on the comparative value of salvarsan and neosalvarsan are favorable to the former. My own opinion, based on clinical impressions, and on the results of the use of the two drugs in experimental trypanosomiasis, is that salvarsan is very distinctly superior to neosalvarsan.

Dr. Joseph A. Elliott, Ann Arbor, Mich: One of the points we wish to emphasize in this paper is the tendency for late accidents to occur following poor treatment, of which the pill treatment is an excellent example. During the months of October and November, when our supply of salvarsan was very limited, and we were forced to limit the dosage, we had a few accidents, thus showing that even salvarsan, unless given properly and followed by thorough mercurialization, may prove inefficient. What constitutes efficient treatment depends on the individual case. In all cases, however, we try to give at least five or more injections of salvarsan, followed by prolonged mercurialization either in the form of injections or inunctions.

Dr. John J. Rothwell, New York: In our work we had in mind the thought that Dr. Schamberg expressed just now; we knew that our cases were not all of the same variety, and our chief object in presenting this paper was to stimulate others to take up this work so that a sufficient number of cases might be collected on which to base definite conclusions.

Dr. H. G. Irvine, Minneapolis: I am not prepared to say that the subject of syphilis should be taught by one man, but in one department. The dermatologist can call to his assistance men who specialize in other lines, who can discuss special phases of the subject, but the course should be so organized that the student will get a clear idea of the disease as a whole. I do not agree with those who believe that syphilis cannot be controlled. We control tuberculosis and other diseases and why not syphilis? If necessary, the aid of the police could be invoked. They have certainly gone far toward controlling it in Boston.

Chlorosis of Pineapples.—An observation made on pineapples may prove of some value to the human. M. O. John-on of the Hawaiian Experiment Station recently found that he chlorosis of pineapples occurring on highly manganiferous oils can be cured by spraying the leaves with ferrous sulphate. Hence it is a manganese induced chlorosis. There s also a lime induced chlorosis met with in Porto Rico. The ime chlorosis was shown to be due to a lack of iron in the lant, caused by the carbonate of lime diminishing the availbility of iron in the soil. At first it was not known whether he chlorosis was due merely to a lack of iron or to a lack of ron combined with a large amount of lime in the plant. Recent work seems to show that it is merely due to a lack of ron. Now the manganese chlorosis may be similar to the me chlorosis if the manganese acts similarly in merely iminishing the availability of iron in the soil. The recent iscovery of Johnson shows that this may be possible. It possible that the manganese chlorosis is due to a deficiency f iron combined with a direct toxic effect of the manganese. he application of ferrous sulphate to the leaves apparently has a more permanent effect on the manganese plants than n the lime plants. The treatment must be made frequently maintain the plants in a green and vigorous condition.—*cience,* Dec. 15, 1916, p. 855.

THE SPHENOID SINUS

A REVIEW OF THE PAST WITH SUGGESTIONS FOR THE FUTURE *

HANAU W. LOEB, A.M., M.D.
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The study of the sphenoid sinus is most fascinating and presents many opportunities. Located as it is on either side of the midline of the under side of the head, often extending far to the opposite side, its size and shape vary with respect to its fellow more than any bilateral organ or cavity of the body. This appears even more remarkable when its relations are considered to such important and fairly constantly placed structures as the cranial cavity, cavernous sinus, internal carotid artery, optic nerve, optic chiasm and pituitary body. The bony coverings of the sinus and the bony outline of other portions of the sphenoid and the adjacent bones give no indication of the extent or shape of the sinus. Even the position of the nasal opening, as I have shown, is subject to wide variation, while the septum between the two sinuses is conspicuously inconstant in form, size and position.

The operative work done so successfully nowadays in spite of the distance from the anterior nares adds to the interest which we feel for the cavity, while the danger, though slight, of operating so close to such vital structures as the cavernous sinus, internal carotid arteries and higher brain centers gives it a zest to which only the timid will not respond.

Our understanding of the sphenoid has been of recent growth, but it has developed by leaps and bounds. The remote past contributed but little to this knowledge. The ancients as well as the writers of the middle ages understood the sphenoid sinuses, like the other accessory sinuses of the nose, as being mere accidental cavities with the function of relieving the head of the weight which solid bone would entail. They were, however, considered of great importance by reason of their ability to drain the brain of its humors, or of their disposition to remove pus and other fluids from the brain cavity. Even Hippocrates suggested that pus in the nose came in part from the sphenoid sinus, although he did not know the precise pathway it took in its journey.

Schneider's observations, which excluded the nose from any communication with the cranial cavity in life, brought an end to the supposed brain-purging function of the nose and gave rise to speculation as to the purpose of the individual sinuses.

The sphenoid sinus took but little part in the hypotheses that were advanced, either from the fact that little was known as to its extent and relation to the nose, or because no explanation, reasonable or unreasonable, could be given for its existence. It is quite obvious, therefore, why so little attention was paid to it for all these years and why, for instance, Hyrtl in 1882 stated that the sphenoid sinus was entirely beyond the range of manual and instrumental attack.

But the wonderful work of Zuckerkandl published the same year was destined to change this entire conception of the subject, for he gave the study of the normal and pathologic anatomy of the accessory sinuses of the nose an impetus which it retains even to this day. His findings as to the sphenoid are particularly of value in that he established the usual relation of the sinus to the optic nerve. Very little has been added to this work. We may mention Onodi, who demonstrated the relation of the sphenoid and posterior ethmoidal cells, the writer who showed the variation in size and shape and the vulnerability of the optic nerve when the sinus opening is high in the upper third of the anterior wall; and Sluder, who made extensive studies on the relation of the sinus to the various cranial nerves.

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

The investigations of Zuckerkandl were soon followed by determined efforts to utilize them for therapeutic purposes, although it was some time before effective measures were adopted. The first article in which the sphenoid sinus is mentioned in the caption appeared in 1886, by Berger and Tyrman.[1] Even then they supposed that the suppuration was always due to syphilis, scrofula or traumatism.

Schaeffer, who was the first to open the sphenoid, in 1885 contributed a great deal to the development of the knowledge of this cavity, while Berger and Tyrman, Rolland, Heryng, Rualt, Quénu, Clark, Cozzolino and others wrote more or less extensively during the first ten years following the publication of Zuckerkandl's monograph. Schaeffer and his followers endeavored to secure drainage of the sinus by simply enlarging the natural opening, although Schaeffer himself attempted to extend the enlargement to the floor of the cavity. Killian in 1900 called attention to the frequency of the coincident involvement of the last posterior ethmoid cell and the possibility of securing a larger opening by operating through the pars ethmoidalis. However, it was Hajek who demonstrated by his painstaking investigation and observations that the best results could be obtained only by a resection of both the pars ethmoidalis and the pars nasalis of the anterior wall of the sinus. Since these publications little has been done except to confirm them and to establish a somewhat more definite indication for the operation.

The operative attack of the hypophysis by way of the sphenoid sinus, which has been developed during the past few years, has been accepted as the most satisfactory plan, particularly when removal of the bony wall alone is required. The technic is easy for experienced operators on the nose and the results are sufficiently good to justify the interest that has been manifested in it. The development of roentgenographic studies in connection with the pituitary question has been satisfactory, though it must be admitted that roentgenography has so far been of little value in the diagnosis of sphenoid empyema.

We have thus seen that the entire progressive part of our knowledge of the sphenoid sinus has occurred within the past thirty-five years, while its surgery was practically an unknown quantity thirty years ago.

We are very apt to be filled with pride when we contemplate the development of a new line of work which has achieved as much as that of the sphenoid in such a short time, particularly in anatomy, diagnosis and surgery. In order that we may not feel too well satisfied or despair that everything has already been discovered, it may not be amiss to view some of the problems which remain unsolved in connection with this subject.

1. Among the very first that should attract our attention is the cause of the excavation of the sphenoid body, resulting in the formation of these sinuses, with such a variety in shape and size. The pressure of the air in the nose in breathing might appear to be the explanation, especially as the changes take place during the air-breathing stage of the individual. So far experiments with this in view have added nothing toward its solution; there is still plenty of opportunity in this direction.

2. Associated with this question is that of the relation of the posterior ethmoid cells to the sphenoid. Why does the last posterior ethmoid cell sometimes project itself into the sphenoid and replace the corresponding sphenoid sinus? I have shown that this occurred twice in the thirty sphenoid sinuses studied by me, and that in those instances the optic nerve ran for a considerable distance along the external wall of this ethmoid cell instead of having only the slightest relation at the postero-external angle of the cell. Is my surmise correct that under the former circumstances the optic nerve is more vulnerable to ethmoid infections?

3. What bearing has the sphenoid sinus on the cranial nerves in its neighborhood? Are they susceptible to the influence of purulent infections of the sinus?

4. The physiology of the sphenoid sinus is still almost an unknown quantity. Beyond its value as a means of decreasing the weight of the head without reducing the bone surface area, we have little to say, and this was held nearly 3,000 years ago. By the development of the sphenoid sinus from the nasal cavity there is a consequent increase in the respiratory mucous membrane. When shall we be able to answer the question as to what may be the purpose of this great extension of the nasal mucosa?

5. As to etiology, we are still much in the dark. We know that suppuration of the sphenoid may follow certain of the infectious diseases; we know it frequently follows acute coryza and suppuration in other sinuses; we know many varieties of pathogenic bacteria find their way into the cavity, but we do not know what selective agent accounts for the attack of the sinus at the specified time. We do not know why the sinus should escape infection when every necessary condition is present so far as our knowledge goes; at any rate the opportunity is abundant, the attack rare. No one needs, therefore, complain that etiologic problems are wanting.

6. The symptomatology of sphenoid sinus suppuration presents a wide range. In many cases practically no subjective signs whatever are present; in others the suffering is most acute. While this may be accounted for in part by the variation of the drainage, the explanation does not suffice for cases in which the symptoms fail to agree with the facility of drainage. We hear of an attack of blindness ascribed to sphenoid suppuration and relieved by appropriate treatment addressed to the sphenoid sinus, and we forthwith look to it as an explanation of eye symptoms of any character, provided they have no intra-ocular cause. We read of a case of acute mania due to suppuration of this cavity and we rush to tap the sinus in all cases of mania, whether there is suppuration or not.

What we need is to have some one determine the symptom basis so that a clearer line may be drawn between the symptoms due to the sphenoid and those which have some other origin.

7. Our best agents for diagnosis are cocain, the Killian speculum and the Holmes nasopharyngoscope. Roentgenography offers but little; we can make out the lateral bony boundaries of the sinus fairly well, particularly when we take advantage of stereoscopy. We can see it in the outline in some measure by an anterio

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[1] Berger and Tyrman: Centralbl. f. Laryngol., 1886.

view picture, but on account of its distance from the plate, we cannot determine the presence of pus, as in the case of frontal and maxillary sinuses. Who will find the solution for this problem?

8. We have not achieved the highest point in the surgery of the sphenoid. Notwithstanding the ease with which we resect the anterior wall, we still must submit to failures, even though many operations are followed by marvelous results. The suppuration continues in spite of our most earnest efforts. On the other hand, patients treated expectantly sometimes recover. Success, we may say, now depends largely on the judgment of the operator. Will not some earnest investigator place this on a basis more independent of the mere judgment of the operator than now obtains?

9. Who will so classify the chain of nervous symptoms, headache, etc., that sphenoid operations for their relief may be rational and not experimental? Truly there is a large field here for study and investigation.

10. We cannot fully account for postoperative accidents and results by what we know, nor are they always due to operative inefficiency. We need a great deal more light in this regard.

On the whole, it is manifest that we have not reached the utmost limits of knowledge by what we have accomplished in the study of the sphenoid sinus. For that reason I have endeavored to show, not how little we know, but how much we are to know.

THE SURGICAL TREATMENT OF CHRONIC MAXILLARY SINUSITIS *

WILLIAM E. SAUER, M.D.

ST. LOUIS

According to Jonathan Wright, Galen was the first to mention the maxillary sinus, but Brengar was the first to describe it. However, the first description of any real value was made by Highmore in 1651 and since then the cavity has borne his name. At the same time he reported a case of suppurative disease of he sinus. Mollinette in 1675 made a crucial incision on the jaw; and with a trephine penetrated the antrum and located an abscess. Meibomius, who died in 1655, nvented the operation now known as the Cooper operation. Cooper described his operation in 1717. ourdain, a Paris dentist, in 1765 reported a method of washing out the antrum through the natural openng. Grooch, an English surgeon, who died in 1780, and John Hunter in his treatise on the human teeth proposed perforating the antrum through its nasal urface. Wright states that in going over the history f the antrum and its diseases one will perceive that ll recent procedures have been long anticipated.

The treatment of maxillary sinus diseases was pparently neglected; at least it did not receive the ttention it had formerly. It received a new impetus n 1886 when Ziem pointed out that disease of this avity was not only far from infrequent, but a common occurrence. Since then a number of operative measures have been devised.

The operations for chronic maxillary sinus disease may be divided into three classes: (1) those in which he cavity is attacked only through the mouth, as in he Cooper and Kuster operations; (2) those in which the cavity is attacked only through the nose, as in the Krause, Mikulicz, Canfield and Skillern operations; and (3) those in which the antrum is attacked through the oral and nasal cavities, as in the Caldwell-Luc and Denker operations.

The Cooper operation is employed only when a carious tooth or root is the etiologic factor; usually the second bicuspid or the first and the second molar are removed, the opening enlarged and smoothed with a drill, and drainage established by means of gauze or a specially devised tube or obturator, which is worn by the patient until the cavity is healed. The chief disadvantage is that if there are any marked pathologic changes in the sinus the process will not get well.

The Kuster-Desault operation consists of a free opening of the antrum through the canine fossa and curetting the walls of the cavity. This operation has been practically abandoned.

Of the intranasal operations, the simplest is the Krause-Mikulicz, which consists in the removal of the anterior third of the lower turbinate. The antrum is then punctured with a large trochar and thoroughly irrigated. The opening is enlarged by means of a punch forceps and packed with gauze. This packing is removed at the end of twenty-four hours. The patient can be taught to irrigate the cavity until healing has been secured. The advantage is its simplicity. The disadvantage is that if any marked pathologic changes are present, it will not suffice.

The Canfield operation, which is a modification of the Denker operation, to be described later, consists of the intranasal, submucous resection of the naso-antral wall under local anesthesia. A 1 per cent. solution of cocain is injected in front of the inferior turbinate; the needle is directed so that the solution is carried under the periosteum in the canine fossa. The lower turbinate and lateral wall of the nose are cocainized in the usual way. An incision is then made from the middle of the anterior attachment of the inferior turbinate down to the floor of the nose. This incision is made through all the tissues down to the bone. A small elevator is introduced and the periosteum elevated from the crista pyriformis externally toward the canine fossa, and internally toward the nose, including the mucous membrane covering the inferior turbinate and the lateral wall of the inferior meatus. The bony structure of the inferior turbinate is removed, and the antrum may then be opened by means of a chisel, trephine or rongeur bone forceps. Enough of the bone in the canine fossa, as well as the bony wall of the inferior meatus as far back as the posterior wall of the antrum, is resected. A large-sized ear speculum is introduced and the interior of the antrum is inspected. A flap of mucous membrane is turned into the antrum from the nose and the cavity is packed with gauze, which is allowed to remain from twenty-four to forty-eight hours. The after-treatment consists of touching subsequent granulation tissue with caustics. Healing occurs in from ten days to three months. The advantages of the operation are that there is very little disturbance following the operation; the sinus can always be inspected, and the process of healing noted; drainage is at the lowest possible point. The objection to the operation is the removal of the inferior turbinate.

Skillern has modified the Canfield operation in that, after cocainization, a perpendicular incision is made slightly in front of and above the anterior end of the inferior turbinate extending well into the floor of the

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nose. The incision should sever all the tissues down to the bone. A second incision is made directly back of this, meeting the first one above and below, so as to excise a spindle-shaped piece of mucous membrane. The periosteum is then raised from the crista both externally toward the canine fossa and internally toward the inferior turbinate until a sufficient portion of the bone is exposed. The antrum is now opened with a chisel and bone forceps by removing the crista pyriformis. The opening is enlarged by means of a trephine and frontal sinus rasp to any desired size. The cavity is then irrigated and packed with gauze saturated with a cocain-epinephrin solution and allowed to remain five minutes, after which it is removed and the interior of the cavity inspected through a hard rubber ear speculum. The nasopharyngoscope is used for inspecting the roof and other parts of the cavity which cannot be seen by direct inspection. By means of suitable curets all portions of diseased mucosa can be removed. After completing the operation the cavity is packed with iodoform tape. This is removed in from forty-eight to seventy-two hours. After its removal the cavity is cleansed by irrigation and lightly repacked with iodoform gauze. The treatments are continued every second day for from ten days to two weeks, when the packing is permanently discontinued. The irrigations are continued at intervals of about four weeks. In ordinary cases the patient is discharged as cured at the end of that time. In cases of long standing and in which large areas of mucous membrane are removed Skillern, after thoroughly cleansing and drying the cavity, injects into it solutions of silver nitrate varying in strength from 25 to 75 per cent. At times the opening has a tendency to close. This can be prevented by curetting the edges and applying a caustic. Skillern claims the following advantages for his operation: (1) the sinus can always be inspected; (2) the drainage is at the lowest and most accessible point, reached through the nose; (3) local applications directly under vision can be made to diseased areas which have proved resistant to treatment; (4) the inferior turbinate is not only preserved in its entirety, but it remains uninjured; (5) the operation is practically painless if the anesthetization is properly carried out; and (6) the period of healing is considerably shortened.

Of the combined oral and nasal operations, the Caldwell-Luc was for a long time considered the most radical procedure and was employed only in the most obstinate cases. The operation consists of making a large opening in the anterior wall of the sinus through the canine fossa, giving free access to the interior antrum. After all diseased mucous membrane has been removed, a large opening is made in the antronasal wall beneath the inferior turbinate; a portion of the inferior turbinate is also removed so as to procure drainage into the nose. A flap is made from the mucous membrane of the lateral wall of the nose and turned into the antrum. The cavity is packed with gauze through the nose. The oral wound is allowed to close primarily, some operators closing it with sutures; but this, in our experience, has been found unnecessary. The operation is usually done under general anesthesia. The employment of the intratracheal method of general anesthesia obviates the necessity of packing the posterior nares, as was formerly done, and in a great measure overcomes the objections to the employment of a general anesthetic in intranasal work. The operation can be done under local anesthesia when a general anesthetic is contraindicated.

In 1905 Denker brought forth an operation which is similar to the Caldwell-Luc, but much more radical. Denker removes the anterior antral wall, the lower portion of the angle formed by the junction of the anterior and nasal walls, making a common opening between the nose and the sinus anteriorly. A large part of the inferior turbinate is removed. Denker has since modified his operation, in that he leaves the inferior turbinate intact. In this operation the after-treatment is carried out in the same manner as in the Caldwell-Luc. The chief advantage of the Denker operation is that practically all of the sinus mucosa is under direct inspection. The only exception is the anterior superior angle. This may be seen easily with a postnasal mirror. It has the advantage of being more extensive and less difficult than the Caldwell-Luc, and in the majority of cases the convalescence is more rapid. The objections to the operation are that the nerve supply of the front teeth is interfered with and at times the tear duct is injured. Skillern mentions three cases in which stenosis of the duct followed. He also mentions three cases of osteomyelitis of the superior maxilla, with two deaths.

The Jansen operation I believe to be too radical and am of the opinion that equally good results can be obtained by simpler procedures.

The necessary specifications of a good method are a large opening or openings of sufficient size to permit thorough inspection and good drainage with the least disturbance of nasal function. This, I believe, can be accomplished by a modified Canfield, such as the Skillern, or a Denker, in which the inferior turbinate is left intact.

A most important consideration in estimating whether a radical operation must be resorted to is that of the primary or secondary character of the maxillary sinus involvement. The claim of Jansen that if one sinus is affected all are is not tenable. When, however, the antrum is a reservoir for ethmoidal or frontal sinus suppuration, or when its involvement is secondary to such suppuration and the trouble is not of too long standing, it is frequently necessary only to cure the primary trouble and then, at most, to handle the maxillary sinus by lavage. The causes of failure of the radical maxillary operations are frequently due to the overlooking of a decayed tooth or necrotic bone in the alveolar process as well as pathologic conditions in the nose and other sinuses.

The value of the Roentgen ray in discovering pathologic conditions of the teeth and maxillary sinus cannot be overestimated. We must also bear in mind the general condition of the patient. Here, as elsewhere, syphilis and tuberculosis must not be overlooked.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BECK, HURD, COTT, SKILLERN, SHAMBAUGH, IGLAUER, LOEB AND SAUER

Dr. H. P. Mosher, Boston: Dr. Skillern misunderstood my method of opening the front wall of the sphenoid. I do not enter the sphenoid through the ethmoidal part of the front wall. After uncovering the whole of the front wall of the sphenoid, entrance to the sinus is gained through the nasal part, preferably by way of the ostium. Dr. Skillern spoke of pushing the mucous membrane ahead as you attempt to get into the sphenoidal sinus through the ostium. I have had two such cases and in one the mucous membrane pulsated.

I have never used Beck's osteoplastic operation on the frontal sinus. Jansen's work prejudiced me against procedures of this class. The pathology in Dr. Beck's paper was most welcome.

Dr. Beck was favorably impressed with the Lothrop operation. I have done the operation once. There are many things which appeal to me about this operation. Men have been working on the superior nasal spine for years. Such operations have seemed to me to be working in the dark and I have never tried them. The great improvement introduced by Lothrop is that he opens the frontal sinus and works on the superior nasal spine by sight. The second new point about this operation is that both superior nasal spines are removed. In the operation which I saw Dr. Lothrop do it seemed to me that the opening in the front wall of the frontal sinus was too small. Given a large opening to work through, the Lothrop operation appeals to me, and I think it has a future ahead of it. Time will have to settle whether the opening made through the thick bone of the superior nasal spines will fill with scar tissue any faster or to a greater extent than the opening made by the Killian operation in the thin bone of the ethmoid labyrinth and the floor of the frontal sinus. The papers today have shown that there is more than one technic for exenterating the ethmoidal cells. The operator should take whichever one best fits his needs. As given in the papers today the pproach to the ethmoidal labyrinth has been through the thmoidal bulla. The point of attack which I have been ccustomed to make is through the extreme upper anterior art of the middle turbinate. In performing the exenteraion of the ethmoidal labyrinth I have reduced the special nstruments employed to two, a Hammond mastoid curet nd a small round tonsil punch about a centimeter in each liameter. Whether one works to the inside or the outside f the middle turbinate, ethmoidal operating is dangerous nd always will be. Any one who does ethmoidal operating hould have an acutely developed surgical conscience. In he cases of ethmoidal exenteration which I have not acked the majority have required packing later by the house urgeon.

Dr. C. G. Dwight, Madison, Wis.: Every man who has one any surgery along this line has his own technic; if ot; let him master a technic that is considered safe and ight. I have repeatedly left the concha media and middle rbinate as a landmark in doing ethmoid work. If you ill enter at the upper anterior end of the middle turbinate ith a Hartman forceps and work back until you have xposed the anterior ethmoid cell, you have an easy route follow. It allows you to work back and leave the middle rbinate hanging.

Dr. Lee Cohen, Baltimore: Dr. Beck emphasized the difculty of keeping the fronto-nasal duct from closing. This, my experience, has also been the greatest difficulty in the eatment of frontal sinusitis. Dr. Ingalls of Chicago sevral years ago advocated the introduction of a gold tube to the frontal sinus to maintain drainage. For the past veral years it has been my custom to introduce a rubber ainage tube into the frontal sinus when intranasal draine of this sinus is required. The introduction of this flexible be might at first thought seem quite difficult, but if a ece of drainage tube 5 inches long, varying from oneghth to one-fourth inch in diameter, according to the needs the individual case, is slid over an ordinary Ritter bougie, introduction will be found quite simple. The tube should fenestrated for about 1 inch from the end first introced, and in order that it may not be necessary to cut the be off within the nose after its introduction, it may be t into two sections before putting it over the bougie. The ction near the handle of the bougie serves simply as a eans to slide the fenestrated portion of the tube off the ugie, after its introduction into the frontal sinus. The nus can be treated by irrigation, if desired, by the introction of a small silver cannula into the lower end of the bber tube. Two weeks after operation the drainage tube removed, leaving a nice round opening, the walls of which ve healed fairly well without contraction, on account of presence of the tube. In some instances where pus still forms in the sinus, it may be necessary to reintroduce the tube several times for intervals of a week or two, before suppuration finally ceases. In a number of cases treated in this manner during the past several years, satisfactory results have been obtained, after failure following other operations.

Dr. Harvard M. McNaught, San Francisco: Last year I reported ninety consecutive cases of maxillary antrum operation by the intranasal method. These operations were done with the purpose of ascertaining what proportion of cases are curable by the simple intranasal operation. I use a modified Krause operation. About 85 per cent. of intranasal involvements result in cure without radical operation. Another point that has not been emphasized is the use of intranasal irrigation. I emphatically condemn intranasal irrigation for sinus infection. You get a dehydrating or water-logging effect. The tissues will store up the different salts or give them out and you produce an irritating effect which in many cases keeps up secretions that you want to disappear. We only use a wash for a week or two after operation, then rely chiefly on silver nitrate solutions, in varying strengths, sometimes as high as 50 per cent., and we find we get better results.

Dr. Francis Alter, Toledo, Ohio: I am of the opinion that some of these cases can only be cured by the combined internal and external operations. I have not had the extreme strenuous experience Dr. Beck mentions in connection with the bad cosmetic effect from the Killian operation. Without a doubt it is a deforming operation, and the deformity is not easily borne by the average patient. It has been my experience that this feature of the Killian operation can to some extent, at least, be minimized and made less noticeable by limiting the anterior opening into the sinus. One must have a generous enough opening to inspect the sinus, but there is no absolute need to make the external opening correspond to the sinus itself. In a series of fifteen operations the results in nearly all of the cases have been very gratifying as far as a cessation of the pathologic process is concerned, but somewhat variable as to the amount of the deformity.

I have had a larger percentage of male than female patients. Obviously it is easier for a man to bear with the resultant deformity. In all but two cases, which were among my first, I was exceedingly careful to do thorough intranasal work. When I failed to do this I was compelled to reoperate because of reinfection. This is a point which cannot be emphasized too strongly. We should precede the external operation by thorough removal of the middle turbinate and a careful exenteration of the ethmoid cells. The main indications for the external operation are: (1) A persistent discharge which cannot be lessened by the well known methods, especially when associated with severe headaches. (2) A spontaneous fistulous opening existing over the sinus. I was much impressed with Dr. Beck's operation. The only criticism I have to offer is that the technic is too involved for the average operator. Some method must be provided to eliminate and cure these pathologic frontal sinuses and yet leave no cause for regret as far as the cosmetic element is concerned.

Dr. J. F. Barnhill, Indianapolis: An operation which provides only a small opening into the frontal sinus for the purpose of work in this sinus seems to me to be a bad one. It is observable in nearly all operative work of throat men that they seem to be too much afraid of an adequate opening. Frequently the small opening will not heal at all for the reason that through it the disease cannot be thoroughly eradicated and will, therefore, make a great deal of subsequent trouble, whereas a large opening, through which the diseased portion may be removed, heals rapidly and entirely satisfactorily. Now with these facts in view I cannot see why we should make a small opening and try, usually unsuccessfully, to clear out all of the diseased tissue of the sinus, when a larger opening will enable the operator to do the work in the open, and therefore more surgically correct and better in every way. A point that has not been mentioned here is that in these chronic sinus conditions for which we do this operation the entire mucous membrane is usually so thickened and diseased that the entire sinus is often filled with this degenerated membrane. Anyone who does not curet out every bit of this mucous membrane will not, in all probability, cure his case. If he leaves some of it in any of the numerous angular pockets of the sinus, or in any part of the sinus we may be sure it will grow and fill the sinus again with the result that failure is almost certain. Satisfactory work can therefore only be done through a large opening.

Dr. Cullen F. Welty, San Francisco: I wish to mention one thing in relation to the ethmoid that has not been stated clearly, if at all, and that is leaving the middle turbinate and taking your ethmoid away. In selected cases it is a recognized procedure, and one that will lead to many good results. If you have not a polyp formation in the middle turbinate, in many instances, you will cure that case absolutely by taking away the ethmoid and leaving the turbinate. I also insist on correcting the septum before destroying the ethmoid. In many individuals, the septum encroaches on the ethmoid and produces something that simulates ethmoiditis. By correcting the septum you do away with the ethmoiditis. The most important question to be decided in a case of suppuration of the antrum of Highmore is which operation you are going to do.

When polypi and hypertrophies are found in a nose that has a suppuration of the antrum of Highmore (frontal excluded), it is quite apparent that something in the line of a very thorough operation is necessary to bring the case to complete healing. I never operate for drainage. The only operation that will do this is the Luc-Caldwell with my modification of leaving the inferior turbinate intact. When this case has recovered, it will require a most careful examination to determine that the nose has been operated on at all. In other words, an operation on the antrum of Highmore, that leaves the nose intact so far as one can see, has a decided preference over all other operative procedures that destroy a whole or part of the inferior turbinate. A suppuration of the antrum of Highmore (frontal excluded) that does not show pathology in the nose (such as polypi and hypertrophies) will in a great majority of cases get well by irrigation. It is my contention that many of these more or less interesting operations that destroy the integrity of the nose are unnecessary. Furthermore, if an operation on the antrum of Highmore is necessary, the more completely the operation is done the more sure you will be of a permanent cure. I strictly confine my remarks to chronic cases and they are not chronic until they have lasted a year or more.

Dr. M. William Clift, Flint, Mich.: Dr. Inglauer brought out very well the difficulty of showing the sphenoid. The oblique method is difficult of interpretation. About two years ago I started to work out a method of showing the sphenoid by roentgenography, and at the present time I am using a dental film slightly larger than the ordinary size, which is placed in the mouth horizontally, back as far as possible, and the patient closes his teeth over the film. The ray passes through at an angle between the vertex and occipital protuberance. The angle must vary somewhat according to the type of skull met with. It is approximately 45 degrees in the average case. The advantages of the method are obvious. The first advantage from the Roentgen standpoint is the fact that the film lies very close to the sphenoid. It is comparatively close to the roof of the mouth, and the tissues to be penetrated are few. The second point is the fact that the sphenoid itself is shown clearly on the film without the overlying shadows of the ethmoid cells. By this method the infection of one side of the sphenoid can be shown clearly and the outlines of the normal side are demonstrable as well. The third point is that there is very little distortion of the shadow from the fact that the film is close to the sphenoid.

Dr. Joseph C. Beck, Chicago: I am still unable to answer Dr. Mosher as to the pathology of a hemorrhagic frontal sinus, because I have not encountered a case that I could say was a hemorrhagic case. I have seen marked dilatation of the blood vessels with some extravasation in acute exacerbation of chronic cases, but nothing that I would consider a hemorrhagic case. I did not urge a modified Killian. I showed that it was very little better than an intranasal procedure so far as a definite cure was concerned. Dr. Barnhill touched on this operation, but his objections are scarcely valid in reference to the Lothrop operation.

The final point is this, that it is a question between you and your patient whether you want to adopt my procedure or the Lothrop operation; whether you want absolute cure or a slight suppuration; whether you want a suppuration which you can control or a deformity which will remain throughout the rest of the patient's life. The intranasal operation, or a method such as the Lothrop operation, I think will come into their own in frontal sinus work. I feel that just as the Gussenbauer, Kuster, Cooper and Jansen operations have gone, so, perhaps, my operation will go; but twenty-seven cases out of thirty-one being successful, without any deformity except some suppuration, is a good record. I believe the Lothrop operation as a late procedure after all has been done intranasally will be the best.

As to Dr. Iglauer's paper, a stereoscopic roentgenogram viewed from both sides, that is, stereoscopic and pseudoscopic, will give more information than the unilateral, distorted picture. Why Dr. Sauer did not mention the procedure of completely obliterating the antrum of Highmore by the method I devised, the only means that I know that will cure an otherwise incurable chronic suppuration after other simpler methods have failed, is the question I would ask. It has been published over five years.

Dr. George F. Cott, Buffalo: Dr. Shambaugh claims that operation is for the relief of hyperplastic or suppurative ethmoiditis. The logical conclusion then is that operation should not be performed except when one of these conditions is present. However, a healed suppurative ethmoiditis may cause such distressing symptoms, although there is practically no discharge, that nothing suffices but operation. During the time I attended the Jansen clinic in Berlin in 1908 I found that he had operated 800 cases radically, and I asked one of his assistants how many recovered, and he said none. That may have been considerably exaggerated, and I do not think it was correct, but there are a large number that do not get well. The ethmoid operation is more or less dangerous, perhaps more than most. I saw Dr. Mosher demonstrate the operation in Boston, and he had had at that time seven cases. Since I have been operating, not only for suppuration but for a latent condition, I have tabulated fifty cases, not including ward or dispensary cases, and I think there will probably be from 75 to 100 per cent. without a fatal result. You will find that operations on the ethmoid after suppuration has ceased will be at least 100 per cent. more common in the future than in the past, and you will not get relief from the trouble unless you drain the cells. That does not mean to drain a case because there is pus there, but to obtain pneumatic drainage.

In regard to the Roentgen ray, it is absolutely useless in the cases that have had suppuration. I have tried it and have discarded it. There is nothing there to see.

Dr. George E. Shambaugh, Chicago: In regard to the question of the disposition of the middle turbinated body: There are a few cases where the nasal chambers are so roomy that it is not necessary to disturb the middle turbinated body when operating on the ethmoid cells. Under these circumstances it may be advisable often to leave the turbinated body standing. In many cases where the ethmoid operation is called for the nasal chamber is so constricted that it is with difficulty that one gets, even after cocainization of the nasal membranes, a glimpse of the lower edge of the middle turbinated body. Under these circumstances the resection of the concha media precedes any operation on the ethmoid labyrinth. As regards Dr. Cott's suggestion that the first indication for operation on the ethmoid is found in the persistence of symptoms following the disappearance of an acute ethmoiditis, I can hardly follow Dr. Cott in this matter, unless he has in mind the persistence of an ethmoiditis, hyperplastic or suppurative, after an acute infection. As a matter of fact, acute ethmoiditis is a not infrequent complication of acute rhinitis. This process subsides almost invariably without any operative treatment unless there exists a previous hyperplastic ethmoiditis or where the anatomic conditions are such that even slight swelling of the concha media effectually obstructs drainage from the ethmoid. Dr. Welty's point is a good one, that a high deflection of the septum requires correction before the ethmoid can be reached effectively. If the operation is undertaken with the patient lying on the operating table, where the shock is very much diminished, it is usually feasible to correct the septum and complete the operation on the labyrinth at one sitting. The other suggestion by Dr. Welty, that the relief accomplished by an intranasal operation on the accessory sinuses can be got just as well from simple irrigation, I am not willing to accept. I would be almost willing to take the stand that any accessory sinus condition which can be cured by irrigation will get well spontaneously if left alone, with only the usual application of epinephrin or cocain applied under the middle turbinated body to facilitate temporary drainage. It is only, as a rule, the chronic form of accessory sinus disease where an operation is called for, and in these cases irrigation alone is usually of very little value.

Dr. Samuel Iglauer, Cincinnati: I have not tried the method Dr. Clift mentioned, although I found some reference to it in the literature. The objection stated in the literature is that the patient cannot control the soft palate and possibly not the tongue while the picture is being taken and therefore there is some danger of the film being moved during the exposure. This difficulty may, perhaps, be overcome by cocain or by a rapid roentgenogram. The film in the mouth method was suggested by Scheier some years ago but nothing seemed to come of it. If this method proves successful it will be better than the method I presented this morning. If it is not successful the oblique method will remain the best. Dr. Beck is inclined to question the value of the latter method. If he will look at the plates perhaps he will change his mind, since it is difficult to show details in lantern slides. I am convinced that one can tell whether the anterior or posterior group of cells is involved. I think that is valuable. There is one trouble with a patient who has recovered from an ethmoiditis or sphenoiditis, that the recovered cells may still show pathologically on the roentgenogram, so that one must consider the patient's history and the clinical findings in connection with the plate. I do not pretend to say that one should rely on the roentgenogram plate entirely; one certainly must employ clinical methods, but by combining the two fewer mistakes will be made.

THE QUANTITATIVE RELATIONSHIP OF MILK-BORNE INFECTION IN THE TRANSMISSION OF HUMAN COMMUNICABLE DISEASES *

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For practical public health administrative purposes the list of human communicable milk-borne diseases that are of importance in the United States may be reduced to five: diphtheria, scarlet fever, septic sore throat, tuberculosis and typhoid fever. The only other group of human diseases which have certain definite claims for admission to this group of communicable diseases are the so-called infantile diarrheas. The entire question of the specificity of the micro-organisms that produce infantile diarrheas and of the part that milk may play in the transmission of such micro-organisms is still so far from definitely settled that it is probably wiser, in considering the relationship of milk-borne infection to human diseases, to limit its consideration to the diseases first enumerated.

In recent years there has been a great deal of agitation relative to the comparative importance of milk infection in the transmission of human diseases. Whenever the subject is approached in an impartial manner, it is rather astonishing to see how little real basis there is on which to form any definite estimates as to the quantitative importance of milk infection as compared to other modes of infection, such as water, carriers, or direct contact.

Of the five human diseases to be considered, it may be seen at once that tuberculosis represents a distinct problem. The evidence that incriminates cow's milk as a factor in the transmission of tuberculosis to human beings is now quite conclusive. Nevertheless, the data on which are based our quantitative estimates of the prevalence of human tuberculosis of bovine origin are comparatively scanty. This is because of the inherent difficulty in determining in any given case or cases whether or not it is the human or bovine type of the tubercle bacillus that is fundamentally responsible for the disease process. Such researches as those of the British Royal Commission and of the health department of New York City prove that the bovine tubercle bacillus is of frequent occurrence under conditions which render it practically impossible to come to any other conclusion than that the bovine tubercle bacillus is the fundamental cause of the disease process in a wide variety of human tuberculous lesions, especially in children. From these investigations, Park and Krumwiede of the New York City health department concluded that at least one third of all cases of tuberculosis in children under 5 years of age, as the disease occurred in New York City, were due to infection with the bovine tubercle bacillus and only a slightly less proportion in the cases occurring between 5 and 15 years of age.

The methods that must be employed to demonstrate whether or not it is the bovine or human type of bacillus that is at fault in any given case of tuberculosis are so intricate and involved that it does not seem likely at present that we shall soon have any accurate method of demonstrating the true frequency of bovine tuberculous infection. We will thus rest content with the general assumption that a considerable proportion of the cases of human tuberculosis are in all probability due to infection transmitted from the cow through drinking raw cow's milk.

With tuberculosis left at one side, the question of the relationship of infected milk to the transmission of disease in cases of the other four diseases, diphtheria, scarlet fever, septic sore throat and typhoid fever, ought to be a very much easier point to determine. Careful and thoroughgoing adherence to the laws of epidemiology, supplemented by equally careful and well coordinated laboratory investigations, will in the great majority of instances, in the case of epidemics, prove conclusively whether or not given cases of these diseases may be fairly attributed to milk infection. Nevertheless, at the present time there are apparently very few health departments in the United States that do determine, with even a very rough degree of accuracy, whether or not given outbreaks of disease are due to milk infection. In many instances outbreaks are very evidently alleged to be due to milk infection without any scientific investigations being carried out to verify or disprove this hypothesis.

There are several reasons why it is impossible in most instances to say whether or not milk could reasonably be held to be the channel of infection. It is the exception rather than the rule that any attempt is made to determine the probable source of infection as a routine procedure.

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Even if physicians or health officials make an attempt to determine the always possible culpability of milk, they usually carry out the investigation no farther than to establish a suspicious frequency of infection in persons having a common milk supply. Then the outbreak is promptly labeled a milk epidemic and everybody is satisfied with the explanation except the milk man. He, having nothing at stake except perhaps the savings of a life time and a business reputation built up by years of earnest effort, timidly protests against such a harsh and hasty judgment, but his protests are brushed to one side by the cocksure doctor or health board that has condemned him and his products on most incomplete circumstantial evidence alone. Time and again careful epidemiologic investigation has shown that an outbreak that at first appeared to be milk borne has proved to be carrier borne or water borne, and vice versa.

The practical conclusion to be drawn from these facts of common knowledge to sanitarians is that an outbreak of disease may be considered tentatively as probably milk borne on a showing of high frequency of cases on a common milk route or on routes having a common source of supply. This alone is ample evidence to demand prompt administrative action, such as shutting off the supply, or, better, careful pasteurization, an investigation of dairies producing milk and of middlemen handling milk in order to detect the possible source, and such other similar precautionary measures as circumstances may suggest. In order definitely to declare any disease milk borne, however, it is necessary to carry out, by epidemiologic and laboratory means, a careful search for and detection of the disease, or a past history of the disease, in a person or the persons handling the milk at any point, and a thoroughgoing exclusion of all other probable channels of infection. When this perfectly fair and reasonable system of checking is applied to alleged milk-borne epidemics, it is surprising to note how often such epidemics fail to show any clear-cut proof of being milk borne.

Even definite proof of milk being the channel of infection in epidemics may not fairly indicate the total relative importance of milk as a channel of disease transmission.

Although at the present time no definite epidemiologic standards exist as to what is meant by the terms "outbreak" or "epidemic," yet analyses of morbidity reports will nearly always show that for the diseases under consideration, one, septic sore throat, is reported almost exclusively in epidemics. In the case of diphtheria, scarlet fever or typhoid, their sporadic or endemic occurrence far outweighs, in the aggregate, their occurrence in epidemics. It is almost unique to have a single or sporadic case of any of these diseases definitely traced to milk infection. It is easy enough to assume that many such cases must be due to infected milk, but to prove it, even to render the case fairly reasonable against milk, is another matter.

A tabulation of investigations of outbreaks and epidemics carried out over a series of five years by the field force of the Massachusetts State Board of Health from 1910 to 1914, inclusive, shows that 240 epidemics and outbreaks of diphtheria, scarlet fever, septic sore throat and typhoid, due to all causes, were investigated. The total number of cases recorded is 3,198, but in many instances a statement is made that the true number of cases is believed to be greater, or that more cases may yet occur subsequent to the report. Because of the policy followed, it is believed that practically every outbreak of any material dimensions of these particular diseases occurring in the state was investigated.

Even assuming for purposes of argument that the admitted incompleteness of cases is as great as 50 per cent., a most liberal concession, this would only assign about 6,000 cases of these diseases to epidemics or outbreaks.

In the same years a grand total of 85,958 cases of these same diseases were officially reported in the state, and this would indicate that the almost unnoticed sporadic or endemic prevalence of these diseases is a vastly greater problem than their occasional epidemic occurrence. No evidence is available pointing to milk infection in any of these sporadic cases. The comparisons shown in Table 1, based on the Massachusetts investigations, are of interest in this connection:

TABLE 1.—DATA OF ORIGIN OF THE FOUR CHIEF MILK-BORNE DISEASES

Year	Number of Epidemics	Number Due to Milk	Number Due to Other Causes	Percentage Milk Borne
Diphtheria:				
1910	4	0	4	0
1911	13	1	12	7.7
1912	9	1	8	11
1913	9	0	9	0
1914	26	0	26	0
Total	61	2	59	3.2
Septic sore throat:				
1910	0	0	0	0
1911	1	1	0	100
1912	0	0	0	0
1913	3	2	1	66
1914	2	1	1	50
Total	6	4	2	66
Scarlet fever:				
1910	11	1	10	9
1911	10	1	9	10
1912	8	2	6	25
1913	23	1	22	4.3
1914	35	2	33	6.0
Total	87	7	80	8
Typhoid fever:				
1910	15	10	5	66.6
1911	11	2	9	18.2
1912	6	3	3	50
1913	31	8	23	25.8
1914	23	10	13	43.5
Total	86	33	53	38.4
Grand total	240	46	194	19.2

In Table 1 the incidence of more than one case in different families in the same locality at the same time is classed as an epidemic or an outbreak with the natural effect that with three or four exceptions the average number of cases per epidemic is small. There have been many small outbreaks in which no suspicion has been raised relative to the milk supply that have been handled wholly by local authorities and concerning which no epidemiologic information is recorded in the state department of health. This fact does not invalidate the significance of the table, because for several years past it has been the fixed policy of the department to investigate every case of contagious disease reported from a milk-producing farm, as well as every outbreak, whether in a large or small community, in which milk was at all under suspicion. Therefore a fuller table of outbreaks would only tend to lessen the percentage of milk borne.

In the same connection it is interesting to note that in these five years fifty-five other investigations were made by the state health inspectors of Massachusetts in instances in which a single case of contagious disease was reported from a milk-producing farm, and precautions ordered and observed, with no secondary cases of any nature subsequently occurring.

As regards the occurrence of milk infection in sporadic or nonepidemic cases of these diseases, owing to the fact that Massachusetts local boards of health are required by law to report to the state health authorities only the names, addresses, diagnoses and dates on which cases of infectious diseases are reported to them and that the routine notifications to the state health department are limited strictly to this information, the routine records of cases in the Massachusetts state health department throw no light whatever on the question. During an investigation in 1915 of the entire question of milk in its relation to the public health, the Massachusetts state health department sought to supplement the lack of any routine information in its own records as to frequency of milk infection by requesting information on this point from all of the local boards of health in the state. Accordingly, a circular questionnaire was sent to the local boards of health in the commonwealth, 353 in all, asking for statements as to the total number of cases of typhoid fever, diphtheria, scarlet fever and septic sore throat reported to the local board of health during the five-year period, from 1909 to 1913; the number recorded as due to milk infection following investigation by the local board; the number suspected of being milk borne without conclusive evidence being obtained, and the total number of deaths from the same diseases in the corresponding period and the number of such deaths attributed to milk infection.

Forty towns, having an aggregate population of 50,134, stated that no cases of these diseases due to any causes were reported in this period to their local boards of health. Inasmuch as these "no cases" towns are all comparatively small, it may be reasonably inferred that at least no outbreak of these diseases could have occurred in any of them during the period under inquiry, for such an occurrence would have been practically certain to have become a matter of record in the local board of health office. It is also true that in practically all of these towns, the machinery of milk production and distribution is extremely simple.

The remaining 102 towns and the thirty-four cities, total 136, answering the questionnaire represent an aggregate population of 2,703,759 (census of 1910), or 80 per cent. of the total population of the state. They reported as is shown in Table 2.

Analysis of these totals demonstrates that in only 0.03 per cent. of cases was the transmission of diphtheria definitely assigned to infected milk, and in only 0.19 per cent. was milk either proved or suspected; 1.6 per cent. of the reported cases of scarlet fever were definitely attributed to milk infection, and 1.8 per cent. proved or suspected; in 79 per cent. of the cases of septic sore throat (not reportable in Massachusetts until 1914) milk was assigned as the cause; and in 5 per cent. of the cases of typhoid, milk was definitely assigned as the cause and in 6 per cent. of the cases of typhoid milk was either proved or suspected to be the agent of infection in this disease. Taking all of these diseases in a group, 3.9 per cent. were definitely attributed to milk, and in 4 per cent. of all the cases milk was proved or suspected. Considering mortality, 3 per cent. of typhoid deaths are possibly attributable to milk, 0.08 per cent. of diphtheria deaths, 0.8 per cent. of scarlet fever deaths, and 98 per cent. of septic sore throat deaths; an average for the whole group of 2 per cent. of the deaths may be attributed to infected milk.

TABLE 2.—NUMBER OF CASES AND DEATHS DUE TO MILK AND OTHER CAUSES

Diseases	Number Cases, 1909-1913	Number Deaths, 1909-1913	Number Cases Due to Milk	No. Deaths Due to Milk	No. Cases Milk Suspected*	Deaths Milk Suspected*
Typhoid fever.....	11,282	1,425	553	37	135	8
Diphtheria.........	31,866	2,580	11	1	49	1
Scarlet fever.......	31,012	991	495	8	57	0
Septic sore throat.	2,436	49	1,914	48	0	0
Totals..........	76,596	5,045	2,973	94	241	9

* "Suspected" here means that milk was considered to be the probable source of infection, but the suspicion was not conclusively proved.

CONCLUSIONS

From this statistical study, although it is incomplete in several respects, many interesting and suggestive deductions can be made.

Analysis of Massachusetts investigations does not corroborate the statements to be found in various places in recent literature, alleging that milk is a very important channel of infection in a quantitative sense in this group of diseases.

Massachusetts experience would seem to indicate that even in raw milk supplies, with widely varying conditions of supervision, diphtheria transmission through milk is so rare an occurrence as to be negligible.

The transmission of scarlet fever through milk, while much more common than diphtheria, is of very small percentage significance.

Typhoid fever in this large series, extending over a period of years, was reasonably attributed to milk infection in a much larger number of cases than diphtheria or scarlet fever, but these amounted in all to only 5 per cent. of the total cases of typhoid reported, a very different story from the statements of from 10 to 25 per cent. frequency of typhoid infection by milk that can be found in various places in recent public health literature.

Septic sore throat is par excellence the milk-borne disease, but its occurrence is fortunately relatively rare. When it does occur, it is nearly always in epidemic form and is of more serious consequences.

In all probability, the menace of tuberculosis is the best justification that we have as practical sanitarians for the amount of propaganda that has been carried on and the money that has been expended by health authorities for the supervision and control of milk supplies, so far as such supervision aims at the suppression of communicable diseases.

Relation of Mental Deficiency to Delinquency.—The relation of mental deficiency to delinquency, dependence and immorality, is vastly more important in the years of adult life than in childhood, but the phases of the problem as they present themselves in the years of school life are more readily manageable. The school population, therefore, constitutes the larger group to which access for satisfactory investigation can be had.—Treadway, *Public Health Reports,* Nov. 24, 1916.

NOTE ON THE TREATMENT OF TRICHINOSIS WITH THYMOL *

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AND
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The treatment of trichinosis may be divided into two stages: (*a*) the period when the parasite is within the lumen of the intestine, and (*b*) the period when the parasite is within the muscles and tissues of the body.

1. First Period.—It is quite well known that thymol is a very good anthelmintic. In unicinariasis it almost has specific action. The method adopted in the treatment of trichinosis during this period may be the one suggested by Ashford, King and Gutierrez of Porto Rico, as given by Stiles: A purge is administered to the patient of magnesium or sodium sulphate with abundant water the evening before the thymol is given. Early the next morning, no breakfast being allowed, the patient (if an adult) is given 2 gm. of powdered thymol in capsules, and another 2 gm. two hours later, after which another dose of salts is administered. The dose of thymol varies according to the age and the strength of the patient. The doses in one day advised by the Porto Rican authors are:

Under 5 years....	0.5 gm.
Between 5 and 10 years....	1.0 gm.
Between 10 and 15 years....	2.0 gm.
Between 15 and 20 years....	3.0 gm.
Between 20 and 60 years....	4.0 gm.
Above 60 years....	2.0 to 3.0 gm.

The symptoms unfavorable for the administration of thymol are: great debility, old age, pregnancy, advanced cardiac disease, anasarca, diarrhea and dysentery. Thymol solvents like oil and alcohol should be forbidden.

2. Second Period.—It is futile to give thymol by mouth after the parasite has left the intestinal canal and lodged itself in the muscle. The thymol does not circulate in the blood as such after its absorption from the alimentary mucous membrane. Its antiparasitic powers are neutralized by the liver. Thymol is meta-iso-propyl-cresol. From the intestine it is absorbed into the portal circulation, and there conjugated with sulphuric and glycuronic acids and excreted in the ester form in the urine. The process of conjugation is the means used by the body to detoxicate the aryl compound.

It is obvious, then, that if we want to attack the trichinae in the muscle and tissues, another method of administration of thymol must be resorted to. Parenteral injections of thymol would exclude the conjugating influences of the liver. The thymol would be absorbed in the blood and would circulate as such, and thus be able to attack the parasite in situ. We, therefore, adopted the following procedure in the treatment of trichinosis during the second period:

Fifty grains of thymol were dissolved in 50 c.c. of sterile olive oil, which had been autoclaved for several minutes. The solution was then resterilized and used. The patient was given from 2 to 3 c.c. of this solution subcutaneously or intramuscularly daily for seven days. The administration was then discontinued for several days and then again repeated. No toxic effects were observed. Following is the report of a case in which this treatment was given:

REPORT OF CASE

J. S., aged 26, an Austrian Jewish laborer in a slaughter house, came to the hospital complaining of swelling under the eyelids and on the face. The patient stated that his muscles were sore and stiff, and until three days before (April 23, 1916), he was able to work. On the evening of that day, while coming home from work, he had several chills, and then he felt hot all over his body. The arms and legs felt rigid and painful. He went to bed, and on awakening he found that the swelling around his eyes almost prevented them from being opened. He remained in bed feeling very hot but not perspiring. He had had no gastric or abdominal symptoms up to this time. The family history and personal history were negative. The patient gave a vague history that while serving in the Austrian army four years before he had had attacks of muscular pain and stiffness with fever which were severe enough to confine him to bed, but he thought that these attacks were due to the fatigue of forced marches.

Physical examination was negative, save for the edema of the eyelids and the tenderness over the limb and abdominal muscles.

Diagnosis was made by the presence of eosinophilia—above 20 per cent.—and the finding of the encapsulated parasite in the section of muscle removed for examination. No parasites were found in the feces.

The patient had a septic temperature between 99 and 103 F. He was listless, and complained much of pain and swelling under the eyes.

On treatment with thymol, the temperature quickly subsided. The pain in the muscles and the swelling of the conjunctivae disappeared, and the patient became normal mentally. He was dismissed from the hospital cured.

It was noticed that following the administration of thymol oil solution there was an increase in the percentage of the eosinophil leukocytes up to 30, 45 and as high as 55 per cent. This was no doubt due to the destruction of the parasite and the absorption of the parasite protein into the blood. There was no discomfort to the patient, except that a rash appeared on the palmar surfaces of the hands which cleared up when the administration of thymol was stopped.

The urine examination was normal. Some of the thymol was excreted as such in the urine, whereas another fraction was excreted in conjugation with sulphuric and glycuronic acids.

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* From the Laboratories of the Western Pennsylvania Hospital.

Toxicity of Creosote Oils in Relation to Its Volatility.—Considerable data on the toxicity of creosote oils and other wood preservatives has appeared in the chemical literature of the last five years. Various writers have pointed out that the so-called boiling point, or more properly speaking, volatility of the oils was a great factor in relation to the toxicity, irrespective whether the source of the creosote oil was from coal tar or water gas. Nevertheless the data given often seemed conflicting. In studying the discrepancies, Batemann (*Jour. Ind. and Eng. Chem.*, December, 1916, p. 1097) of the Forest Products Laboratory of Wisconsin formulated a table representing curves both for water gas and coal tar creosotes, based on the relation of the volatility to the "killing point" (against *Fomes annosus*). From this coordination table, Batemann first predicted what the toxicity of certain creosote oils, based on their volatility would be; these predictions were then checked by tests, with the result that the predictions and tests agreed closely. Also the table shows that the lower the percentage of oil boiling below 275 C., the greater the toxicity. Aside for the interest of being able to forecast the toxicity of the creosote oils, the work also suggests a possible method for determining the purity of oils. The Madison experimenters are extending the research to this phase, which should yield quite useful information.

TREATMENT OF SCIATICA BY PERINEURAL INFILTRATIONS AND EPIDURAL INJECTIONS

AN ANALYSIS OF FIFTY CASES *

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As an introduction to our subject we can do no better than to quote D'Orsay Hecht,[1] who says:

> Nowhere in the domain of nerve pains is the agony of neuralgia, its chronicity and rebelliousness to treatment so well illustrated as in tic douloureux and sciatica.

Our experience with private material and at the Hospital for Deformities and Joint Diseases, in which we have had unusual opportunities to observe and to study this distressing disease, confirms this statement in every particular. The patients haunting the portals of every institution and appealingly craving for the relief which is so tardy in coming are indeed objects of commiseration. Any treatment which promises deliverance from its uncompromising clutches is worthy of our sincerest efforts.

Stimulated by the glowing reports of authoritative observers, both here and abroad, as to the value of perineural and epidural injections in sciatica, we decided to give the treatment a thorough trial. The number of cases treated in this study, we believe, is sufficiently large to form a fair criterion as to the value of the treatment in question. The patients were carefully selected, the technic rigorously observed, and only those who promised a modicum of success were injected. On the whole, our results have been disappointing, our percentage of cures being far less than that reported by other observers.

For the purpose of simplifying sciatica in general, we have divided the cases into three classes:

Class 1. Symptomatic sciatica; due to recognizable infections, toxemias, constitutional diseases, exposure to sudden temperature changes, pelvic disturbances and organic nervous diseases.

Class 2. Orthopedic sciatica; an arbitrary division due to recognizable orthopedic conditions, namely, spondylitis deformans, lumbosacral, sacro-iliac subluxations and disease and infections of the hip joint.

Class 3. Sciatica neuritis; fortunately in the minority, and not due to any recognizable condition, as in Classes 1 and 2.

As diagnostic criteria, the patients were carefully examined clinically, then from an orthopedic and neurologic point of view, and finally by the aid of the laboratory and Roentgen-ray department.

The best results obtained by the perineural injections were in the acute cases of sciatica due to exposure. These numbered ten cases. Five patients were immediately benefited, three were unimproved, and two were distinctly made worse. While this is a good percentage of recoveries, it is no better than that obtained by the old method of rest in bed, "ironing" or other local measures with administration of analgesics.

The greatest number of cases, exclusive of those induced by a definite history to exposure or sudden changes in temperature belonged to Class 1 and 2, termed symptomatic and orthopedic sciatica. These numbered thirty-five, and were about equally divided. The underlying conditions causing the sciatic distress were treated independently, supplemented by injections. Of this number, five patients were improved, and one remained free of pain for six months and returned to be reinjected. Included in this series are six patients who received epidural injections as advocated by I. Strauss[2] of this city. Five of these were injected by one of us (Dr. Finkelstein) and one was injected at another institution. Four were complete failures, one patient was slightly improved, and one, as mentioned before, was free of pain for six months.

Class 3, termed sciatic neuritis, contributed five cases. These showed evidence of nerve degeneration as shown by diminution or absence of the Achilles reflex — "muscle mass" tenderness, various grades of myotonic and myosthenic alterations and disturbances of sensibility. These patients received from one to four perineural injections, each without the slightest change in the subjective symptoms.

CONCLUSIONS

Comparing our results with those reported in the literature, we find that approximately 20 per cent. of our patients were cured or improved, as against from 60 to 65 per cent. of those of other observers, notably D'Orsay Hecht, Lange, Bumm, Umber, Alexander, Kellersman, Grossman and Schlesinger (quoted by Hecht). We are at a loss to explain this striking difference in results, except by the difference in the material treated or by the haphazard injecting of patients with gluteal pain — not necessarily sciatic in origin.

247 West One Hundred Thirty-Fifth Street—236 West Seventieth Street.

Note.—Since writing this report, we have notes of another patient with sciatic neuritis who had received three epidural injections at another institution and two perineural injections by one of us, without any benefit.

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* From the Service of Dr. Henry W. Frauenthal, Hospital for Deformities and Joint Diseases.

[1] Hecht, D'Orsay: The Treatment of Sciatica by Deep Perineural Infiltrating Injections of Salt Solution, The Journal A. M. A., Feb. 6, 1909, p. 444.

[2] Strauss, I.: Med. Rec., New York, Feb. 6, 1915, p. 150.

THE SANITATION OF THE SHELLFISH INDUSTRY *

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It is probable that shellfish were among the earliest animal foods eaten by our progenitors, because of their abundance and accessibility wherever the combination of ocean with streams bringing down suitable food existed. The large shell mounds which have been found along our coasts and the writings of the earliest colonists testify to the value of the oyster, both to the Indians and to the colonists themselves, while in Great Britain and France some of the most ancient rights and privileges were those relating to shell fisheries. The industry, however, was for many years local in interest and extent because of the absence of transportation facilities. With the construction westward of the Baltimore and Ohio railroad in 1837, followed by other railroads, the population which could be served was greatly increased; this event was soon followed by the establishment of steaming and canning houses and the consequent growth of an organized industry, but there was no way of shipping raw oysters except in the shell, and that was precarious because of the lack of refrigeration. This problem was solved by the introduction of modern methods of refrigeration. In consequence fresh shellfish are now shipped all over this country and even to Europe. The great demand for this food eventually caused the exhaustion of many natural beds and necessitated the planting and cultivation of oysters, in many instances, in remote and in accessible regions.

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

This required the use of power vessels and investment of large capital, and since the introduction of steam dredging in 1877, and later the use of other power boats, the industry has grown in organization and value until there are now large corporations with hundreds of thousands of dollars invested. It is a source of great wealth to many coast states, and is the most valuable of all the fisheries industries of this country, greatly exceeding that of other countries.

EVILS WHICH FOLLOWED EXPANSION OF THE INDUSTRY

The organization and expansion of the industry led to several serious evils. In dredging oysters on some grounds a quantity of mud is stirred up and enters the normally open shells of the oyster, which, when disturbed by the dredging, close and thus retain the dirt. Oysters grow well but do not fatten on certain grounds and during certain seasons; shellfish from waters with a high saline content do not, it has been claimed, keep or stand shipment well.

To allow the oysters to cleanse themselves of the dirt, to lessen their saline content, and quite often to cause them by osmosis to become large, and apparently, fat, there began the custom of "floating" or "drinking" oysters in waters of less salinity than those in which they had been grown.

Certain areas favored by nature have become famous for producing delicious oysters, and, to supply the demand, shellfish of a similar size or shape are sold under favorite names regardless of their origin. Finally, commission houses and middlemen often buy oysters from all comers, ignorant, indeed, regardless of their origin so long as they "open up" satisfactorily.

CHANGES IN SANITARY CONDITIONS CONSEQUENT ON MODERN METHODS OF SEWAGE DISPOSAL

In consequence of the increased interest in the conservation of health and the prevention of infectious diseases, there has been a growing appreciation of the necessity for the proper disposal of the sewage of urban communities. It was quite natural that communities situated on or near great bodies of water should consider them as the proper places for such disposal.

But this increase of sanitary effort has very seriously affected the oyster industry. Large and valuable oyster grounds are located near many of our coastal communities; indeed, the value of the grounds often in a large part depends on their proximity to transportation and to labor facilities; while the suitableness of areas for the cultivation of oysters depends on their location near the mouths of streams where the mingling of the sea water with land water affords the necessary conditions for the growth of shellfish. Nearly always communities have grown in such localities, often partly in consequence of the shellfish industry.

INFECTIOUS DISEASES DUE TO POLLUTED SHELLFISH

Even before the bacterial origin of certain diseases was discovered, it was known that shellfish, such as oysters, clams and mussels, taken from grossly polluted waters, would often cause illness.

With the increase of pollution consequent on the growth of communities and the construction of sewerage systems, the danger from eating shellfish increased. Cameron and others in England soon after 1890 reported typhoid fever from shellfish, and Professor Conn of Wesleyan University in 1894 traced and reported an outbreak for the first time in this country, after which event the Goshen, Inwood and Lawrence outbreaks were studied and reported by Drs. Stiles, Soper and Pease. Since that time other outbreaks have been reported from Ocean City, Atlantic City and elsewhere. In some instances the incriminated shellfish had been taken from grossly polluted waters near the outlets of public sewers, and in other instances from near the outfalls of private sewers draining houses in which there had been cases of typhoid fever.

During the past winter there have occurred outbreaks in Illinois, New York and Pennsylvania, which were almost certainly due to oysters opened in a shucking house in which there were cases of typhoid fever and general insanitary surroundings.

FORMER EFFORTS TO CONTROL SANITARY CONDITIONS

As a result of the increased activity of state health authorities and the exercise of police power granted the Bureau of Chemistry, Department of Agriculture, under the "pure food law," some of the most obviously dangerous localities have been abandoned as growing or floating grounds. Several of the states have made fairly comprehensive studies of the sanitary conditions of their oyster beds, and a ruling of the Department of Agriculture caused the abandonment of the old method of placing ice in the oysters and the substitution of better methods of refrigerating and handling opened oysters.

These efforts to control the sanitary condition of shellfish have been only partially successful for several reasons. State and local organizations, because of lack of power or of sufficient police force, or because of local interests, or of ignorance, have failed to prevent the taking of shellfish from grounds which they have known to be badly polluted and have allowed grossly insanitary conditions in shucking houses. In other instances oysters removed from polluted grounds for the ostensible purpose of transplanting have been carried to other shipping points and have been sold to dealers ignorant of or indifferent to their origin. Again; too, much significance has been attributed to the results of bacteriologic examinations, which have at times been based on faulty premises. While the finding of *Bacillus coli* in large numbers should be, and has been, taken to indicate filth, and may indicate potential danger of infectious disease, it does not, however, follow that the absence of large numbers of these organisms proves freedom from such danger.

Then, too, the origin of the oysters is perhaps generally unknown, and the condemnation of a lot in one community does not protect other communities to which similar shipments have been made. It is obvious, however, that an examination of every shipment of such perishable food would be quite impracticable regardless of the inspecting force available for the purpose.

INVESTIGATION OF COASTAL WATERS BY THE PUBLIC HEALTH SERVICE

The Congress in 1912 passed an act which enlarged the public health activities of this service, and, among other things, provided for the study of the pollution of navigable waters. This study has been divided into a study of the pollution of inland waters with reference to water supplies and sewage disposal and their effect on infectious diseases, and a study of coastal waters. The latter has been under the direction of the writer. Beginning with a study of the pollution and self-purification of the Potomac River with special reference to the sanitary condition of shellfish, this investigation has been extended, so that a fairly comprehensive survey has been made of the shellfish areas of Chesapeake, Delaware, and Raritan or Lower New York bays and their tributaries, as well as of the Atlantic coast from the Virginia capes to Long Island. This summer the investigation of Long Island Sound has been started and will be continued.

The investigation has included a sanitary survey of the sources, character and amount of proximal pollution, a bacteriologic examination of shellfish and water over the beds, and such epidemiologic studies as would determine the prevalence of typhoid fever, the amount of infectious disease due to shellfish, and the character of pollution causing such infection. Properly to carry out the investigation, a steamer was fitted for laboratory purposes, in addition to laboratories on shore. An experimental laboratory equipped with large tanks for sea water was established on Fisherman's Island at the entrance to Chesapeake Bay for the purpose of solving problems relative to the pollution of shellfish.

Many important facts have already been ascertained regarding the influence of so-called "hibernation," the effect of the physical condition of pollution, the longevity in sea water of bacteria of the colon group and typhoid organism, and as to the practicability of self-purification and artificial purification of oysters.

Throughout the investigation the service has worked in cooperation with and received aid from the various state authorities; it has also received the sympathetic aid of large oyster planters and dealers who appreciate the ultimate good effect of such work on their industry.

No intensive study of shucking house or of shipping conditions has been made, as this has been undertaken by the Bureau of Chemistry.

SANITARY CONDITIONS OF SHELLFISH

As a result of investigations already made, it was found that shellfish were being shipped from some polluted areas, and in certain instances, particularly dangerous areas. State and federal authorities were notified of such conditions and generally the state authorities have been prompt to take such corrective steps as were afforded by existing law. Where such laws were deficient, the service officers have assisted in endeavoring to correct the conditions.

At present the great bulk of oysters now shipped throughout the country are from safe grounds, and the shucked oysters are opened in fairly sanitary houses; in fact, some of the larger dealers have spent a great deal of money and thought in the construction and equipment of admirable houses.

Unfortunately, oysters are still being taken from a few small but dangerously polluted beds and there still exist shucking houses in which the insanitary conditions are shocking and filthy. So long as these exist there will continue to be a danger of such outbreaks as occurred during the past winter in Illinois, New York, Pennsylvania and elsewhere.

It seems reasonably certain that all of these outbreaks have been caused by oysters from one commission man who sold, among others, oysters shucked in a house in which there were cases of typhoid fever and no toilet facilities.

SUGGESTIONS

As sanitarians, the sanitary control of the shellfish industry is of interest to us from two standpoints: first, in preventing the spread of infectious diseases thereby, and second, since the importance of proper food is appreciated and the cost of meats has become high, we are interested in the preservation of the purity and safety of this sea food.

The danger of infection by shellfish should be eliminated by an investigation, comprehensive in character, to determine definitely which grounds are safe and which are dangerously polluted. This has already been done by the service over a large part of the oyster areas.

Where grounds are polluted, either the pollution or the shellfish should be removed; the determination as to which should be done is an economic question depending on the relative value of each.

There is, in the light of present knowledge as to the purification of shellfish, no good reason why oysters should not be grown in moderately polluted waters if they are transplanted to nonpolluted waters and there left for a sufficient length of time, provided that the health authorities have sufficient police force and authority constantly to supervise such action; where such facilities do not exist the oysters should be destroyed or removed during the closed season.

Health authorities should exercise rigid supervision over the sanitary condition of shucking houses and the health of employees therein, particularly with reference to the presence of ample and sanitary toilet and bathing facilities; certainly the bunking of employees in shucking houses should not be tolerated.

The handling of shellfish, especially shucked stock, by the retailer and in public eating places should be more carefully supervised by food authorities.

The determination of the safeness and unsafeness of shellfish areas cannot be left to local or state authorities alone, for they have not, as a rule, the facilities, nor have they always the entire confidence of other states.

With the exception of New York, a comparatively small proportion of shellfish are consumed within the community or even the state of origin, and this problem is therefore properly one for federal investigation in cooperation with the states.

The policing of shellfish areas and elimination of pollution or of polluted oysters is a problem which should be solved by the states whose citizens are enriched by the shellfish industry, in cooperation with federal authority.

Local and state authorities can assist in eliminating the danger of the spread of infectious diseases by shellfish by a careful study of the origin of typhoid fever cases, the collection of data relative thereto, and the reporting of such cases to the Public Health Service.

The control of the sanitary condition of shellfish is an important problem, which in a peculiar way requires the hearty, thorough cooperation of local, state and federal authorities. Without such control, the danger of occasional outbreaks and of isolated cases from infected shellfish will continue and the industry will decline, while the population will be deprived of a nutritious and delicious food; with such cooperation, the sanitary danger therefrom can be removed, the industry will indefinitely increase, and the country will have an increased food supply.

ABSTRACT OF DISCUSSION

Dr. William W. Ford, Baltimore: During the past year we have received complaints to the state board of health that the oysters from certain shucking houses, particularly some of the shucking houses on the eastern shore, were responsible for a number of cases of typhoid fever. The difficulty, in my opinion, is to be met only by two very distinct lines of work. In the first place, it is absolutely essential that we should have some control over the conditions in the shucking houses, the sanitary conditions of the individuals who are actually handling the oysters. And, in the second place, it is essential that we should have some control over the conditions which meet the oyster as the oyster is delivered to the consumer, and, as far as Baltimore is concerned, it seems to me that we are almost entirely lacking in the latter.

I do not think that we have any method of controlling the condition of the oyster as it is delivered, particularly of what we call the shucked oyster. As far as the control of the sanitary conditions in the shucking houses itself is concerned, that is a matter of vital concern to the state department of health. But, the practical difficulty comes up that we do not have a sufficient sum of money appropriated by the state of Maryland to permit us to appoint competent inspectors to handle that work and to carry out an inspection which is comprehensive and thorough and that, to my mind, is our primary difficulty in the whole oyster question: We have never been able to educate the state of Maryland to the point where the politicians, the men who handle the finances of the state, are able to understand that the oyster industry depends primarily for its success on the well-established belief in the community that the oysters are free from danger. We have reiterated time after time, in public and in private, our belief that many of the oysters collected in Maryland, collected in the Chesapeake Bay, were seriously polluted, and if not themselves polluted, at least open to the danger of pollution. And all such statements, both written and spoken, have had absolutely no effect on the politicians or on the governmental authorities of Maryland; therefore, today, we are in exactly the same situation that we were ten or twelve or fifteen years ago.

How far that is bound up with bad politics is very difficult to say, but it certainly is bound up with superstition on the part of the oyster dealers and the oyster growers that after all it does not make much difference, that the public does not care, that the public will not force the sanitary authorities to provide proper conditions for the workers, and will not insist on the elimination from the public markets of oysters collected improperly and grown in polluted areas.

Dr. Franklin Royer, Harrisburg, Pa.: The health authorities of the state of Maryland have cooperated with us in Pennsylvania in trying to determine the sources of infection in several outbreaks due to oysters in our state within the past year. Each time we have made a report to Dr. Fulton of the possible source of pollution he has given us the facts in the most open way, and has even suggested, in one or two instances, that the state of Pennsylvania, if possible, should quarantine against oysters coming in from that particular area in Maryland. We have sent to the public health service reports of several outbreaks, and have had a good deal of correspondence with health authorities in other states, so that their results might be checked against ours. We had one outbreak among the patients in one of our state sanatoriums for tuberculosis in which seven nurses were infected in a way that directly and easily pointed to infection by oysters.

We had another outbreak of twenty-five or thirty cases in a small community directly attributable to oysters infected probably in the shucking houses. The work of checking up the oyster industries and of policing the harvesting areas is certainly a big work, and a state with such extensive oyster industries as Maryland should undoubtedly furnish the funds to the health department for proper policing and absolute control, not only of the areas in which oysters are lifted, fattened, or kept until ready for shipping, but certainly the oyster shucking houses should be supervised rigidly. I hope health authorities everywhere will use their influence to encourage the Maryland legislature to give the state health authorities all of the money needed to give that supervision.

Dr. Hugh S. Cumming, Washington, D. C.: There has been an extensive outbreak of typhoid due to Maryland oysters, but so far as I can ascertain, the infection was traced. A very clever man in the service has taken up the work, and has decided that practically all of the cases have come from one negro shucker and one shucking house, so that after all it does not show that there are very many Maryland oysters polluted. It was a very unfortunate occurrence due to oysters handled by a man who shipped oysters all over the country, and so this particular outbreak was very widely spread, although it came from one local region. I want to say, to reassure the gentlemen who like oysters, that I have found in literature nowhere, either in this country or in cases reported abroad, typhoid fever due to oysters which came directly from the open ground; all of the cases reported have come from floated oysters, from oysters in the immediate vicinity of sewers or from insanitary conditions in the shucking houses. Dr. Ford and Dr. Fulton should not be pessimistic about Maryland, because some other states are a great deal worse than Maryland. Their oysters are in good condition, except in two very small areas, but the conditions are such that they will be remedied this coming winter. There has been additional legislation in Maryland. A very encouraging thing is the attitude of the large oyster dealer. I had an enthusiastic letter the other day from the president of the National Shellfish Growers' Association in which he stated that the governor of Maryland had placed him on a commission and the first thing he wanted to do was to get at the two particular areas he mentioned.

Treatment of Chronic Bone and Joint Disease.—The awful scourge of tuberculosis is so foul a blot on some of the fairest spots in the country that one cannot but wonder why, in the efforts which have been so perseveringly made in the last ten years to cope with it, provision has not been made for an aspect of the disease which every surgeon dreads. It would be the greatest of practical charities to institute hospitals, not for incurables, but for those cases which cannot be thoroughly treated under the present system of hospial work. No one can blame the authorities in a hospital for looking askance as a case which meets the eye month after month, and sometimes for even a year. The institution of a proper refuge for a large and altogether pitiable part of our population is a work which should invite the sympathy and hearty cooperation of all who really mean to help in the fight against tuberculosis. Till we have such a place no surgeon can even venture to predict a fair result to treatment of hips and bones.—*Medical Press and Circular,* 1916, cii, 487.

THE METHOD OF TONSILLECTOMY BY MEANS OF THE ALVEOLAR EMINENCE OF THE MANDIBLE AND A GUILLOTINE

AFTER SIX YEARS' EMPLOYMENT [*]

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The history of tonsil surgery is clear beginning with Celsus, 10 A. D.[1] He describes finger enucleation and sharp knife enucleation. Surgeons of the middle ages at times did tonsillotomy and at one time used a ligature, for probably a tonsillectomy, by sloughing. The first push blade guillotine was introduced in 1827 by Physic for tonsillotomy. The pull blade guillotine of Fahnestock in 1832 was also for tonsillotomy.[2] I have not been able to determine when blunt dissection or dissecting and snaring was introduced. I described guillotine enucleation to this society June 9, 1910.

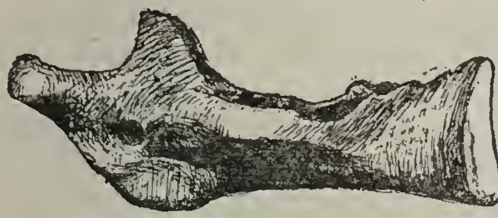

Fig. 1.—Jaw bone from 4½ to 5 years. Internal surface.

The various enucleation procedures are summed up under the headings of (1) the finger dissection, (2) the sharp knife dissection, (3) dissection and snaring, and (4) guillotine dislocation.[3] Blunt dissection may be classed as a subdivision in the finger or sharp dissection classes. For the finger dissection the instrumentarium has remained unchanged. For all other methods it has been greatly multiplied and greatly complicated. Many small modifications have also been introduced in the primary subdivisions of methods.

The antiquity of the first three, together with the infinite variation and multiplication of the instruments and the almost infinite (and growing) small variations in their technic is to me proof that the "standard (100 per cent.) tonsillectomy," as recently proposed, has not yet been attained by the enthusiastic advocates of any one of them. I do not believe a standard (100 per cent.) tonsillectomy can exist.

A discussion of methods may be concluded with the suggestion that each surgeon should use that which he is best able to execute. For those satisfied with none of the older ones, and those, in their developmental years, who must learn *some* method, the guillotine technic offers the advantages of (1) speed, (2) minor (or any) anesthetic (nitrous oxid[4]), (3) better cosmetic results as a rule, (4) small bleeding, and (5) performance by sense of touch independent of sight.

The principle on which it rests is that the tonsil by means of the firm metallic ring placed behind and below it is dislocated forward and upward or upward and forward to a place where it may be manipulated by the finger tip. The point of vantage to which it has been brought is the alveolar eminence of the mandible, made by the last formed tooth in its socket. Below, the eminence is limited by the mylohyoid line. On the civilized jaw, the body below the line usually presents a concavity of more or less depth. On the aboriginal American Indian's jaw usually this is almost or quite absent. The body is heavier and forms with the eminence usually a broad convexity, ending below with the lower line of the jaw. Such a jaw permits of this tonsillectomy being performed with one hand. The finger tip is not needed to help push it through. All degrees of intermediate modification exist. On edentulous civilized jaws, the combination of the absence of alveolus with the concavity below the line makes a set of conditions that should be carefully borne in mind by the surgeon. The ring of the guillotine for such a case should be thin in order to get into the concavity and scoop out the (usually) small fibrous adherent tonsil. The aperture should be small in order better to manage the tonsil on the remnant of the eminence.

Easy cases may be managed often by a surgeon who has only a hazy memory of this anatomy; but as the difficulties of the case increase, so does the necessity of accurate knowledge of this anatomy and its variations. In this connection I feel that it is most desirable to emphasize again this structure and its changes according to age. Figures 1 to 7 show jaws from early childhood to age. In order to get the tonsil into the ring it is plain that with the younger jaws the guillotine must cross the mouth at a (varying) greater angle. It is also to be observed that in order to utilize the eminence to most advantage the long (transverse) axis of the ring must be parallel to the long axis of the eminence. This necessitates the shaft of the guillotine taking as its final direction 45 degrees downward from the line of the alveolus regardless of what may be its outward and backward direction. As stated above, the outward angle increases with the youth of the patient.

From a considerable observation of surgeons using this technic, with opportunity to see their difficulties and failures, I feel that the importance of this final downward turning of the shaft cannot be too much emphasized. It permits a certain hold of the lower part of the tonsil on the eminence, while the upper part may be accurately manipulated by the finger tip; otherwise the lower part escapes the blade. The surgeon who fails oftenest is the one who keeps the shaft nearly parallel with the alveolus. He seems to forget to take his bearings on the mandible. As soon, however, as he has been shown the final downward angle for his shaft, his difficulties become less and his failures fewer. An operator of reasonable skill then soon learns to remove any tonsil under any conditions, provided he bears in mind the possible changes in the eminence, and his instrument is one that lets him work to best advantage.

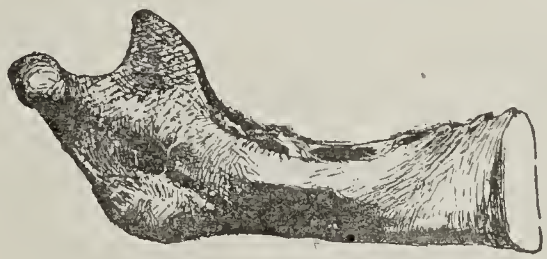

Fig. 2.—Jaw bone at 5 years. Internal surface.

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[*] I gave this anatomic marking the name of "the alveolar eminence of the mandible" and described it in detail in THE JOURNAL, March 25, 1911, p. 867.

[*] Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. McKenzie, Morell: Diseases of the Throat and Nose, London, 1880.

2. The scheme of the guillotine is much older than these dates as brought forward recently by Dr. Stanton Friedberg in a scholarly historical sketch of the instrument (Ann. Otol., Rhinol. and Laryngol., 1913).

3. This classification was first made by G. L. Richards.

4. The special advantages of nitrous oxid for this surgery were emphasized by C. A. Gundelach (Interstate Med. Jour., November, 1911).

The greatest misfortune which has befallen this technic is the modifications of the instrument. The instrument which allows the surgeon the greatest advantage under all conditions and gives the highest percentage (99.6 per cent. perfect results), according to my understanding, is the original guillotine of Physic that has been adapted to these special usages. It should be strong with a thin elliptic ring and a dull blade, not blunt, but merely dull. The capsule of the tonsil will slip out from under a blunt blade even after it is properly engaged.

It is evident that for the purpose of dislocating the tonsil from its soft hollow bed and bringing it forward and upward or upward and forward, thereby to utilize the alveolar eminence as a more advantageous place from which it may be manipulated and put through the ring, a ring and shaft and handle are the essentials for the instrument. These features have been retained in a large variety of modifications, which may be summarized as follows: those which retain the push blade and modify other parts, for example, (1) Sauer's[5] set screw, Ballenger's[6] handle and LaForce's[7] instrument; (2) those which utilize a pull blade, as Jenning's[8] instrument, and (3) those in which a snare wire is substituted for a cutting blade, as Beck's[9] instrument and its modifications.

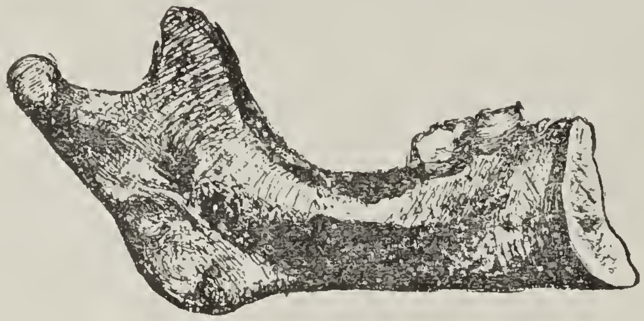

Fig. 3.—Jaw bone from 8 to 10 years. Internal surface.

The original simplest model to my mind has the great advantage that it allows the freest movement of the wrist and at the same time retains the strength of the flexors. It also provides a rigid closing ring, whose still point is on the eminence. All modifications sacrifice more or less both of these advantages. When the movements of the wrist are interfered with, the certainty of performance is decreased and the possibility of removing small pieces that may escape the first application of the instrument diminishes, and the management of peritonsillar infiltrates becomes less good. For these reasons the modifications again fall into three classes. Sauer's, Ballenger's and LaForce's lose because of their handles. (Ballenger's is the only one for which percentages have ever been given. He stated that it was good for 70 per cent. of the cases.) The other modifications lose because they needs must pull away from the eminence as they come into action. Jenning's model has the advantage of a rigid ring which enables the surgeon to control the tonsil mass under the tip of his finger. This helps him to manage a peritonsillar infiltrate and scars, binding the capsule down. But it pulls away from the eminence as soon as it begins to work, which is a great advantage. Beck's instrument, which is a combination of Tyding's snare tip and Pierce's handle, has the disadvantage of pulling away from both the control of the eminence and the finger tip. Pieces which escape the first application of the instrument cannot be removed by Jenning's or Beck's instruments. Furthermore, both are apt to leave, as a flaw in their performance, a ring of capsule with lymphoid tissue surrounding the wound. I believe this fault impossible of immediate repair by any means. To me it has also seemed the most unfortunate, clinically, because of lymphoid tissue reproduction from it sometimes filling the entire fossa.

An advantage possessed by this technic is that it may be done by sight or largely or wholly by the sense of touch. Dissecting methods must have clear vision, which may be at times difficult or impossible to get. The original guillotine has also the advantage of being the instrument which may be easiest and quickest mastered.

In my original presentation of this technic I made two mistakes. First, I gave the impression that it was simple and easy to execute. I have since concluded that that was most unfortunate. For one who will learn it, it is a matter of close study in anatomy, technic and touch. I say this now as a result of much teaching to undergraduates and graduates. Secondly, I spoke of the plica triangularis as a part of the anterior pillar, saying,[10] "Further examination of the specimen reveals that a little of the free edge of the anterior pillar, including a few fibers of the palatoglossus muscle, is attached to it." The specimens usually show a red margin at the line where the plica is cut, which appears to be muscle, but under the microscope this is shown to be a mistake. At that time I considered the plica to be a part of the anterior pillar, but I now believe with Fetterolf[11] that it is a part of the capsule only that the pillar is made by the palatoglossus muscle. The pillar is preserved by this technic.

This method was developed in almost if not quite every detail by Drs. Whillis and Pybus[12] in England. We worked quite independently of each other, quite unknown to each other. They did not describe the anatomy of the jaw in connection with it or necessary to it.

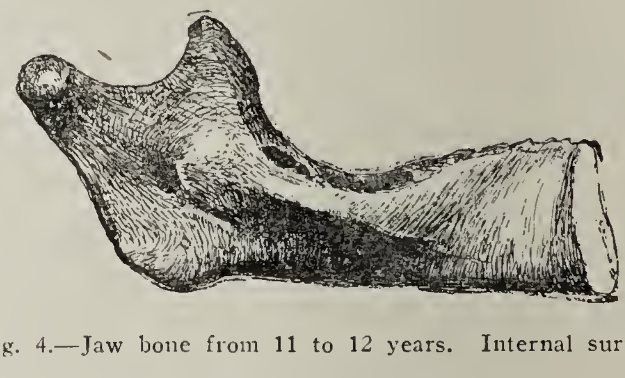

Fig. 4.—Jaw bone from 11 to 12 years. Internal surface.

Since then the method in contradistinction to the instrumentarium has been modified twice. Drs. Hill and Elfick[13] of England use the dislocation principle, but utilize the tubercle of the maxilla instead of the eminence of the mandible as the point of vantage from which to manipulate the tonsil. The hamulus of the pterygoid, however, is just back of the tubercle, which seems to me to be undesirable, as it is frail and might be broken. I have not seen the method used and so desire to emphasize that I make this suggestion only as a possibility. Dr. G. Hudson Makuen also has proposed a method for, as he says, "splitting the capsule." He uses the original model guillotine to secure the tonsil free from its surrounding structures just as in the original procedure, in readiness to "push the blade through." Instead, however, he places a snare wire around the engaged tonsil on the median side of the guillotine and then removes it by the snare. He has explained in detail how this splits the capsule, leaving a lateral layer in the fossa.[14]

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[5] Sauer, W. E.: Tonsil Guillotine with a Dull Blade, THE JOURNAL A. M. A., May 4, 1912, p. 1335.

[6] Ballenger, W. L.: Diseases of the Nose, Throat and Ear, 1912.

[7] LaForce, Burdette: Hæmostat Tonsillectome, Laryngoscope, 1914.

[8] Jennings, J. E.: A New Tonsillectome, THE JOURNAL A. M. A., May 24, 1913, p. 1620.

[9] Beck, J. C.: Tonsillectomy With a Single Instrument, the Tonsillectome, THE JOURNAL A. M. A., Jan. 27, 1912, p. 240.

[10] Sluder, Greenfield: A Method of Tonsillectomy by Means of a Guillotine and the Alveolar Eminence of the Mandible, THE JOURNAL A. M. A., March 25, 1911, p. 867.

[11] Fetterolf: Am. Jour. Med. Sc., 1912, i, 37.

[12] Whillis and Pybus: Lancet, London, Sept. 17, 1910.

[13] Hill and Elfick: Minimizing of Hemorrhage in Tonsil Extirpation and Employment of Hemostatic Tonsillectome Jour. Laryng. and Rhinol., 1914, p. 545.

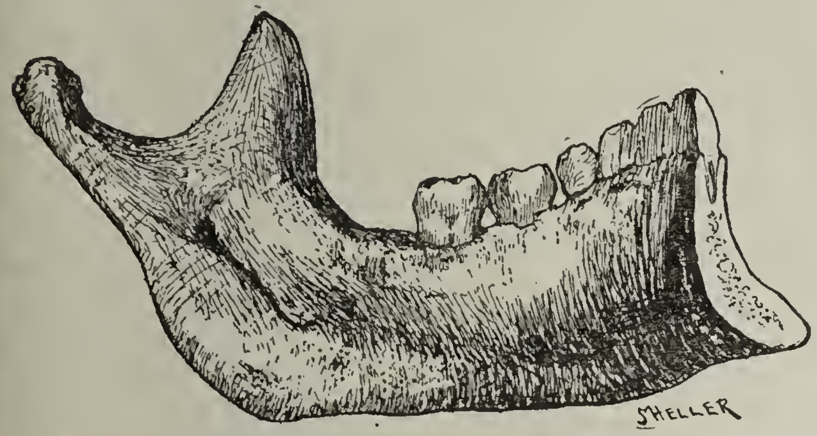

Fig. 5.—Jaw bone from 18 to 40 years. Internal surface.

The ring and the blade of the instrument are features of such importance that I feel certain points about them should be brought to your notice. The original text contains a mechanical drawing, to scale, of the guillotine (two sizes) specially adapted to these needs. They have never been changed save for the omission of the copper lining to the ring. The elliptic ring was thin and the blade ground back for 2.5 cm. It has, however, been so often changed by instrument makers in shape (round) and thickened and the blade ground short that I emphasize these faults, so the surgeon may — in fact must — know what is the correct model and not trust to the statements of the instrument makers' salesmen.

Should the ring be thick and the blade ground short there is, when they are closed, a sulcus between them much deeper than when the ring is thin and the blade ground 2.5 cm. back. The deeper this sulcus is, the more difficult it is to feel what is at the bottom of it; and so it happens that small pieces of the tonsil or capsule may have escaped the setting of the instrument and be out of the reach of recognition by the finger tip. This is not true of a thin ring and long ground blade. Omitting the copper lining of the ring permits it to be made a little thinner.

Moreover, the thinner the ring the more certainly will it scoop up a small or soft or difficult tonsil or a tiny fragment that has been left. With a good ring and blade, all fragments are easily removed with the single exception of a small one near the uvula. A surgeon familiar with this point, however, never leaves this fragment.

Complaints have been made that a dull blade takes too much power for a man's hands to make it cut. For this reason a "mechanic's dog" was adjusted[15] to the original model, leaving the model in every way unchanged. It is applied for the last cutting only.

In bearing in mind the importance of the final down turn of the shaft regardless of what may be its outward inclination, much of the difficulty of the technic vanishes. There remains, however, a part played by the sense of touch. This is a small one in the usual case, and its importance may escape the surgeon's attention. It becomes, however, a large part as soon as he meets the peritonsillar infiltrate left in the wake of the various inflammatory throats. Then it is that he must attend carefully to what is under his finger tip. Peritonsillar infiltrates are difficult to recognize before the operation, and may be of any thickness up to 2 cm. and of any consistency up to cartilage. Many times I have successfully managed one of 2 cm. thickness. The management of peritonsillar infiltrates is a matter of experience after the technic is satisfactory for uncomplicated cases.

The original description of the "operative procedure"[10] is in every detail correct and complete. None of it has been changed or omitted.

It is not a matter of force, as some surgeons think. Beginners are apt to employ too much force.

3542 Washington Avenue.

ABSTRACT OF DISCUSSION

Dr. G. Hudson Makuen, Philadelphia: The Sluder method is now more talked about, and deservedly so, than any other method or perhaps than all other methods combined. I was among the first to recognize the value of the procedure and to make practical application of it. Dr. Sluder's revised explanation of the technic leaves nothing to be desired. Many modifications of the instrument have been devised, the chief purpose for which has been the final enucleation of the tonsil after it has once been dislocated from its bed and grasped within the fenestra of the instrument. No one as far as I know has improved on Dr. Sluder's original method of dislocation, which, after all, is the distinguishing feature of the operation. My first and only difficulty with the method, however, was not that it was hard to dislocate the tonsil from its bed and engage it in the instrument but rather that with the comparatively sharp blade of the original instrument and a rapid driving of it through I always had a considerable amount of bleeding, to check which required several minutes of time and occasionally a ligature or two. On account of this excessive bleeding, I concluded that the blade should not be sharp and that it should not be driven home rapidly. Therefore I dulled the blade a little, after which I seemed not to have strength enough in my hand to drive it through slowly and at the same time completely. I tried a snare placed between the instrument and the pharyngeal wall, using the Sluder instrument merely in the place of a forceps for engaging the tonsil, but the snare bruised and in other respects injured the tonsillar pillars, and then I tried placing the snare on the other or inner side of the instrument, which plan I have been using with great satisfaction for the last five years. My modification of the operation has none of the disadvantages of the various other modifications; indeed, its only disadvantages should be regarded as minor ones. For example, it requires two additional instruments, a snare and a pair of

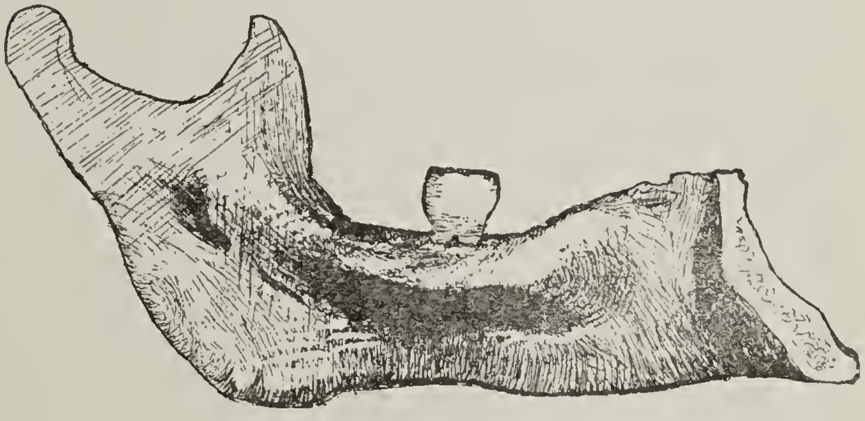

Fig. 6.—Jaw bone at possibly 50 years. Internal surface.

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[14] Makuen, G. H.: Tr. Am. Laryngol. Assn., 1914.

[15] Sluder, Greenfield: A Method of Tonsillectomy by Means of the Alveolar Eminence of the Mandible, The Journal A. M. A., March, 1913, p. 650.

forceps to hold the tonsil after it has been squeezed out of its bed by the wire, and it is also a little more difficult of performance and it requires a little more time. Its advantages, on the other hand, may be summed up in the expression "safety first," and this, I think, must overshadow all possible disadvantages in any operation on any part of the body. When the tonsil is once grasped within the fenestra of the original Sluder instrument it is completely isolated from the surrounding structures, and the wire of the snare hugs it so closely that the gland is squeezed out of its bed together with its very thin capsule, and the only cutting accomplished by it is that of the mucous membrane reflected from the pharyngeal wall over the median surface of the gland. When properly performed, therefore, there can be no injury to the soft parts of the pharynx, and there should be in uncomplicated cases practically no bleeding. Dr. Sluder referred to my claim that this procedure splits the capsule of the tonsil. I think it serves to split not the true capsule but that which is frequently regarded as being the true capsule. In other words, it separates the tonsil with its true capsule from the intrapharyngeal aponeurosis to which the tonsil and its true capsule are closely attached.

Dr. George Paull Marquis, Chicago: The important point in an operation is to select one which will do the work. This operation is a difficult one. I can readily understand that to one who has not tried it it looks easy to stand beside an operator doing the Sluder. He sees the guillotine go into the mouth, the finger follows, there is a movement of the thumb, and in two or three seconds out comes the tonsil. Now these two or three seconds are nothing compared to the time required for a dissection; there is no argument on that proposition at all; nobody can dissect a tonsil so quickly as that. But I have seen men try to do that operation and have seen them mutilate throats. Dr. Sluder says that the technic of the operation is the education of the finger. Educate the finger to replace the eye. Now that is all very well. As I said, I am talking about your doing it, not about him doing it. Please do not confuse that. You do this operation and then wait four or five days or a week and then do another—do you think that will educate the finger so that it will replace the eye? Do you think you will be able to tell by the feeling in there just what you have under the finger at any moment? I would rather trust my eye. I have not been able to train my finger so it will replace my eye, and I do not see how anybody can unless they are doing the work all the time. How are we to decide whether we will do the Sluder or the dissection method? Which method will give the best results? Which will cause the least injury to the tissues? Which can be done in the shortest space of time? If any man can do the Sluder operation and have his work 99.6 per cent. perfect, I have not a word to say. I cannot do it. I can work 99.6 per cent. clean with the dissection method. Some of you may train the finger so that you will not catch the anterior pillar or the posterior pillar, but simply split the capsule and get it out very nicely. I cannot do it. I have wounded the anterior and the posterior pillars. If you take it by the dissection method, simply catching the tonsil and holding it out where it is firm, then all you have to do is to slip the point of the knife under the plica and continue the curve all around, separating the posterior as well as the anterior pillar from the tonsil. It can be done in a couple of seconds. Then by merely turning down the handles of the forceps you can slip the snare over them without releasing them. The great objection to the dissection method is that if you let go of the tonsil after having grasped it you never can catch it in exactly the same way, whereas, if you slip the snare around without loosening the forceps you have the same position, and same view of the free tonsil. My assistant is standing there with a sponge and when the snare is drawn through, the sponge slips in and replaces the tonsil. Preventive medicine is much more efficient than curative medicine. If you do not allow it to bleed you do not have to stop a hemorrhage. You simply replace the tonsil with the sponge and hold it there for a minute; after that is done the pillar is retracted and an iodin solution applied to the fossa. You have not much if any hemorrhage, and I do have a lot of hemorrhage with the Sluder method.

Fig. 7.—Jaw bone at very old age. Internal surface.

Dr. W. E. Dixon, Oklahoma City: I want to second everything Dr. Sluder said about his operation, or rather his technic, but I use the LaForce instrument which crushes the blood vessels and absolutely prevents bleeding. I have made the same mistake as Dr. Sluder, in that I told men that any one could take tonsils out easily and quickly by this technic. Many of them mutilated the tonsils and pillars and failed to get them out. It certainly is a mistake to use too much pressure against the tonsil and pillars, as it will only tend to bruise the pillars and is not necessary. Dr. Sluder says to bring the tonsil upward and forward. This can be done without force and with very little pressure. Then bring down the dull blade of the instrument, and the tonsil is clamped off. Take plenty of time before the cutting blade is screwed home, and there will be practically no hemorrhage. Again with this instrument, I do not think as much mucous membrane is cut off as with a sharp instrument. Why? Because when you clamp the tonsil off, if you see you have too much mucous membrane, you can take it off and pull the tonsil up so that you have nothing but the tonsil. If too much mucous membrane is removed with the tonsil, so that any portion of the edge of the pillars is denuded, contraction of the tissue is bound to follow, whereas, if the mucous membrane is cut close to the tonsil, there will be no contraction and in 90 to 95 per cent. of all cases it will be difficult to tell that an instrument has been used in the throat any time after healing has taken place.

Dr. E. R. Lewis, Dubuque, Iowa: I have here an instrument for bloodlessly removing tonsils after a scheme of Makuen and Lynch—the double snare method. Two wire loops are carried around the tonsil in the ring of the fenestrated snare-cannula. The distal loop, the one used for enucleating the tonsil, is tightened first, down to about one-half way toward complete separation of the tonsil capsule from its aponeurotic bed, and in that position it is locked by the lock lever. Sufficient tension can now be exerted to pull the tonsil away from the mandible upward and backward toward the midline, so that the intrapharyngeal aponeurosis is lifted into a sort of pedicle, around which pedicle the second (proximal) wire loop is tightened, sufficiently to insure its holding its grasp after the tension on the instrument (upward and backward) has been released. As long as this second wire loop holds the tissues underlying the tonsil firmly in its grasp it constitutes a tourniquet, absolutely preventing any bleeding. The first (distal) loop is now slowly drawn home into the cannula, completing the separation of the capsule from the aponeurosis. The aponeurosis remains puckered in the firm grasp of the second (proximal) wire loop, which completely controls bleeding from all vessels which are severed by the cutting wire loop. This procedure permits removing the tonsil in its capsule, with a minimum of traumatism to the pillars and fauces, without losing one drop of blood.

Dr. W. W. Carter, New York: I have had an experience of upward of 2,000 cases by the Sluder method. I use the original instrument. I do not believe it can be improved on. In my service at Gouverneur Hospital we have operated on small children at the rate of thirty-four cases per hour, and that without trying to break any record. Four anesthetists are used and many of the cases are done under primary anesthesia. I asked my house surgeon recently at what rate we were operating; he said we had done seventeen tonsillectomies in thirty minutes. In all of my cases we have not had any bad results and the tonsils have been enucleated. The only unsatisfactory results have been in adults who have been suffering for a number of years from peritonsillar inflammation. You will recall that the capsule of the tonsil is composed of four or five thin layers of tissue which in the young slide over each other very easily. In adults when the tonsils have been subjected to repeated attacks of inflammation these layers are agglutinated and the capsule is firmly united to the surrounding muscular structures. Such cases, I believe, are unsuited to the Sluder method. Such tonsils, after carefully dissecting them away from the pillars, should be removed by the snare.

Dr. Frank E. Auten, Belleville, Ill.: I do not use Dr. Sluder's instrument but I appreciate its worth. From 1904 to 1910 I spoke before this body on tonsillectomy versus tonsillotomy. In 1901 Dr. Tydings of Chicago did the first tonsillectomy as a distinctive operative procedure and established the operation for all time. He used a blunt hook and a snare; he afterward substituted his curved knife and snare. I immediately took up the operation in 1902 and have been using it ever since. Dr. Sluder's splendid technic and most magnificent instrument is all right in the hands of men who know how to use it. There is one kind of tonsil that in my judgment you can remove only in one way, and that is in the old peritonsillar cases in which the capsule and the muscle are one. In these cases the dissection method and the snare are the best. This technic will remove any tonsil. In the past fourteen years I have taken out many tonsils by this method. While in London I saw a surgeon working who had removed over 4,000 pairs of tonsils with a simple artery forceps, with beautiful results. Many men are operating with many different technics and yet all are getting fine results. That technic which best fits the man is the one for the individual surgeon to use. It gives me great pleasure to see the almost universal adoption of tonsillectomy as a surgical procedure in the removal of the tonsils. It has done more for the children of the world and many adults than any single operation in surgery. In India and other parts of the world they are doing tonsillectomies. Dr. Edwin Pynchon taught us that a small submerged tonsil was most often a dangerous tonsil; that it was a question of infection rather than the size that should determine the removal of the tonsil. This idea fixed for all time the necessity for complete removal of all diseased tissue, for if the drainage of infectious material into the system was to be stopped it must be done by a clean removal of all of the diseased tonsil.

Dr. J. F. Barnhill, Indianapolis: Three years ago I condemned the Sluder method. I did not know how to do it. I now use the Sluder instrument, the latest one, and follow Sluder's method as nearly as possible, and I believe that my tonsil work is now better than it ever was by the dissection plan. Nearly all tonsils can be removed by this method of procedure. I have tried it over and over again in peritonsillar abscess cases, and it has seemed to me that the success has been nearly the same in these cases as in the cases in which there was only simple inflammatory hypertrophy. I have also employed the Sluder method under local anesthesia. Formerly I did these operations under local anesthesia with a snare. I wondered if they might not be done just as easily with the Sluder, and I found that such was the case; the patients complain of no pain, the operation is quickly done, and there is as little bleeding as by any other method of which know. The final result is quite satisfactory, and I am sure hat those who try it with a local anesthetic will find it very atisfactory. I have wondered as to whether in certain cases, n which there is already some involvement of the cervical glands, if the necessary amount of pressure on the tonsil by he Sluder method in lifting it up might cause some recurence of an infection that already existed prior to this peration. I have seen a few cases in which I believe that uch had been the case. It is my present belief that the Sluder method offers all of the good points offered by any ther method, can be carried out in less time, and gives better nd-results.

Dr. H. W. Loeb, St. Louis: I was very much interested in he remarks of some of the speakers as to the difficulty of earning the Sluder technic. I had difficulties in the beginning, ut I had also to learn to dissect the first tonsil right. I want to refer for a moment to a method that is being used by many of Dr. Sluder's followers, including myself, who have not the strength that he has in the thumb, and that is stripping the tonsil. After the tonsil is pushed through the ring it is then turned down toward the larynx and with the finger the tonsil is stripped away from the palate. That has been a most satisfactory procedure in connection with the Sluder method.

Dr. William S. Tomlin, Indianapolis: The specimens Dr. Sluder presented to us at St. Louis six years ago compare very favorably with those he shows us today, evidencing that he was doing the operation as well then as he does it now. I am also very glad to hear him say that he considers the operation a very delicate and difficult one, as I felt for a long time that I certainly must be very clumsy, for I am free to say that it took me at least two years to feel thoroughly sure of removing each and every tonsil at the first attempt. One point I want to make especially, and it was just mentioned by Dr. Loeb, is the "stripping of the tonsil." That I consider a very important part of the operation for two or three reasons. In the first place, it does away with the necessity of using any dog or other mechanical device for finally removing the tonsil from its moorings. In the second place, if it is done properly with good technic it will accomplish the same purpose as is being attempted by Dr. Makuen in the attachment of the snare. If the tonsil be drawn well up out of the bed, the knife just sufficiently forced against the anterior pillar at its conjunction with the capsule, stretching the peritonsillar tissue, coincidentally sliding the knife home you get a clean capsule and leave the round of the pillars intact with the one combined movement. Another thing about the peritonsillar abscesses: I have seen cases where there was an extraordinary rise in temperature when there had been peritonsillar pus. When this is the case I take a sharp knife and see that drainage is made through the supratonsillar tissue for its discharge. This will often obviate postoperative rise of temperature.

Dr. Cullen F. Welty, San Francisco: I have not used Dr. Sluder's method because I have been satisfied with what I have been doing. I wish to say again for the Sluder method or any other method, that I do not believe it will serve well where the tonsils have been operated on before. Others have had peritonsillar abscess! These are the ones who come to me, and some cannot be operated by any procedure that depends on dislocating the tonsil into the ring of the instrument. Rather than complicate my instrumentarium I have decided on the method that is known as the procedure of Markham of Chicago, and I have no reason to change it yet.

Dr. E. E. Henderson, Chicago: I first saw Dr. Sluder demonstrate this instrument six years ago. Since that time I have been using it. There were a few failures at first due to faulty technic where we had submerged or peritonsillar adhesions to deal with. Now that we understand Dr. Sluder's method better and have developed the sense of touch, we very seldom encounter a failure in the removal of any type of tonsil. The rapidity and remarkable dexterity one can acquire by using the Sluder instrument is wonderful. Another great advantage obtained by the use of this instrument is in gas analgesia, using the dental type of inhaler, requiring only the minimum of time for the operation, thereby lessening the shock to the patient, also avoiding aspiration of septic material into the lungs. Again we are very much in favor of a fairly sharp blade, as a clean cut with a sharp instrument diminishes the amount of trauma and, in our experience, lessens the hemorrhage.

Dr. Oliver Tydings, Chicago: I started the dissection work on the tonsil on account of operating on my wife with the cautery. Pynchon taught me the use of the cautery, but I thought there should be a better method, so I worked out the dissection. At first I was very much alarmed on account of the fear of hemorrhage, but since I became more familiar with the operation I do not fear that so much, and I think in the doing of any kind of work our patient is entitled to the best skill of the operator. There is a certain proportion of tonsils which can be taken out by almost any method, but I deny that any man lives who can take out as many tonsils, day after day, by any other method than careful dissection, without doing injury, particularly when they are rushing them through at the rate of thirty-four an hour. When you take into consideration that that means less than two minutes for doing this work, a work requiring a great deal of skill—I tell you that the superficial examination cannot be as perfect as it would be if you are doing careful work. Whenever you are rushing them through at that rate, somebody must do careless work. Today I use the same practice and same methods I did in 1904, with one exception—infiltrating around the tonsil. I do not think I have changed my technic at all, but I have changed from a blunt to a sharp instrument in hugging the tonsil. I believe that a great many tonsils can be removed with Dr. Sluder's method as effectively as with any other, provided you will follow the technic of Dr. Sluder; but I know that I can remove that same tonsil, perhaps not as quickly, but I can take it as free from tonsillar attachment, by following the dissection method. If you have adhesions to the pillar you cannot separate it by any method except by leaving an exposed pillar more or less. But that is not the cause of deformity. The cause of deformity is reckless cutting into your pillar; there is where you get deformity. If you separate it carefully you will not have deformities to amount to anything.

Dr. W. W. Carter: Dr. Tydings intimated that the operation could not be done as rapidly and effectively as I mentioned. All the cases operated on in my clinic are examined beforehand; then they are brought back to the hospital for examination one week after the operation. The results have been very satisfactory and we have had no cases of alarming hemorrhage.

Dr. Oliver Tydings: I apologize to Dr. Carter. I did not intend to cast any reflection on his veracity, but I venture to say that there is not one operator in a thousand who will accumulate such a speed with as fine a technic in the course of a lifetime. I congratulate the doctor on his efficiency in that line. I know he is particularly expert along more lines than that, and I am glad to pay my tribute to the man who can do these things.

Dr. Greenfield Sluder, St. Louis: I did not mean to anticipate this *entire* discussion when I said that the surgeon should adhere to that particular technic that he is best capable of doing. I followed that with the statement that for those not satisfied with old methods, or the man in his developmental years who must learn some new technic, this is certainly a good one. The question of hemorrhage was spoken of, and Dr. Makuen suggests controlling it by the snare. I think the anesthetic has a great deal to do with this. If you do this under profound anesthesia, the bleeding will be very small. If you do it under gas, fill the patient full of a good big meal a few minutes before, and he does not lose his nourishment and he stands three times the amount of strain with the same degree of shock as under ether or any other anesthetic, but the blood pressure is raised and a small immediate bleeding follows. Secondary hemorrhage is rare. I believe that in the whole profession, old and young, there are a good many who will never succeed with this. I think also that there are others who will never succeed with any other method. For him who is satisfied with what he has, let him adhere to it; for him who is not, this may have advantages as enumerated.

Various points have been brought about the bloodless method. We have not had the success that Dr. Lewis has had—that all have been bloodless. They have all bled, and we adhere to the original guillotine, not only because of its advantages but because of its lack of disadvantages. I cannot emphasize too much the importance of the sense of touch. It is a great advantage when you can feel what you are doing, when oftentimes you cannot possibly see.

Medical Ethics.—The public has long ridiculed the restrictions which the medical profession has attempted, with more or less success, to impose upon its own members, but that the public is now reaching a point where it appreciates the righteousness of medical ethics is shown by recent legislation forbidding false and exaggerated advertisements.—V. C. Vaughan, *Science,* Dec. 8, 1916.

THE USE OF FOREIGN PROTEIN IN THE TREATMENT OF ARTHRITIS

A FURTHER REPORT *

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AND
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Last June[1] we made a preliminary report on the use of foreign protein in the treatment of arthritis. At that time twenty-four patients had received the treatment. Since then we have continued its use and now have an additional eighty-five cases to report.

Since our previous communication some additional evidence has appeared regarding the therapeutic action of foreign protein in acute infections. Saxl, Bruck and Kiralihyda[2] have recorded favorable results in typhoid from the intramuscular injection of sterilized milk. Müller and Weiss,[3] with the same agent, have observed marked improvement in gonorrhea and its complications, and Luithlein has obtained similar results with horse serum. We have shown that chicken serum in doses of from 3 to 6 c.c. given intravenously in typhoid fever will at times bring about a crisis in the same manner as the typhoid vaccine, and that the results with proteose in typhoid compare favorably with those obtained by the use of typhoid vaccine.

In all of the eighty-five cases reported in the present series, the patients were treated at the Cook County Hospital. In the acute cases precautions were observed, in regard to preliminary rest in bed before beginning the treatment, in order to eliminate the improvement which might and often does follow this simple procedure. Somewhat smaller doses (from 40 to 75 million) were given to the patients in this series. We have prepared our own vaccines, but after the usual methods. Since our first report a number of communications have been received from physicians, stating that they were unable to obtain any constitutional reaction in the prescribed dosage with commercial vaccine. This was investigated, and it was found that frequently a dosage of from 300 to 500 million of the commercial vaccine is required to give the same reaction as from 40 to 75 million of the preparation we were using. In only a few instances have we used proteose or pollen protein, but the results obtained would indicate that with the proper dosage, improvement similar to that observed after the use of the typhoid vaccine will take place. Following the observation of Jobling and Petersen that the iodids by fixing the antiferments in the blood serum would facilitate the action of the ferments, we gave, in some refractory cases, repeated intravenous injections of sodium iodid, from 0.66 to 3.3 gm., in conjunction with the vaccine, but failed to observe any beneficial results.

Acute Arthritis.—In our present series there were forty-five cases of acute arthritis, four of which were gonorrheal, and the period which had elapsed from the onset ranged from two to forty-five days. Previous to coming under our care, thirty-three had been under more or less active drug treatment, usually with salicylates. Several were receiving large doses of salicylates, from 1 to 2 gm. every four hours. Of those who had been under previous drug treatment, twenty-nine reported that they had not improved under this treatment, and four had been moderately benefited. With typhoid vaccine, twenty-nine of the forty-five patients recovered promptly; that is, the pain, redness and swelling disappeared in from one to five days, and usually within from twenty-four to forty-eight hours. From one to four injections were necessary to bring about these results. Of the remaining patients, eight showed great improvement with only some stiffness or slight pain remaining. Six showed only moderate improvement, and in two no benefit was derived from the treatment, although one of these received eleven and the other thirteen injections. Nine of the patients had recurrence, five of those discharged as cured and four in those discharged as improved. Seven of these were reinjected and either recovered or showed marked improvement. It is highly probable that the number of recurrences reported is too low, as a considerable number of patients entering a hospital of this character have no permanent abode, so that it was quite impossible to follow them up after they were discharged. It is quite probable, however, in case of relapse that the majority of these patients would return to the County Hospital on account of its being a purely charitable institution. When a patient after leaving the hospital could not be traced, if he failed to return later on account of recurrence, he was placed in the list of cured. This renders the precentage of recurrence inaccurate. In the four acute gonorrheal cases in this series, less benefit was derived by the treatment than in those of other origin.

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* From the Medical Clinic of Cook County Hospital.

[1] Miller, J. L., and Lusk, F. B.: The Treatment of Arthritis by the Intravenous Injection of Foreign Protein, The Journal A. M. A., June 3, 1916, p. 1756.

[2] Saxl, Bruck and Kiralihyda: München. med. Wchnschr., 1916, lxiii, 511.

[3] Müller and Weiss: Wien. klin. Wchnschr., 1916, xxii, 249.

Subacute Arthritis. — Under this group were included those cases which might possibly be classed as mild acute arthritis, running a prolonged course. Others had an acute onset followed by a prolonged but moderate degree of disability. Four months was the maximum duration of the infection in those included in this group. Twelve patients in all were treated; in ten, the condition cleared up in from three to five days after from one to four injections, although in two of them there was still slight stiffness or soreness in one or more joints at the time the treatment was discontinued, clearing up, however, a few days later. Two showed marked improvement after two or three injections, but subsequent injections failed to bring about further improvement. Among those discharged as cured, recurrences were recorded in two: one of these recovering after further injection; the other patient did not return to the hospital for further treatment. In this group there was one of gonorrheal origin.

Chronic Arthritis with Marked Acute Exacerbation. —Nine cases belonging in this group were treated, the patients entering the hospital on account of the acute exacerbation. In eight the acute symptoms cleared up promptly with from one to three injections.

Chronic Arthritis.—Nineteen patients with arthritis of from a few months' to several years' duration were ncluded in this list. Only those cases were selected n which there was definite evidence of activity, and nkylosis was not marked. Ten of these patients after rom one to five injections showed a definite improvement, the acute tenderness and discomfort on motion was much relieved. The patient became less helpless. As a rule not all the affected joints were benefited. The results, however, were such that it would seem the treatment had been actually beneficial. Not all of these cases have been followed, but there are several in which, after the lapse of several months, the improvement has been maintained. Five showed moderate improvement, and four were not benefited. The maximum number of injections given any of these patients was thirteen, being given daily in the beginning and later every two or three days. In five patients included in this group the arthritis was apparently of gonorrheal origin, and three of these showed such marked improvement that they might be pronounced as cured. This is in contrast to the resistance to the treatment of the acute gonorrheal cases. One of these gonorrheal cases was of seven months' duration, and for three months previous to entering the hospital, the patient had been compelled to use crutches. After three injections he was able to get out of bed without assistance, and up to the present time (four months) has not had a relapse. It is the very striking results obtained in a few cases of this character which have led us to believe that in certain instances the results obtained cannot be equaled by any other of our present methods of treatment. The results in the cases of chronic arthritis are on the whole, however, not especially striking. The tendency to recurrence is great, not unlikely owing to the persistence of a focal infection. It is essential, therefore, that when this method of treatment is employed, it be preceded by the usual efforts first to locate and remove the focal infection.

We reported in our previous paper that the beneficial results in acute arthritis were confined to the joints, the complicating endocarditis or pericarditis apparently not being affected. This statement, we believe, should be modified as, judging from the complete disappearance of fever and rapid return to normal of patients with arthritis and acute endocarditis, it would appear that the endocardial involvement had also been controlled. This, of course, applies only to the benign type of endocarditis. Published reports on the effect of foreign protein (milk, horse serum) on gonorrhea and its complications go to show that both the acute and the chronic ureteral and prostatic processes are apparently greatly benefited. We had one patient with gonorrheal arthritis complicated by iritis of several months' duration who after two injections of typhoid vaccine showed marked improvement in his arthritis and a complete disappearance of the iritis.

Unfavorable Results.—The reaction provoked by the intravenous injection of the typhoid vaccine is severe. There is always a very marked rise in temperature, and with few exceptions a marked chill. The headache as a rule is severe, and nausea of a few hours' duration is not infrequent. In three cases, all alcoholics, delirium developed at the height of the fever, in one case continuing for thirty hours. Marked dyspnea was observed in a few cases. In only five of our patients did we deem it advisable, on account of the violence of the reaction, to discontinue the treatment after a single injection. We have not had any fatalities as a result of the treatment, but it should be borne in mind that evidence of poor cardiac power or hypertension was considered a contraindication to the treatment, and such patients were not injected. When we consider that typhoid vaccine in much larger doses has been given in hundreds of cases of typhoid by various individuals, with only a few fatalities, and then most frequently when enormous doses were given (from 500,000,000 to 4,000,000,000) it relieves in a measure our apprehension. There is no question, however, that the violence of the reaction is a very serious objection to the adoption of this method of treatment. Even if the results are not serious, the inconvenience is so great that many patients would justly object to repeated injections. That the intravenous injection of typhoid vaccine has a decided effect in many cases of arthritis, especially of the acute type, appears as practically certain. That all patients are not benefited does not necessarily reflect on the specificity of the treatment, as in typhoid fever the intravenous use of vaccine is without appreciable effect in about 40 per cent. of the cases.

Whether the intravenous use of foreign protein in typhoid and arthritis will be retained as a therapeutic measure depends largely on whether the violence of the reaction with the inconvenience and possible danger to the patient may be considered as outweighing its beneficial results. Perhaps further investigation will show that there are other micro-organisms still more active in this respect than the typhoid and perhaps having greater therapeutic value, but also giving rise most likely to even more violent toxic reactions.

122 South Michigan Avenue.

A STUDY OF SODIUM CACODYLATE IN THE TREATMENT OF SYPHILIS *

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In spite of the attempts of several workers to disprove the claims made for sodium cacodylate as a powerful remedy in the treatment of syphilis, the drug is still extensively used by the general practitioner and by many specialists in the treatment of this disease. Yet Nichols,[1] notably, by his work on rabbits, has proved that it is worthless as a spirocheticide.

To clear up the question as to its value, we undertook the study of its action[2] in a series of selected syphilitics in our wards at the Cleveland City Hospital.

At first we started with a dose of 0.25 gm. intravenously, followed by a dose of 0.45 or 0.5 gm. every five days up to five or six injections. After one or two trials, however, we were convinced that we would have to use it either in larger doses or oftener if we were to obtain results. The latter alternative was chosen, and we employed it at first every four days and later every three days. In all our work we were guided by Prof. Torald Sollmann of the Department of Pharmacology of the Western Reserve University School of Medicine.

The patients were together in wards, and it was not always possible to treat them as long as we wished, as they took treatment into their own hands when results were not obtained. Otherwise they were all carefully studied, and collectively they showed most of the symptoms found with primary, secondary and tertiary syphilis, several having an involvement of the central nervous system. Our routine lumbar puncture for syphilitics, if not mentioned, was normal.

A short summary will be given of each case and conclusions then drawn.

REPORT OF CASES

Case 1.—C. B., man, aged 46, who had recurrent syphilis with severe mucous membrane involvement of throat and mouth, syphilitic laryngitis, condylomas around the anus and scrotum and a nodular syphilid on each forearm, whose blood Wassermann was strongly positive, the spinal fluid showing 26 cells per cubic millimeter, the Noguchi test positive, and the Wassermann positive with 0.2 c.c. of fluid, was given an intravenous injection of sodium cacodylate of 0.25 gm., May 17, 1916, and 0.5 gm., May 20, which was repeated every three days until he had received six. By this time the tertiary lesions on the arms had begun to desquamate. The laryngitis, patches in the throat and condylomas, however, were still present, and the cell count on the spinal fluid was 19, the Noguchi and Wassermann tests being positive. The patient demanded salvarsan and mercury, and further sodium cacodylate was refused.

Case 2.—A. R., man, aged 21, who had secondary syphilis with severe mucous patches in the throat, and in whom the blood Wassermann test was strongly positive, was given an injection intravenously every four days for four injections, when red cells and albumin appeared in the urine, and further treatment was out of the question. His symptoms were, if anything, worse, but subsequently they cleared up very rapidly under mercury intramuscularly.

Case 3.—H. M., man, aged 24, who had severe primary and macular syphilis with alopecia, marked mucous patches in the mouth and throat, condylomas of the anus, and complicating psoriasis, from Jan. 12, 1916, to Feb. 10, 1916, was given sodium cacodylate intravenously every five days for six doses. Two days after the third dose the condylomas had partially cleared up, but the mouth was worse, and the patient refused more than six injections. There was rapid recovery under mercury and salvarsan.

Case 4.—F. S., man, aged 39, who had a marked tubercular or nodular syphilid of both elbows, whose back was entirely covered with one large lesion, patches in mouth, the pupils unequal, reacting poorly, spinal fluid cell count 76, Noguchi positive and Wassermann positive with 0.1 c.c. of fluid, was given sodium cacodylate, 0.5 gm., intravenously every four days for six doses. The lesions on the arms and back cleared up partially, but the patches remained in the throat. The cell count on the spinal fluid was 65, the Wassermann and Noguchi reactions still the same. As the urine showed a few red cells and albumin, we were forced to stop further cacodylate.

Case 5.—W. C., man, aged 32, who had a papular syphilid, severe mucous patches in the mouth and throat, all cervical glands greatly enlarged and under the right jaw like hen's eggs, from Jan. 20, 1916, to Feb. 8, 1916, received an injection every five days of 0.45 gm. At this time the enlarged glands and patches were worse than ever, and the patient refused further treatment. There was quick recovery under mercury and salvarsan.

Case 6.—P. S., man, aged 40 (?), who had mucous patches in the mouth and on the tonsils, condylomas, and a large nodular or tubercular syphilid on the right side of the chest, received five injections of sodium cacodylate, one every four days. The lesion on the chest seemed to be somewhat better, but the patches and condylomas showed little or no change, and treatment was stopped.

Case 7.—L. G., negro man, aged 28, who had marked mucous patches in the mouth and throat, condylomas around the anus and scrotum and a circinate syphilid of the face and neck, received six injections of sodium cacodylate, one every three days. The circinate syphilid was desquamating and partially cleared up, but the condylomas and patches in the mouth remained, and on account of the patient's race we did not deem it well to continue further treatment.

Case 8.—G. M., man, aged 30, who had a primary lesion Jan. 5, 1916, sore throat February 24 and macular eruption March 10, and entered the hospital March 15 with secondary eruption, patches on tonsils and uvula and scar on the penis, received five injections of sodium cacodylate with absolutely no improvement in the condition, when he demanded mercury and salvarsan. The condition then cleared up rapidly.

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* From the Department of Dermatology and Syphilology of the Western Reserve University, School of Medicine, and of the Cleveland City Hospital.

[1] Nichols, H. J.: Salvarsan and Sodium Cacodylate, The Journal A. M. A., Feb. 18, 1911, p. 492.

[2] The drug for these experiments was put up in glass ampules of 0.45 and 0.5 gm., respectively, and was kindly furnished by H. K. Mulford Company and Parke, Davis & Co.

Case 9.—J. D., man, aged 25, who had a maculopapular eruption, primary lesion on an edematous, phimotic penis, mucous patches on the left tonsil, and acute syphilitic arthritis of the left elbow, at four day intervals received five injections of sodium cacodylate, each 0.5 gm. The arthritis in the elbow cleared up after three injections, and the eruption partially disappeared. The throat seemed to get worse, and the patches spread to right tonsil and uvula. The patient refused further cacodylate. Recovery was rapid with salvarsan and mercury.

Case 10.—H. E., man, aged 21, had a chancre four months before admission, and long standing sore throat and headaches, coming on at night. There were a generalized papulosquamous syphilid of the miliary, follicular type; marked alopecia syphilitica; mucous patches in the mouth and throat, and condylomas around the anus. The spinal fluid cell count was 65, Noguchi test positive, and Wassermann positive with 0.1 c.c. of fluid. The patient received an injection of sodium cacodylate every five days at first, and later every four days until he had taken seven. The headaches cleared up and the eruption partially disappeared, but the enlarged tonsils covered with patches and condylomas remained. The cell count on the spinal fluid dropped to 25, but the Noguchi and Wassermann tests remained as before. Because of the condition of the throat it was deemed advisable to turn to mercury and salvarsan, after which the improvement was very rapid.

CONCLUSIONS

Careful analysis of our findings proves the contention of Nichols and others. Sodium cacodylate is worthless as a spirocheticide; yet many physicians are depending on this drug today in the treatment of syphilis. Moreover, there is a widely advertised proprietary product on the market, venarsen, claimed to be of great value in the treatment of this disease, the main constituent of which is sodium cacodylate. And the dosage is not as large as we have employed.

We believe we were justified in saying that:

1. At the utmost, sodium cacodylate has perhaps a slight action on the papular and nodular syphilids, but in no case is it to be compared with even mercury and potassium iodid alone. It is probably to be explained entirely from the tonic action of the arsenic on the system.

2. In cases of syphilis with mucous patches it is worse than useless.

3. In one of our cases, Case 10, there was a drop in the spinal fluid cell count from 65 to 25, but the Wassermann and Noguchi tests remained positive, and Cases 1 and 4 with cerebrospinal involvement, showed practically no change.

4. The contention may be raised that we did not employ large enough doses, 0.5 gm. every three days. Routine urine examinations in Cases 2 and 4, however, out of a total of ten studied, showed red cells and albumin, the one after four and the other after six injections. After consultation with Dr. Sollmann, therefore, we decided to use no larger dosage, leaving it to others more courageous.

5. The routine positive blood Wassermann in all ten cases was in no instance changed to negative.

2069 East Ninth Street.

Diphtheria.—In the various countries of the world the average annual death rate from diphtheria during the most recent five-year period for which data are available, has ranged from 6.8 per 100,000 of population in Chile and 7.0 in New Zealand and the Netherlands, to 19.0 in the registration area of the United States, 22.6 in Prussia, 25.9 in Austria and 40.1 in Serbia. There is no conclusive evidence that diphtheria as a disease is decreasing. On the contrary, the weight of evidence is favorable to the view that it is increasing.—F. S. Crum, *Weekly Bull. Dept. Health,* New York.

HEALTH LABORATORY ORGANIZATION*

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The opinions expressed in this brief paper are founded on my experience as director of the health department laboratories of New York City for the past twenty-two years, during which time the bacteriologic laboratories have increased from a force of four employees to one of over 200.

The health laboratory in a small city will, from necessity, carry out all the public laboratory work. The health investigations and those required to test contract materials are so varied and are done with such different purposes, that a separation into two distinct laboratories is desirable as soon as the city has become fairly large and the expense can be afforded.

It is apparent that many necessary examinations, such as asphalt to be used in road making, have no relation to health and should not be charged to the expense of protecting the health of the community, nor should those interested in health problems be compelled to divert their attention to such examinations.

The question of whether it is wise to unite the chemical and bacteriologic laboratories under one head, or to separate them, can only be answered after knowing the local conditions. The same is true as to whether the water examinations should be done in the health laboratory or in one connected with the department of water supply.

Many, without considering, think that the laboratories are something apart from the other divisions of the health department. This is manifestly not so. The bacteriologic and chemical examinations of milk are made for and controlled by the food divisions and the diagnostic bacterial examinations are a part of the cost of handling the communicable diseases.

The laboratory examinations of water are a part of the work of the bureau controlling the water supplies.

If the production of serums and vaccines is undertaken, it relieves the health department from purchasing these products. It would be foolish to provide the means for each division to have a separate laboratory, and so necessarily, for the sake of economy, all these subdivisions are united in a central laboratory.

When the laboratory is small, the chemical and bacteriologic laboratories are usually united, but when the laboratory becomes extensive, a separation frequently develops, each division being placed in charge of an assistant director, or the general chemical work being removed to the supervision of the food division.

The chemical laboratories in New York City have, for instance, sometimes been united with the bureau of bacteriologic laboratories and sometimes with the bureau of foods, the chemist in charge reporting to the director of whichever bureau the laboratories happened to be assigned.

The fact that a laboratory carries on the technical work for all the activities working for the health of the public explains why in the largest cities some of the health laboratory work may be done by separate laboratories not connected directly with the central health laboratory. For instance, the care of the water supply is frequently under a separate bureau of the city. It is often desirable that the examinations made to determine the efficiency of the safeguards should be by a small laboratory devoted solely to the examination of water and reporting directly to the department of water supply. The health laboratories would still do water examinations for other purposes.

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

National and state governments, because of different departments, tend to subdivide still farther. This subdivision, if not carried too far, is desirable, for in this way the laboratories are responsive to the needs of the departments of which they form a part.

The activities of health departments have broadened greatly in the past twenty years. The New York City board of health has always regarded that all matters connected with scientific investigation of infectious diseases, as well as routine examinations, were within its province.

This conception of the scope of the duties pertaining to a sanitary board has come to be adopted by all enlightened communities. A percentage of the laboratory budget in New York City has always been applied to research investigations. There are, in my opinion, the best of reasons for this, outside of any desire to do a part in adding to the general amount of knowledge:

1. Practical additions are thus frequently made to our knowledge concerning the prevention of disease which can be immediately applied.

2. Laboratory workers of greater ability can be obtained where some time is allowed for research investigation.

3. The workers, being of a higher average type and trained to carry out investigation, are better able to test the value of new discoveries, and if found good to adopt quickly the new measures.

The tendency of the times is to demand such records that the cost of each variety of laboratory work can be estimated so as to determine the relative value of different lines of work. Although for most scientific workers this is irksome, still the laboratory must yield to this demand, both because it is probably necessary for efficiency and because it is required by those who control the expenditure of a city's money before approving of its budget.

In the larger laboratories the cost is frequently itemized to cover the separate functions. The bacteriologic laboratories, in New York City for instance, have the functional divisions given in the accompanying table.

FUNCTIONAL DIVISIONS OF BACTERIOLOGIC LABORATORIES

Function	Number of Workers
1. Administration	17
2. Diagnosis (diphtheria, typhoid fever, syphilis, etc.)	58
3. Production of serums and vaccines	57
4. Applied therapy (administration of serums and vaccines)	15
5. Microbial sanitary examinations (milk, water, etc.)	22
6. Preparation of mediums	24
7. Special investigations (on practical subjects directly pertaining to the prevention and treatment of communicable diseases)	15

These divisions are in many respects artificial and overlap each other, but they are the best that we have been able to devise. In an active laboratory the subjects under investigation and the practical applications are always shifting.

Those interested especially in the subject of organization and cost accounting are apt to demand that these functions be separated, not only for budget purposes, but actually. If they had their way, the director and first assistant director would confine their time wholly to conferences with the commissioner or medical officer and the heads of the bureaus and to supervision of the other employees. Those holding technical positions would do either routine or research work in one line only.

This separation is, to a considerable extent, necessary. Those doing the routine diagnostic and sanitary examinations are usually not of the type to be able to wish to do investigative work. There are others who have the capacity to do research work and these should be given the opportunity to give a part of their time to investigation, while at the same time they direct and oversee a considerable amount of routine work. And the salaries of those doing mostly investigative work should be fully equal to the salaries of those doing chiefly administrative work.

The director and first assistant director of the laboratory should be in touch with all the work and each should take an active part in at least one division of it. The interrelations between the divisions are usually so many and so close that this general acquaintance with the whole work is essential.

If those in charge did nothing but laboratory administrative work, they would soon cease to be capable wisely to direct it and to estimate the value of its output.

According to the size and complexity of the laboratory, the functional divisions may or may not be grouped under assistant directors. If the division is large and important enough it may have a chief over it, but if it is small, or while it is in a transition stage of growth, it may be conveniently placed under the supervision of an assistant director having charge of another division.

All of the assistant directors and the workers filling positions of responsibility should know in a general way about the work of all the divisions, so when changes in the force occur the position vacated can be filled by the one best fitted to take it up, so that no interval in the efficient carrying on of the examinations and investigations may occur.

The minor workers who have ability should also have some knowledge of at least one other line, so as to broaden their knowledge, increase their interest, and make them available to fill places left vacant by resignation, sickness or vacation.

Frequently the results of some investigator's work may lead to practical application in a different functional division of the laboratory from the one he belongs to. It will often be in this case for the greatest efficiency of the laboratory to allow a worker to divide his time between two functional divisions.

The director of the laboratory should be given freedom to arrange those matters as his knowledge of the problems and his force make advisable.

It would certainly be a very narrow point of view to claim that this should not be allowed because superficially considered it interfered with an easy estimate of functional cost accounting. As a matter of fact an estimate of the cost of producing antitoxins or of examining a sample of milk can never be obtained from these general reports.

The higher workers should all be expected to do some research work and some time should be given them to do it. In this way their interest is stimulated and their capacity measured and developed for more important responsibilities.

Many cities and states still hesitate to arrange the budget for the laboratories so as to require a moderate amount of research investigation.

My experience in New York City convinces me that the omission of a provision for research along practical lines is a great mistake. The organization of the research branch of the laboratories was due primarily to Dr. H. M. Biggs. He is carrying out the same policy as commissioner of health of New York state in insisting on and obtaining money for the installation of research laboratory investigations along intensely practical lines in the prevention and cure of communicable diseases.

Those who are familiar with the laboratories, before and since he became commissioner, have no doubt that the slight extra expense incurred for investigation has justified itself in the complete change in the point of view of the laboratory workers and in the increased efficiency of their work.

The great research institutions, like the Pasteur and Rockefeller institutes, have neither the inclination, time nor opportunities to attack many of the public health problems that are pressing on departments of health.

It is needless to state that the only qualification for appointing and keeping laboratory workers should be fitness for the positions.

The civil service commission should endeavor to make the examinations of such a character that men and women of the right qualifications may become available.

A CASE OF GUMMA OF THE SCLERA

EUGENE M. BLAKE, M.D.
AND
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The etiology of episcleritis and scleritis is frequently uncertain. According to de Schweinitz, the causes are exposure to cold, rheumatism, gout, scrofula, vasomotor changes and disturances of the sexual apparatus, especially anomalies of menstruation. Such a statement is largely a confession of ignorance. More definite is the statement that syphilis and tuberculosis are also causal agents.

Syphilitic scleritis is not very common, and when it does occur it usually takes the form described as episcleritis or that of deep scleritis, and not that of a gumma. In fact, gummas of the sclera are so rare that they are curiosities, and in many standard textbooks of ophthalmology no mention is made of them, and references to them in ophthalmologic literature are few. They are occasionally mentioned in works on syphilis. Terrien[1] says that about thirty cases have been reported, and that they occur from ten months to eight years after the chancre.

The structure of the sclera probably explains the infrequence of the development of gummas in it. The dense fibrous tissue and the few elastic fibers of which it is composed form a strong, hard and inelastic tissue, which is not a favorable ground for the development of the rounded, limited, elevated growth, hard at first and tending to soften and break down in the center, which is typical of the gumma.

Deep scleritis frequently shows some nodules which are too small and too irregular to be classed as gummas. These nodules are frequently mutiple, and the two eyes are frequently affected at the same time. This condition is usually refractory to treatment and is frequently complicated by opacities in the cornea, iris and vitreous, and by other secondary changes in the other coats of the eye. Fuchs states that recurrent scleritis does not ordinarily have a syphilitic origin, but that isolated nodules are sometimes found in the sclera as a result of syphilis. It is very likely that these nodules in rare cases develop into gummas.

REPORT OF CASE

A. N., man, aged 38, Italian, married, was employed in a wire mill. He was seen April 15, 1916. About ten months before, a small red spot had appeared on the sclera of his left eye which he at first thought to be due to a foreign body. He had been treated for several months by two different ophthalmologists, and during this time the spot had constantly increased in size and had become more and more painful.

On the temporal side of the left eye, at a distance of about 3 mm. from the margin of the cornea, was an oval tumor measuring about 4 by 6 mm., with the longer axis up and out. The tumor was raised approximately 3 mm. above the level of the surrounding sclera. It was yellowish red, slightly tender, distinctly hard, and covered by dilated conjunctival vessels. The sclera about the tumor was of a slaty blue.

The clinical diagnosis was either tuberculosis or gumma. There was no history of tuberculosis or of syphilis, though there was a history of venereal exposure. From his description it was thought that he had recently been taking mercury and potassium iodid, probably in insufficient doses to prove a diagnosis. Several tuberculin tests were made, all of which were negative. The Wassermann reaction was strongly positive. As the previous treatment had been ineffective, four injections of neosalvarsan were given at intervals of one week. These were followed by weekly injections of mercurial oil.

Shortly after the first dose of neosalvarsan, the tumor began to decrease in size, and after eight weeks nothing was left except a slaty blue spot and a few dilated conjunctival vessels. The discoloration has gradually become less, and the conjunctival vessels smaller, though there will probably be some permanent enlargement of them. The other tissues of the eye were not affected, and vision was normal after the pain and tumor had disappeared.

55 Trumbull Street.

THE CONTROL OF LOCALIZED HYPERHIDROSIS

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Circumscribed hyperhidrosis is a common disorder of the skin which may usually be classed among the petty annoyances of life. Not infrequently, however, especially when complicated by bromidrosis, dyshidrosis or hyperkeratosis, it assumes a much more important rôle, incapacitating the person for work or pleasure. Walking is made so painful as to be impossible, the use of the hands is similarly interrupted, or the knowledge that an unpleasant odor clings to one makes the sensitive person dread to meet others.

Treatment has always been unsatisfactory, as evidenced by the list of remedies recommended, until the discovery that Roentgen rays would control it. The latter treatment, however, is time consuming and expensive, and not without danger in inexperienced hands. An efficient and inexpensive local application is much to be preferred. This we possess, I believe, in aluminum chlorid, $AlCl_3.6\ H_2O$, a white deliquescent salt easily soluble in water. Heating changes the crystals to alumina, Al_2O_3, and then to a hard substance resembling colorless corundum. In prescribing aluminum chlorid, the fact that it is incompatible with alkalies, sulphur, phosphorus and selenium should be borne in mind.

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[1] Terrien, F., in Gaucher: La syphilis du système nerveux, de l'œil, de l'oreille et du nez, Paris, 1910.

A 25 per cent. solution of aluminum chlorid in distilled water dabbed gently on the part every second or third day and allowed to dry on will cause a rapid amelioration of the excessive sweating. It is usually sufficient to make three such applications, then to wait for a recurrence before resuming treatment; or one application a week may be made to ward off recurrences. Dress shields, which aggravate the trouble by their impenetrability, can often be discarded after a few applications.

The drug is not wholly bland, for excessive use of it will cause a sharp itching or stinging sensation which usually subsides spontaneously if the part is not scratched. Excessive or careless use followed by scratching can easily cause a dermatitis, but I have never seen this happen when reasonable care was exercised. To avoid it the patient should be instructed to allow the lotion to dry thoroughly before clothing is permitted to touch the skin, and should be warned against overenthusiasm in its use. If itching does occur in spite of precautions, an ointment of cold cream containing 12 per cent. boric acid may be used, or a calamine lotion with or without 0.5 per cent. phenol (carbolic acid).

In twenty cases in which I have used this lotion it has never failed to give relief. Most of these were cases of simple local hyperhidrosis of the axillae or feet; but three were cases of persistent vesicular eruption of the feet accompanied by excessive sweating. Only the worst of these will be detailed.

Mr. B., an insurance broker, aged 34, was referred to me by Dr. A. B. Späch for treatment of a chronic dermatitis of the hands and feet, present constantly for the last fifteen years, but varying in severity. The feet always grew worse in the summer time, so that at times he could hardly walk because of the pain. All efforts to relieve the condition, powders, lotions, baths and special shoes, had failed.

On examination, small deep vesicles, in size from that of a pinhead to half a split pea, and the bases of ruptured vesicles were found in considerable numbers over both soles. The lesions were partly discrete and partly grouped, and there was very little accompanying erythema. The eruption was especially marked below the instep and about the toes, and the skin between the toes was sodden, white and thickened. A small patch of papular eczema was seen above one ankle. The socks, which had been worn only a few hours, were soaked with perspiration, without any markedly offensive odor. A search for fungus in the epidermal roofs of several of the more recent vesicles was without result. The general health was good except for a slight albuminuria of unknown cause which he had had for many years. The trace of albumin present at the time of my examination was not accompanied by casts.

The patient was given a small quantity of the aluminum chlorid lotion to try cautiously in one of the interdigital spaces. On reporting that this caused no irritation, he was told to apply it over the whole surface of both feet and between the toes once every third day. After a few applications there was great improvement, and in three weeks he was free from signs of the disease. He says that in spite of the unprecedented hot weather this has been his most comfortable summer in the last fifteen years.

In other similar cases there have been good results. Care has always been taken to reduce any active inflammatory eruption before using the aluminum chlorid for fear of irritation from it. A few have reported marked itching for a few minutes after applying the lotion, but this has always subsided spontaneously, and no patient has developed a dermatitis. I know of no other drug which will produce so lasting an astringent effect on the skin with so little danger of irritation. Used with ordinary care, it has done wonders in the limited series of cases in which I have tried it.

77 East Washington Street.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1941*)

CHLORIDS

The daily excretion of sodium chlorid is from 10 to 15 gm., varying closely with the intake of salt. In health only a trace of chlorids is found in the stools, while varying amounts may be excreted by the skin, at least more than 1 gm. During starvation sodium chlorid is not eliminated, but is retained in the body.

The clinical point of interest in the chlorids is their retention by the body and the part this retention plays in edema. This point will be discussed fully later under the heading of edema. In pneumonia, and in some cases of profuse catarrhal exudate, the urinary excretion of chlorids is diminished without retention, owing to its excretion elsewhere.

INDICANURIA

Indicanuria is of frequent occurrence, and indicates that some protein putrefactive process is taking place in the ileum and colon with the production and absorption of indol and the excretion of indoxyl potassium sulphate (indican). Indol and skatol are derived from bacterial putrefaction of tryptophan, an amino acid. They are absorbed from the intestines, becoming oxidized. The indoxyl reaches the liver and combines with sulphuric acid, forming indican, which finally passes off by the urine. On an ordinary diet from 5 to 20 mg. of indican are daily excreted in the urine. On a diet very low in nitrogen there may be practically no indican eliminated.

Indican in the blood is not poisonous, but other products of decomposition and toxalbumins absorbed from the intestines at the same time as the indol may produce symptoms of poisoning. If indol alone does not, skatol and cresol with toxalbumin will frequently produce symptoms of poisoning, such as headache, restlessness, insomnia, gastro-intestinal indigestion, at one time a dry skin, at another time more or less profuse perspiration, sometimes eruption on the skin, and sooner or later kidney irritation, with attacks of polyuria, traces of albumin, cylindroids, and even hyaline casts.

Not every case of putrefaction in the intestines causes indicanuria, nor does constipation per se cause it. It occurs acutely in abdominal disturbances, as typhoid fever, in some types of diarrhea, in intestinal obstipation, and in peritoneal inflammations. Indicanuria is only an indicator of a condition, namely, putrefaction in the lower part of the intestine, and shows that other irritant and poisonous products are being absorbed. If this absorption persists, as shown by persistent indicanuria, these products of protein decomposition irritate the walls of the blood vessels, or stimulate the suprarenals to greater activity in producing vasopressor substance; or both conditions prevail, resulting in hypertension. If the liver and kidneys are equal to the strain, no evident symptoms of ill health may result for months or years; but the persisting hypertension and continued irritation with perhaps other factors, finally causes cardiovascular-renal disease.

Other symptoms caused by such fermentative processes in the intestine are: irregular bowel action (constipation or diarrhea); gastric flatulence; coated tongue; dizziness; drowsiness during the day and insomnia or troubled sleep at night; irritability; at times muscular lameness or muscle cramps; cold extremities, often accompanied by increased perspiration due to dilatation or contraction of the local blood vessels caused by irritation; polyuria if there is hypertension, and a slight yellowing of the sclerotics and some parts of the body, as the palms of the hands if there is liver disturbance, the perspiration becoming malodorous and staining the clothing. These symptoms are often termed "biliousness," and fortunately the treatment generally given with that diagnosis is successful, namely, calomel or some other purgative, together with a more rational diet, including the reduction of the amount of meat, alcohol, coffee, etc., consumed.

In addition to intestinal and reflex causes, and intestinal putrefaction caused by improper food or a too large amount of meat proteins, probably other frequent causes of putrefaction are pus, abscesses, etc., in the mouth, throat or nasal sinuses. Bacteria swallowed with the food from pyorrhea alveolaris, and bacteria or toxins absorbed into the blood from infection at the apex of a tooth doubtless play a large part in producing fermentation in the small and large intestine. It should be noted that authorities on medicine have long stated that pyorrhea alveolaris and chronic colon infection or putrefactive processes are of common occurrence after 40 years of age.

As there is usually a small amount of indican in the urine of a normal person, no examination of urine is complete unless it is noted whether or not indican is increased. If it is found that the amount of indican is increased, there may be a disturbance of the lower part of the small intestine and the colon. Animal proteins should be absolutely removed from the diet for a time, and there should be thorough purging. The cause of the disturbance should be sought and removed, if possible. This means particularly careful examination of the teeth, gums, tonsils, nose and adjacent sinuses. If no tangible cause for indigestion can thus be found, it must be considered a functional condition such as has just been said to be of common occurrence after the age of 40. However, we have not yet reached the stage of postponing old age by removing the colon. Neither can we prolong youth or life by injecting lactic, Bulgarian or other bacilli or by taking sour milk or yeast at frequent intervals. Although an attempt to overcome colon fermentation should always be made, the seriousness of this condition should not be exaggerated, as it is a condition well tolerated.

The condition of the patient having been ascertained, the bowels should be caused to move daily and regularly; a more or less rigid meat purin-free diet should be ordered, and colon washings may be given until the urine is practically indican-free. The flora in the intestine may be changed by administering yeast or lactic bacilli; but it should not be expected that such treatment alone can cure a colon putrefaction. These bacilli should not be given over too long a period, as they may predispose toward joint pains and symptoms of a general hyperacidity. Liquid petrolatum is now much used, and often seems beneficial, especially if the patient is subject to constipation. When it is administered over too long a period it frequently causes gastric and intestinal indigestion, perhaps by mechanically interfering with the secretions.

Many persons have intestinal disturbances because they become chilled at night, the blood being driven from the surface of the body to the abdomen. These intestinal disturbances, colon putrefactive processes, and the formation of large amounts of colon gas are often prevented by keeping the body, and particularly the bowels, warm. Phenyl salicylate (salol) in a dose of 0.25 or 0.30 gm., in capsule, three times a day, after meals, for a short period is often of benefit in preventing intestinal fermentation.

The patient may be given one meat protein after another to see which he tolerates without decomposition. He should learn, however, so to regulate his diet and bowels as to prevent colon fermentation. It is well to set aside one day each week on which to abstain from protein food, and to take a saline purge on that day (if such is not contraindicated by the condition). A sour milk week occasionally is of value.

Care must be taken that anemia is not caused by a limited diet. Anemia, however, may develop from persistent putrefaction. The weight should be watched and the skin studied for eruptions, dryness or profuse perspiration, in order to regulate properly food, drink, and possible drugs. Hypothyroidism or hyperthyroidism may be the cause of the intestinal condition.

This discussion, though apparently a long one on a simple condition, is a discussion on preparedness for the proper management of a patient with intestinal indigestion; and indicanuria may mean prevention of kidney, cardiac and vascular disease. It should be noted that epilepsy and some mental disturbances have been cured by removal of bowel defects. Intestinal stasis can also aid bacterial invasion, particularly colon bacilli disturbances, and many other more or less serious ailments. As first stated, a tangible cause for putrefaction and indicanuria must be sought through any or all of the gastro-intestinal examinations now so well understood, from gastric and fecal analyses to bismuth pictures. Chronic appendicitis, chronic gallbladder trouble, and anything that damages or irritates an intestine may cause intestinal disturbance and absorption of toxalbumins and the substances already mentioned. Passive congestion of the liver and intestines from an insufficient heart is a prominent cause of disturbances resulting in indicanuria.

It has been stated that whenever there is nitrogen retention in the blood there is indicanuria.[53]

INDOLACETIC ACID

This substance, probably a derivative of tryptophan, has been found in urine, and Ross[54] thinks that it must be due either to a constitutional disorder of metabolism or to a particular kind of intestinal putrefaction.

(To be continued)

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[53] Tschertkoff, J.: Deutsch. med. Wchnschr., 1914, xl, No. 36.

[54] Ross, E. L.: A Preliminary Note on the Excretion of Indolacetic Acid in the Urine, Arch. Int. Med., July, 1913, p. 112.

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SATURDAY, DECEMBER 30, 1916

A MORE RAPID DIAGNOSIS OF RENAL TUBERCULOSIS

In many instances the diagnosis of tuberculosis of the kidney necessitates the search for the tubercle bacillus in the urine secreted by the organ supposedly involved. If the urine is obtained by ureteral or urethral catheterization, a direct microscopic examination, especially after the collection of a urinary sediment by high speed centrifugation, may suffice to give an answer. A danger of error often lurks in the possible presence of the smegma bacillus, from which the micro-organism responsible for tuberculosis can be differentiated directly only with great difficulty, if at all with safety for the conclusions arrived at, by staining methods.[1] Resort to animal inoculations remains as the safe procedure for a conclusive diagnosis. The value of animal inoculation in the diagnosis of tuberculosis is not a new discovery. It has been recognized for half a century.[2] Klebs employed the guinea-pig test as early as 1868, though it is said that Damsche[3] was the first investigator to use this animal for the diagnosis of renal tuberculosis.

In the animal test experiment, definite tuberculous lesions usually do not develop before from four to six weeks have elapsed after the inoculation of suspected urinary sediment. Suggestions have accordingly been offered with the purpose of making an earlier diagnosis by this method. Bloch and others have maintained that if certain of the lymph glands are bruised or injured, definite tuberculous changes may be noted in nine or ten days after an inoculation for diagnostic purposes.

Murphy and Ellis[4] have reported that white mice which have been exposed to Roentgen rays are made markedly more susceptible to bovine tuberculosis than are normal animals. They explain this fact by the destruction of the lymphoid tissue which, they say, constitutes an important agent in the defensive mechanism against tuberculosis. In practical accord with this, Morton[5] of the Massachusetts General Hospital has found that it is possible to reduce the resistance of guinea-pigs to tuberculosis by Roentgen-ray exposures, so that when animal inoculation is required for a diagnosis a much quicker result may be had than by the use of normal animals. In renal tuberculosis when it is necessary to resort to the use of animals — a procedure requiring ordinarily five or more weeks — by the use of Roentgen-rayed guinea-pigs the diagnosis can be made in from eight to ten days. The resistance can be sufficiently lowered by one massive dose of the Roentgen ray administered either shortly before or after the inoculation of the material to be tested. The lesions are so marked in these animals that the diagnosis is certain after the interval indicated above.

The new diagnostic technic of Morton on the guinea-pig is available for the human strain of tubercle organism. Whether or not the lowered resistance of the animals can here be attributed to destruction of the lymphoid elements has not been decided. The inability at present to explain the mechanism of the increased susceptibility need not detract, however, from the promise, held out by Morton's work, of the practical value of the plan proposed by him.

CREATIN AND CREATININ IN MAN

Normal muscle tissue of all vertebrates always contains the substance creatin as its chief nonprotein nitrogenous compound; the closely related derivative creatinin is always present in the urine, in which it represents the nitrogenous constituent second in abundance only to urea. These facts speak plainly for the significance of creatin and its anhydrid creatinin in the chemistry of the living organism. Whether, however, the muscle creatin and urinary creatinin actually have a direct relationship to each other in the body has not been so easy to determine.

The studies of Folin led to the demonstration of a now well recognized remarkable constancy in the output of creatinin in the urine from day to day on a meat-free, that is, creatin-creatinin-free diet. This is a rather definite indication of some constant and regular formation of creatinin through endogenous sources, since the quantity of the output is not essentially altered by the plane of protein intake. Corresponding with this, Myers and Fine in particular have demonstrated that the content of muscle creatin appears to be quite distinctive for a given species, though varying in different animals from 0.3 to 0.5 per cent. This constancy in the content of muscle creatin promptly suggested itself as the underlying factor in the constant elimination of creatinin. Furthermore, the creatinin elimination appears to bear a distinct

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1. The Smegma Bacillus, editorial, The Journal A. M. A., Jan. 23, 1915, p. 348.
2. Marcet, W.: Tr. Med. Clin. 1867, 437. Klebs, E.: Virchows Arch. f. path. Anat., 1868, xliv, 242, 296.
3. Damsche: Deutsch. Arch. f. klin. Med., 1882, xxxi, 78.
4. Murphy, J. B., and Ellis, A. W. M.: Jour. Exper. Med., 1914, xx, 397.
5. Morton, J. J.: A Rapid Method for the Diagnosis of Renal Tuberculosis by the Use of the X-Rayed Guinea-Pig, Jour. Exper. Med., 1916, xxiv, 419.

relation to the percentage content of muscle creatin in a given species. The creatinin coefficient of the rabbit, for example, averages fully a third more than that of the dog or man; and similar relations obtain in respect to muscle creatin.

Another feature regarding these two closely related substances points in the same direction. In starvation, and in diseases attended with more or less inanition, creatin appears in the urine along with creatinin. The latter is then ordinarily somewhat decreased in amount. Myers and Fine have ascertained in some cases that the decline in the urinary creatinin is often proportional to the loss of creatin which also occurs in muscle during starvation. These facts help to substantiate still further the view that the creatin and creatinin of the urine have a common origin, namely, in the muscle tissue.

Recently Denis[1] has enriched the literature of this important subject with data obtained at the Massachusetts General Hospital on the creatin content of the muscle tissue of man. The creatin content of the human psoas muscle of normal adults is reported to range about 0.4 gm. per hundred gm. of tissue. The muscle of children is known to contain much less. In persons dying of various chronic diseases, it was noted that in some cases the creatin content was reduced both absolutely and relatively. In most of these cases the patient had been in a cachectic condition for some weeks or months before death, and was greatly emaciated. In others the creatin values were not reduced. In persons dying of acute diseases, it was found that in many instances the muscle gave normal creatin figures; in others, more particularly those dying of septicemias, there was a marked reduction.

Denis points out that these results would seem to lend confirmatory evidence to the theory concerning the interrelationship of "muscle creatin" and urinary creatinin in man, as previous investigators have contended. Shaffer has called attention to the fact that persons who have been ill for many months and are in a feeble and wasted condition have very low creatinin coefficients. As these patients become convalescent and their "muscle tonus" increases, the creatinin coefficient rises. Although Denis made no examinations of the urine, she regards it as safe to assume that all of the feeble and emaciated patients whose muscle was found to possess such a low content in creatin had also an extremely low creatinin coefficient.

The creatin-creatinin problems are thus at length beginning to clear up as added facts are brought to bear on them. Rose and Dimmitt[2] have lately found in experiments on man at the University of Texas that the ingestion of large doses (20 gm.) of creatin in man leads to a very perceptible increase (from 0.3 to 0.49 gm.) in the output of creatinin. This increase in urinary creatinin is attributed to a conversion of creatin into its anhydrid, and not to an increase in the output of endogenous creatinin. The ingestion of large doses (16 gm.) of creatinin is not followed by the appearance of creatin in the urine. This indicates that the reaction creatin → creatinin + water is probably not a reversible one in the human organism. No evidence was obtained indicating a transformation of creatin or creatinin into urea by the body cells. On the contrary, urea is probably not a catabolic product of these substances.

THE INSECTICIDE ACT AND THE FOOD AND DRUGS ACT

The national Insecticide Act of 1910 was not passed until after the national Food and Drugs Act had been in operation for several years. Profiting to some extent by the defects of the latter law, which, because of its very limited formula-disclosure features, had failed to protect the public adequately, Congress inserted provisions in the Insecticide Act which require, among other things, that the names and proportions of the inert ingredients of an insecticide or fungicide, if there are any, be given on the label. While these provisions are less protective than a complete formula-disclosure enactment would be, still, as an enforceable proposition, the Insecticide Act in this respect is superior to the Food and Drugs Act.

A number of opinions of general interest regarding questions arising under the Insecticide Act and notices of judgments that have been obtained under the act have been issued recently by the Department of Agriculture. In the effort to form a judgment as to the probable value of some of the insecticides which were composed of several constituents, the government has carried out tests to determine the insecticidal or germicidal value of each of the several ingredients, using authenticated material for the tests. In many cases it was found that each one of the ingredients of an insecticide was inert if tested separately.

The findings of the Insecticide and Fungicide Board of the U. S. Department of Agriculture show that many of the popularly supposed insecticides are of no value against certain insects. For example, sodium fluorid, a powerfully toxic agent if taken internally, is found ineffective against the bedbug, probably because that insect cannot be induced to eat it. On the other hand, it destroys the roach because this insect will eat foods containing it.

There is a fundamental difference between the methods of enforcing or interpreting the Insecticide Act and the Food and Drugs Act, respectively. Under the Insecticide Act the burden of proof concerning the efficiency of a product lies with the manufacturer; that is, if a preparation is claimed by the manufacturer to be a roach destroyer, the government holds that such product must actually destroy roaches, and it is necessary that the manufacturer offer proof to that effect if prosecuted. On the other hand, in prosecutions under the Food and Drugs Act, it devolves on the government not merely to disprove the manufacturer's claims for the alleged therapeutic value of his product but also to prove that the manufacturer had guilty knowledge of its worthlessness. A manufacturer, for example, sells a product under claims which any reasonably informed physician knows are grossly exaggerated or even outrageously false. Under the cloak of "disagreement in medical opinion," the manufacturer sets up the defense (and successfully maintains it, if he has sufficient money to hire a certain class of physicians to testify for him) that the ingredients of his product have been used with success in times past for some of the afflictions which the preparation is claimed to cure. Even after the government has introduced overwhelming evidence on the worthlessness of the preparation, it still has to prove that the manufacturer *intended* to defraud before a conviction can be obtained. As a consequence, the manufacturers of some of the most flagrantly worthless medicinal preparations on the market have escaped conviction or even prosecution.

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[1] Denis, W.: Creatine in Human Muscle, Jour. Biol. Chem., 1916, xxvi, 379.

[2] Rose, W. C., and Dimmitt, F. W.: Experimental Studies on Creatine and Creatinine, VII, The Fate of Creatine and Creatinine when Administered to Man, Jour. Biol. Chem., 1916, xxvi, 345.

A comparison of the Food and Drugs Act and the Insecticide Act further illustrates the neglectful attitude of the government toward matters relating to public health. The insecticide law has to do primarily with the protection of property, such as sheep and cattle; the Food and Drugs Act with the most valuable asset of the nation, its health. The citizen may not be defrauded by the sale of a worthless louse killer, but his government offers him little protection against the sale of a worse-than-worthless consumption "cure."

STREPTOCOCCI AND DISEASE OF THE GALLBLADDER

It can no longer seriously be doubted that certain pathogenic bacteria exhibit a special affinity for some particular tissue or tissues. Different tissues or organs seem to afford fundamentally different conditions for the development of micro-organisms of related origin. The recognition of this principle has aided in the understanding of certain infections of hitherto vague character. Stated briefly, streptococci isolated from active lesions in different human organs and tissues, in many instances, have a pronounced affinity for the corresponding organs and tissues of experimental animals. Furthermore, the streptococci isolated from the tonsils and pyorrheal pockets in persons with active streptococcal infection in the interior of the body may have the same sort of affinities as the bacteria from the internal lesion. Obviously, the supply of such streptococci fit for invasion of any part of the body should be reduced, whatever their temporary location in the body may be.

Rosenow[1] has recently furnished further evidence of the elective affinity of streptococci found associated with the gallbladder and neighboring parts in cholecystitis. Having noted earlier that, after intravenous injection of laboratory strains of streptococci, lesion of the gallbladder occurred only when the virulence of the strains had reached a certain point, Rosenow now establishes an elective affinity for the gallbladder of strains from the walls of the gallbladder, the centers of gallstones and even from adjacent lymph glands. The number of experiments and the variety of conditions and the different localities in which the demonstration has been afforded seem to establish still further the general principle of elective properties of bacteria for which Rosenow and others have contended.

Streptococci and colon bacilli from acute cholecystitis gave rise to more marked lesions in the gallbladders of experimental animals than did those from chronic cholecystitis. The power to infect the gallbladder electively may be lost by prolonged artificial cultivation or by passages through animals. A single strain of the micro-organism may have affinity for more than one structure. This is indicated, for example, by the simultaneous occurrence of lesions in the gallbladder and in the cystic and common ducts following intravenous injection of streptococci from a human gallbladder. The occurrence at the same time of cholecystitis and pancreatitis is taken to suggest that the simultaneous presence of the diseases in the same patient is commonly due in the beginning to hematogenous infections, and not so often to lymphogenous or local invasion, as the findings at operation often appear to indicate.

The nature of the primary bacterial invasion of the biliary tract in cholecystitis has often been debated. The discovery of the typhoid organism or the colon bacillus in the affected part does not necessarily imply that either is the essential factor in the etiology of the localized lesions of the gallbladder. Undue attention has doubtless been centered in the past on the portals of entry for bacteria from the alimentary tract, and hence the prominence given to the species of micro-organisms just referred to. There can no longer be doubt as to the possibilities of systemic infection as the result of a general bacteremia. The demonstration, Rosenow[1] writes, of streptococci in the involved tissues in a high percentage of cases of chronic cholecystitis, the elective affinity of these organisms for the gallbladder in animals, and the production of the disease with strains isolated from experimental lesions indicate that streptococci are a cause of cholecystitis. The results of differential cultures in both spontaneous and experimental forms of this disease show that the colon bacillus is commonly a secondary invader in an infection with streptococci or in a mechanical injury produced by previously formed gallstones. In some instances, however, the colon bacillus is undoubtedly the primary cause of cholecystitis.

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[1] Rosenow, E. C.: The Etiology of Cholecystitis and Gall Stones and Their Production by the Intravenous Injection of Bacteria, Jour. Infect. Dis., 1916, xix, 527.

If, as there is now reason to believe, the gallbladder may be the host of living streptococci during quiescent intervals between attacks of cholecystitis, the newly acquired knowledge has a prominent bearing on the treatment of disease of the gallbladder. The replies to a questionnaire recently addressed to prominent surgeons by Donald Guthrie[2] indicate that cholecystectomy is employed much more frequently than in the past and is a better operation, though it is attended by many more operative difficulties and dangers than simple drainage. The gallbladder should unquestionably be removed, if possible, when its wall is diseased. Rosenow's studies are believed to emphasize still further the importance not only of draining but also of removing gallbladders, especially in the absence of stones in chronic cholecystitis, so that a latent infection cannot flare into activity when the defensive mechanism of the individual is low. Cholecystitis in the absence of gallstones must frequently be the result of hematogenous infection rather than the result of invasion from the bile; for streptococci which produced marked cholecystitis by systemic intravenous injection failed to do this when injected into the radicles of the portal vein or introduced directly into the gallbladder.

With respect to the formation of gallstones, the results of injections of streptococci are also significant. The rôle which infection plays is indicated by the common presence of bacteria in the centers of gallstones, the formation of gallstones in association with the cholecystitis following injections of streptococci, and the presence of the latter in newly formed stones. But the micro-organisms alone are not the sole causative factor. In addition to the nucleus which they must furnish for the formation of a concrement, a concentrated bile of high cholesterol content likewise seems usually to have a facilitating influence.

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[2] Guthrie, Donald: Indications for Cholecystectomy, THE JOURNAL A. M. A., Aug. 26, 1915, p. 653.

Quinin in Madras Presidency.—According to U. S. Consul Lucien Memminger, Madras, India, the Indian government report shows that during the year 1915-1916 the output of quinin was 32,688 pounds in Madras Presidency, as against 29,422 pounds for the year 1914-1915. This quinin is manufactured in government factories, which maintain a monopoly of the drug. The advance in the cost of bark raised the price of manufactured quinin from $2.60 to $3 per pound. Medical depots pay $5.50 a pound, but government institutions, native states, local fund hospitals and municipal dispensaries pay from $4.25 to $5 a pound according to the quantity. Formerly much of the drug was imported, chiefly from Java, but as a result of the acclimatization of the cinchona plant in India imports on behalf of the government have been discontinued. On the three government cinchona plantations in southern India 1,149 acres are under cultivation, and in the year named supplied 352,165 pounds of bark, while 318,958 pounds were purchased from private growers.

Current Comment

THE COMPLETION OF THE INDEX CATALOGUE OF THE SURGEON GENERAL'S LIBRARY

With Volume XXI, just published, the second series of the "Index Catalogue of the Library of the Surgeon General's Office" ends. This volume contains a valuable list of all the abbreviations of titles of medical periodicals employed in the second series, covering 233 pages. The most interesting single items are the subjects Work and Workmen, Wounded and Wounds, the latter covering eighty pages, being of paramount importance just now. In his letter of transmission to the surgeon general, the librarian, Col. C. C. McCulloch, Jr., gives an interesting account of the growth of the library, from a modest departmental outfit of medical books, gathered for the use of Surgeon General Lovell (1818), amounting to only 228 volumes in 1840, up to the present collection, containing 224,522 volumes, 337,120 pamphlets (in all 561,642 items), and 5,249 portraits. May 10, 1864, a tiny interleaved catalogue in duodecimo was prepared for Surgeon General Barnes, and from this modest acorn grew the idea of the present vast catalogue of all the medical literature in the world, comprising, in its first and second series, thirty-seven large quarto volumes. The splendid work of Billings and Fletcher in building up the library and in devising this monumental key to its resources is reviewed by Colonel McCulloch; and the methods employed to increase the collection by bargain purchases in open market, judicious exchange of duplicates and liberal donations from the profession are mentioned. The gifts of the principal donors, the late Thomas Windsor of Manchester, England, the late Sir Lauder Brunton, Sir William Osler and others are described in detail. The librarian also gives loyal credit and recognition to the different men on the library staff who have assisted in the achievement of the historic catalogue. The Surgeon General's Library is now second only to the great medical library of the Paris faculty in size and number of volumes, having long since outstripped the collection at Petrograd, which stood second for many years running. For practical use and accessibility to the medical public, the Surgeon General's Library probably excels them all, and is extremely liberal in the lending of books and in supplying information to the profession. Colonel McCulloch and his assistants — especially Dr. Fielding H. Garrison — are to be congratulated on the completion of this great catalogue.

THE ETHICS OF SCIENTIFIC CONTROVERSY

Some weeks ago THE JOURNAL[1] commented on the controversy between Sir Almroth Wright and Sir Watson Cheyne on the treatment of infected war wounds. One part of the literary product of this clash deserves to be rescued from its original environment and preserved as a notable contribution to the general question of the ethics of polemic controversy. This is Sir Almroth Wright's introduction to his vigorous reply to Sir Watson Cheyne.[2] Because of the general interest of the topic, and because of the masterly style with which Sir Almroth has set out his views on this question, we reproduce elsewhere the major portion of this part of the article.[3] The style of Sir Almroth's technical writings has been subjected to some criticism. It has, not unjustly, been described as too compendious. It demands a concentration of attention closer than the majority of readers are willing to give. This accusation cannot be leveled against his literary style, as shown in this example. Whether one agrees or disagrees, wholly or partially, with his views, one cannot rise from reading Sir Almroth's contribution with ambiguity in one's mind as to what those views are. From the detached point of view of the ordinary reader, there is infinitely more fun, and therefore more interest, in a controversy conducted along the lines favored by Wright than one carried on in the compromising ceremonious manner generally supposed to be the correct thing in dealing with professional subjects. The love of battle which is manifested by Sir Almroth is perhaps not wholly unconnected with his Hibernian blood, while the discretion exhibited by Sir Watson Cheyne[4] may be attributable to Caledonian canniness. It is perhaps unnecessary to state that Sir Almroth does not advocate attacks on the private life of one's adversary. His view appears to be that serious controversy is real and not sham fight, and that it should be conducted on the lines of a duel between gentlemen. Sir Almroth's opinions are not printed as those of THE JOURNAL, but we feel that our readers will be interested in his presentation of the ethics of scientific discussion.

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[1] The Treatment of War Wounds, editorial, THE JOURNAL A. M. A., Oct. 28, 1916, p. 1304.

MEDICAL SERVICES IN SOCIAL INSURANCE

One of the perplexing details in the formulation of any plans for social insurance is the problem of medical services and remuneration therefor. This question has caused much difficulty and misunderstanding in those countries in which social insurance has been adopted. The American Association for Labor Legislation, in drafting its first bill, wisely left blank the sections dealing with medical services and asked the assistance of medical men in working out a plan that would be at once practicable and acceptable to physicians. The latest revision of their model bill contains for the first time definite provisions for medical service, a summary of which appears elsewhere.[5] The medical provisions have been submitted to and approved by the Council of the Medical Society of the State of New York. They are presented for discussion and criticism. Doubtless many objections or improvements may be suggested which have not as yet been anticipated. Probably no one plan can be devised which will be applicable to every state. It is urged that every physician interested in this subject — and every intelligent physician should be interested — secure a copy of the pamphlet and give careful attention to the provisions for medical services. The time for physicians to study social insurance is now, while the question is in a formative stage.

THE OLD RELIABLE WORKS

On Thursday, December 21, the following colloquy took place in the Senate:

MENTAL HYGIENE AND RURAL SANITATION DIVISIONS

MR. UNDERWOOD:—Mr. President, I ask unanimous consent for the present consideration of the bill (S. 225) to provide divisions of mental hygiene and rural sanitation in the United States Public Health Service, which was reported by the senator from Louisiana (Mr. Ransdell) from the Committee on Public Health and National Quarantine. That senator is now detained from the Senate on account of sickness.

MR. WORKS:—Does the senator move to take up the bill?

MR. UNDERWOOD:—No; I can not move to take it up at this time.

MR. WORKS:—I object to the consideration of the bill at this time. I expect to have something to say about it when it comes up, but I am not prepared to have it taken up now.

MR. UNDERWOOD:—I understood the senator desired to make a statement in reference to the bill, but I did not understand that he desired to prevent its consideration.

MR. WORKS:—I expect to discuss the bill when it comes up, and I object to its present consideration.

Senator Works of California can always be depended on to perpetrate his usual humorous remarks against any legislation in favor of preventive medicine or public health.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Sectarian Appointments on Medical Board.—Rodney Wren, Trinidad, and D. L. Clark, Denver, osteopathic practitioners, have been appointed, by the governor, members of the state medical board, under the provisions of the bill passed by the legislature two years ago.

Personal.—Dr. Emerson E. Evans, Fort Morgan, has been elected coroner of Morgan County.——Dr. William A. Packard, Fort Morgan, has disposed of his practice and announces his retirement.——Dr. Charles H. Graves, Canon City, was thrown from his horse, December 7, sustaining painful injuries to the shoulder.——Dr. Lloyd R. Allen has been elected county physician of El Paso County.

DISTRICT OF COLUMBIA

Government Insane Hospital Becomes St. Elizabeth's Hospital.—The United States Government Hospital for the Insane, Washington, has been officially renamed by Congress, by the sundry civil appropriation act of July 1, 1916, and is now St. Elizabeth's Hospital.

Tuberculous Schoolchildren.—Discussing the regulations recently promulgated by the commissioners of the District requiring the exclusion of tuberculous children from school, Dr. William C. Woodward, health officer of the District, told the Monday Evening Club, at its meeting, December 18, that exclusion notices had been issued against seventy-four pupils. After the issue of such notices, diagnoses were changed or certificates of recovery filed by the attending physicians, in eighteen cases. The pupils excluded had in every case been registered by private physicians in the first instance as suffering from pulmonary or some other communicable form of tuberculosis, and cases of 131 other children so registered are still under investigation. Commenting on the tardiness with which tuberculosis is reported, Dr. Woodward pointed out that out of 682 cases registered in 1915, seventy-one were not registered until after death, and of those registered antemortem, ninety-six were registered within one week of the fatal termination, and ninety-eight prior to one week but less than one month before death.

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[2] Wright, A. E.: As To How Septic War Wounds Should Be Treated, Lancet, London, Sept. 16, 1916, p. 503.

[3] The Ethics of Scientific Controversy, this issue, p. 2043.

[4] "You will hardly expect me to reply to Sir Almroth Wright's attack on me either by defending my own or dissecting his mentality. It is a great pity that he has made this such a personal matter; so long as it remained impersonal any criticisms of methods or views, however trenchant, could have been answered, and possibly in course of time the two lines of thought would have more nearly approximated one another."—Lancet, London, Sept. 23, 1916.

[5] Medical Service in Health Insurance, this issue, p. 2032.

ILLINOIS

Personal.—At the annual meeting of the Hinsdale Sanatorium Association, December 9, Dr. Mary W. Paulson was elected superintendent of the institution.——Dr. Robert J. Christie, Quincy, has been appointed a member of the board of directors of the Adams County Antituberculosis Hospital.

Indictments in Medical Fraud.—Ten indictments were returned by the Cook County, Illinois, grand jury, December 22, following an investigation of a syndicate of supposed swindlers who, last July, it is stated, attempted to obtain for students "other practitioners'" licenses from the Illinois State Board of Health. Fred D. Farr, a medical student and an alleged go-between, turned state's evidence, and the results of an investigation of the license mill were given by Dr. C. St. Clair Drake, secretary of the state board of health. The indictments returned as reported were against two physicians, Dr. Fred B. Fellows and Dr. Frank C. Achatz; against John Sharp, the Rev. I. O. Bennett, J. B. White, and Mrs. Artilla Judd, respectively, president, principal, instructor and student of the Davenport College of Chiropractice; against Philip Gregg and Silas Wesley, medical students, and against Charles Williams, a salesman of chiropractic supplies, and R. D. Moore, who posed as the "man higher up." Dr. Fellows is said to have been the "brains" of the gang.

Chicago

Lying-In Hospital Report.—At the annual meeting of the Staff of the Chicago Lying-In Hospital, December 13, it was reported that 29,980 patients had been treated at the hospital, and that the receipts for the fiscal year were $67,101.82, and the disbursements $65,910.90.

Honor President Judson.—Three hundred members of the faculty of the University of Chicago gave a dinner, December 20, in honor of President Harry Pratt Judson, in celebration of his achievements in formulating plans for the new medical school. On behalf of the faculty, Prof. Robert R. Bensley presented Dr. Judson with an illuminated memorial address.

Personal.—Major Fred H. Blayney, chief surgeon of the Second Infantry, Illinois National Guard, has been appointed, by President Loeb of the board of education, a member of the committee to work with members of the board on the question of military training in the public schools of the city.——Dr. Arnold C. Klebs is spending the Christmas holidays in Chicago.

INDIANA

Personal.—Dr. James W. McKinney, Bluffton, who was operated on for the removal of gallstones at Augustana Hospital, Chicago, December 11, is making good progress toward recovery.

Executive Secretary Appointed.—The Indiana State Medical Association has employed Mr. Frederick E. Schortemeier as executive secretary. Mr. Schortemeier is an attorney, a graduate of Butler College and of Harvard Law School. An office has been opened in the Hume-Mansur Building, Indianapolis. It is planned to develop the office to be of service to the members of the state association individually as well as to the organization. A reading room is to be opened and members are invited to avail themselves of the advantages this office affords.

IOWA

Psychopathic Hospital Needed.—At a conference of the chief executives of the Iowa institutions under the board of control, at Des Moines, December 5, Dr. Albert M. Barrett, director of the State Psychopathic Hospital of the University of Michigan, Ann Arbor, read a paper in which he urged the establishment of a psychopathic hospital at the state university, Iowa City. A movement to ask the legislature to make appropriations for a hospital to treat mental diseases is well under way.

Typhus.—On account of the persistence of typhus fever brought into the state by Mexican railroad laborers, the state health authorities have ordered railroads to destroy all vermin in construction camps and bunk cars, and to isolate all Mexicans for a period of three weeks before bringing them into the state for employment on construction work. In a long circular of instructions to the railroads, the state health department calls attention to the fact that lice transmit typhus fever, and emphasizes the importance of examining all cars, houses or camps used by railroad employees and owned by the railroad company or others, the examination of employees, particularly Mexicans, and the disinfection of their bodies and clothing. Railroads are required to provide cars equipped with apparatus for sterilizing by heat all mattresses, bedding and clothing, and in which antiseptic baths may be given for the killing of lice on persons found after careful examination to be infested. All houses and cars used as dwellings for employees must be thoroughly fumigated with sulphur. The roads are requested to look after these matters in other states as well as in Iowa.

KANSAS

Typhus in Topeka.—A case of typhus fever has appeared in Topeka. The patient is a Mexican, employed by the Santa Fé system as a laborer. The diagnosis was made by Dr. John P. Kaster of the Santa Fé Hospital service, and proper measures against infection were taken immediately by the railroad officials.

Sanatorium Needs.—An appropriation of $300,000 for the State Tuberculosis Sanatorium, Norton, will be asked from the legislature, by the superintendent, Dr. Chauncey S. Kenney. With this appropriation it is proposed to build, equip and operate for two years a sanatorium of six buildings with accommodation for about 160 patients. At present the only state sanatorium in Kansas has a capacity of thirty-five patients, or two fifths of 1 per cent. of the individuals afflicted with tuberculosis.——The preliminary opening exercises of the Sedgwick County Tuberculosis Sanatorium, located south of Wichita, were held, December 6, when Dr. Chauncey S. Kinney, superintendent of the state sanatorium, made a talk on the subject of "Tuberculosis" before the Wichita Charities and Correction Association. The date of formal opening of the sanatorium has not yet been decided.

MARYLAND

Symposium on Labrador.—A symposium on Labrador and Newfoundland was given, December 21, at the Medical and Chirurgical Faculty building by Dr. John Grieve, chief of staff of Battle Harbor Hospital, one of the Grenfell mission institutions of Labrador, and by John M. T. Finney, Jr., Baltimore; Charles Parsons, Colorado Springs; John R. Paul, Philadelphia, and E. M. Hanrahan, Binghamton, N. Y., four second-year Johns Hopkins Medical School students who spent last summer at the hospital. The meeting was held under the auspices of the local Grenfell association in an effort to inspire Baltimore to give more freely to the medical missionary work of Dr. Wilfred Grenfell.

Hospital Exchange to Be Established.—Dr. Arthur P. Herring, secretary of the State Lunacy Commission, has called together a committee which will organize a permanent hospital exchange where the work of mentally and physically handicapped persons in Maryland will be placed on exhibit and sale. This exchange is especially to relieve the hospitals for the insane of the accumulated material, and will also enable the hospitals for crippled children and the institutions for the blind to dispose of the handiwork of the patients. This exchange is believed to be the first of its kind to be established in this country and will have quarters in Levering Hall, as a part of the Charity Alliance's plan to centralize all charity organizations in the city.

Personal.—Dr. Karl H. Van Norman, formerly first assistant superintendent at the Johns Hopkins Hospital, has been promoted in the British Hospital Corps and is now assistant to the chief of the Canadian hospitals in England. The unit embraces nearly a score of hospitals caring for wounded Canadians, with headquarters in London.——Dr. G. Milton Linthicum has returned from Eagle Pass, Texas, where he served as surgeon with the Fourth Maryland Regiment, and has resumed practice in Baltimore.——Dr. Stacy T. Noland has resigned as assistant physician at the Eastern Shore State Hospital, at Cambridge, to accept an appointment at the Montana State Hospital, Dr. John M. Scanland, superintendent.——Dr. John D. Blake, health commissioner, is recovering from his recent illness and will leave shortly for his farm in Virginia for a long rest.——Dr. James H. Jarrett is ill with heart disease at his home at Towson.

MASSACHUSETTS

Lectures at Forsythe Dispensary.—A free course of Sunday afternoon lectures at the Forsythe Dental Infirmary, in Fenway, Boston, was opened, December 10, by Dr. Richard Grady, chief dental surgeon at the United States Naval Academy, Annapolis, Md., who traced in his address the origin and progress of dental hygiene.

The Framingham Experiment.—The methods by which an effort will be made during the next three years to control tuberculosis in the town of Framingham have been outlined by those who will have charge of the work. Framingham was selected for this experiment by the Metropolitan Life Insurance Company, which contributed $100,000, and the health and disease control committees of the National Tuberculosis Association. The plan of campaign is to locate all cases of tuberculosis at the earliest possible date; to have regular examinations of all people of the town; to prevent new infection, especially among babies and schoolchildren, and to conduct an educational campaign in schools, factories and homes. The experiment is in charge of Dr. Donald B. Armstrong.

MICHIGAN

Follow-Up Work in Tuberculosis.—The state board of health has arranged to send to counties where tuberculosis surveys were conducted at the outset of its campaign for the control of tuberculosis, representatives to check up the results of the survey and the measures of prevention and treatment following. It is the object to acquire definite figures as to the progress of the campaign and further to emphasize preventive measures.

Sanatoriums for Nineteen Counties.—A little more than a year ago the state board of health began its tuberculosis survey field work, and as a result, St. Clair County has recently voted to spend $15,000 on a sanatorium; Alpena County has decided to build a sanatorium in the spring; Menominee County has decided to convert the county poor farm into a county sanatorium, and plans for county sanatoriums have been started in Chippewa, Delta, Dickinson, Gogebic, Huron, Iron, Kalkaska, Missaukee, Osceola, Sanilac, Tuscola, Wexford, Luce, Mackinac, Clinton, Ionia, Gratiot, Mountcalm and Grand Traverse counties. A number of these counties will unite in the establishment of joint sanatoriums.

Personal.—Dr. John Vork, Grand Rapids, was found injured and partially unconscious in his automobile, December 9.——Dr. John D. McEachran, Vermontville, fractured his wrist, December 9, while cranking his automobile.——Dr. William N. Braley, Highland Park, is said to be seriously ill with diphtheria.——Dr. John L. Porter, Chicago, conducted an orthopedic clinic at the Blodget Memorial Hospital, Grand Rapids, December 6.——Dr. Rufus J. Hyde, Eaton Rapids, who has been under treatment at the University Hospital, Ann Arbor, is reported to be convalescent.——Dr. Paul Poisson, Tecumseh, who had been serving with the Canadian Army Medical Corps in France for two years, has returned home on leave of absence.——Dr. George L. LeFevre, Muskegon, suffered a fracture of several ribs when his automobile skidded into a ditch recently.

NEW YORK

Examination Rooms in Schoolbuildings.—Following the recommendation of the health commissioner, Buffalo is to have a new schoolbuilding which will contain a room for the examination of children, a dental dispensary and at least one open air classroom. Provision for such rooms in all new schoolbuildings in the city has been sanctioned by resolution of the city council.

Hospital Saving.—Since the adoption of the ordinance in March, 1916, replacing the ten city physicians who worked part time by four who devote full time to the work, $10,366 has been saved in six months by the city of Buffalo in hospital expenditures for indigent patients, as compared with the same period of 1915. It is said the decreased expense is due not so much to the fewer number of patients handled, but rather to their shorter stay in the hospital under the newer and more efficient system. It is believed that the expenditure for the year 1916 will be $20,000 less.

New York City

Personal.—Dr. Henry A. Bernstein has been appointed obstetrician and associate gynecologist to Beth David Hospital.——Dr. John D. Richards, Manhattan, fractured his leg while practicing polo in Van Cortland Park, December 10. He is under treatment at St. Vincent's Hospital.

The McCorkle Fund.—The late Dr. John A. McCorkle, Brooklyn, has set aside in trust bonds of the market value of $50,000 to become payable to the Long Island College Hospital on his death.——A committee of citizens is endeavoring to raise a like amount as a memorial fund to Dr. McCorkle. These funds are to be used as an endowment for the institution.

Herter Foundation Lectures.—Under the Herter Foundation the faculty of the University and Bellevue Hospital Medical College announces five lectures by Prof. Archibald B. Macallum of the University of Toronto on "The Distribution of Inorganic Compounds in Animal and Vegetable Tissues and the Forces that Determine it." These lectures will begin January 8, at 4 o'clock, at the Carnegie Laboratory, 328 E. Twenty-Sixth Street, and will be continued daily at the same hour.

New Tuberculosis Hospital.—Miss Martha Hentschel, herself a sufferer from tuberculosis, has deeded her estate at Kingston, N. Y., of 3½ arces, with large buildings, valued at $30,000, to Miss Lillian D. Wald of the Henry Street Settlement, Morris Hillquit and Dr. George Price of the Board of Sanitary Control of the garment workers as trustees, to be used as a sanatorium for garment workers suffering from tuberculosis. The International Ladies' Garment Workers' Union will appropriate money for remodeling and equipping the buildings. This work will be begun early in the coming year.

Steps to Curb Drug Evil.—At a meeting of the subcommittee of the General Committee on the Drug Evil, composed of national, state and city officials, which met recently in the Criminal Courts Building the amendments drawn up by the general committee were discussed. Two objects which the committee is desirous of accomplishing are to get control over the shipments of drugs, so that they cannot be shipped to Canada and Mexico and then smuggled back, and to insist on the triplicate copies of prescriptions issued by physicians. At present one copy is kept by the physician, the other by the druggist; the third copy would be sent to the local health board which would thus be better able to watch all sales.

Amend Sanitary Code to Prevent Overcrowding in Cars.—According to press reports the department of health at its meeting, on December 16, passed seven amendments to the Sanitary Code with a view to enabling the health commissioner to prosecute criminally the traction companies for failure to relieve the overcrowded conditions on the various lines of transportation in this city. They will also give the commissioner power to commence criminal proceedings for the infraction of laws requiring cars to be properly heated, ventilated and lighted. These amendments were laid before Mayor Mitchell for his approval before being acted on. There is a qualifying phrase to this amendment which provides that it shall be effective only when the transit company is not running the maximum number of cars possible on the line or part of the line where the overcrowding is prevailing. The health department will endeavor to put the amendment into effect by trying to prevent, after the car has received one and one half its seating capacity, any more persons from entering it.

After-Care of Infantile Paralysis.—The New York Committee on the After-Care of Infantile Paralysis Cases includes on its subcommittees about 350 persons. The first of the three great works undertaken by the commission in coordination of the efforts made for the treatment, home care and training of children left paralyzed after poliomyelitis was to distribute the children among the various agencies and to keep track of them. Up to December 12, 51,773 children had been referred to the committee, 5,504 of whom are under treatment or satisfactorily accounted for; 51 have died since discharge from quarantine; 30 have left the state; 152 have not been located and 269 are not yet under treatment. The second measure undertaken by the committee was so to unite and augment the special transportation funds that, if possible, all children needing special transportation to and from the dispensaries might have it. For this purpose $12,000 was secured, and twelve motor busses and fourteen motor cars were provided for the transportation of 1,247 children a week to the dispensaries. The third great undertaking of the committee is an attempt to raise $250,000 to assist in providing treatment, home care and training for these children. About one half of the sum desired has already been secured. The commission has in its membership orthopedists, neurologists and pediatrists, representatives of hospitals and dispensaries which give after-care, and of the Visiting Nurses' Association and crippled children committees. It is not attempting to pass judgment as to the details of treatment to be given at the dispansaries or in the homes of the patients, but has left this to be decided by the medical authorities.

OHIO

New Buildings for State Hospital Needed.—In the budget for 1917, the State Board of Administration asks $25,000 for a new building for the state hospital. The buildings at present are overcrowded, as the hospital is caring for 500 more patients than its capacity.

Memorial Tablet to Physician.—At the December meeting of the Montgomery County Medical Society it was decided to erect a bronze tablet in the public library, Dayton, in honor of the faithful services rendered to the society by the late Dr. William J. Conklin.

Personal.—Dr. Henry C. Lindersmith has resigned after several years' service as health officer of the village of Sherwood.——Dr. Joshua E. Cooper, Springfield, who has been ill for four weeks, has recovered and resumed practice.——Dr. Clyde B. Terwillegar, Milford, who is now on duty at King Edward's Hospital, London, has been transferred to the Russian war front.——Dr. George D. Lummis, Middletown, has been elected president and Dr. Leo Schram, Dayton, secretary of the Miami Health Officer's Association.——Dr. W. Kelley Hale, Wilmington, has been elected president of the First Councilor District Medical Society.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Samuel G. Dixon, Commissioner of Health of Pennsylvania, was again elected President of the Academy of Natural Sciences at the 104th annual meeting held December 19.——Dr. Charles A. Stout, Cheltenham, has been elected president of the Cheltenham Township Board of Health, and Drs. James A. Brookes, Glenside, and J. Frederick Herbert, Ogontz, have been elected members of the same board.

Jefferson Chair Endowed.—Announcement was made, December 21, at the meeting of the trustees of the Jefferson Medical College that Miss Anna J. Magee had endowed a professorship to be known as the Magee Professorship of the Practice of Medicine and Clinical Medicine. The chair is held by Professor Thomas McCrae. One hundred and fifty thousand dollars was given, it is said, by Miss Magee to perpetuate the chair.

UTAH

Liquor and Drug Addicts.—Dr. Theodore B. Beatty, secretary of the state board of health, in his biennial report to the governor, recommends that the state make provision for treating liquor and drug addicts at its State Mental Hospital.

New Isolation Hospital.—The new Isolation Hospital, in Ogden, recently completed by Weber County at a cost of $7,000, has been formally accepted. The building is located about one mile north of the city limits, has six rooms, including two wards, and will accommodate fourteen patients.

CANADA

Course in Public Hygiene.—The *Bulletin Médical* of Quebec states that the course of instruction in public hygiene for the diploma of expert hygienist opens in January at the Laval University, Quebec. Physicians are eligible to the course, the fee for which is $100. Further details will be supplied by the secretary of the medical department of the university.

Hospital News.—Mr. C. C. Blackader, proprietor of the *Acadian Recorder* has offered to contribute $5,000 for a hospital in Halifax for advanced cases of tuberculosis.——Two more hospitals for returned or sick soldiers are to be opened in Toronto Military District. These will be located in the new Salvation Army Booth Memorial Training School in North Toronto, and the Ontario Hospital for the Insane, Whitby, Ontario, twenty miles from Toronto. Several wards have been retained for returned soldiers in the old Toronto General Hospital building, which is now a Base Military Hospital. Toronto Military District has the best hospital accommodation of any military district in Canada. ——In the province of Quebec there are five hospitals for the insane. In the year 1915 the admissions numbered 1,236 as against 1,325 for the previous year. On Dec. 31, 1915, there were, all told, 5,074 patients in those institutions of Quebec.

Army Medical News.—Lieut.-Col. F. G. Finley, Montreal, has been appointed consulting physician to the Canadian hospitals in England. Colonel Finley was chief medical officer of No. 1 Canadian General Hospital, First Canadian Division.——Dr. Charles Valery, Edmonton, Alberta, now in charge of a military hospital in Paris, France, has been awarded a silver medal by the French Red Cross Society. Just a short time ago he was awarded the French War Cross for conspicuous bravery under enemy fire.——Capt. George Miles, Toronto, who has been on active service since the commencement of the war, has been awarded the Military Medal. ——Dr. Gordon C. Malcolm, Lac de Bonnet, Manitoba, has joined the staff of a field ambulance for overseas service. He is a graduate of the University of Toronto.——Capt. Austin D. Irvine, Montreal, has been appointed Medical Officer of the 245th Overseas Battalion, Canadian Grenadier Guards.——Two recent additions to the Canadian Army Medical Corps are Drs. McCue, Walkerton, Ontario; Dr. L. V. Turrill, Outlook, Saskatchewan.——Dr. J. S. Mathesion, Brandon, Manitoba, has left for overseas service.——Lieut.-Col. C. W. Rowley, Military Hospital Commission, has been made an Esquire of the Order of St. John of Jerusalem.——Capt. Gordon Gunn, Edmonton. Alberta, has been recommended for distinction for conspicuous bravery on the field of action.——Dr. R. W. Clarke, Bowmanville, Ontario, has resigned his command of the medical section of the 235th Battalion on account of ill health.——Lieut. G. A. Lyons, R. A. M. C., is medical officer of the 25th Middlesex (England) Regiment. ——Dr. L. H. Roberts, Freligsburg, Quebec, has received a commission in the Canadian Army Medical Corps.

GENERAL

Prohibition on Cocain and Opium.—Prohibition of import, except under license, of cocain and opium, has been declared by the British government, according to a report from the U. S. Consul General at London in *Commerce Reports,* Dec. 14, 1916. Cocain includes all preparations, salts, derivatives or admixtures containing one tenth of 1 per cent. or more of cocain, or liquid extract of coca containing a like amount of the drug. Opium includes any solid or semisolid mixture containing opium.

Eye, Ear and Throat Specialists Hold Meeting.—At the annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held in Memphis, Tenn., December 11 to 13, under the presidency of Dr. John E. Brown, Columbus, Ohio, the following officers were elected: president, Dr. William L. Dayton, Lincoln, Neb.; vice presidents, Drs. Edward Stieren, Pittsburgh, Alexander C. Magruder, Colorado Springs, and John Green, Jr., St. Louis; secretary, Dr. Lee M. Francis, Buffalo (reelected), and treasurer, Dr. Secord H. Large, Cleveland (reelected). The next annual meeting will be held in Pittsburgh.

Southwestern Physicians and Surgeons Hold Meeting.—At the annual meeting of the Southwestern Medical and Surgical Association the following officers were elected: Dr. Joel J. Butler, Tucson, Ariz., president; Dr. Robert E. McBride, Las Cruces, N. M., vice president, and editor of the *Southwestern Medical Journal;* Dr. James W. Laws, Lincoln, N. M., second vice president; Dr. Douglas W. Detwiler, El Paso, Texas, secretary-treasurer, and Dr. Abraham G. Shortle, Albuquerque, N. M., trustee for three years. Col. George E. Bushnell, M. C., U. S. Army, Fort Bayard, N. M., was elected president emeritus.

Congress on Medical Education, Public Health and Medical Licensure.—The next Congress on Medical Education, Public Health and Medical Licensure, participated in by the Councils on Medical Education and on Health and Public Instruction of the American Medical Association, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, will be held at the Congress Hotel, Chicago, Feb. 5 and 6, 1917. The program of Monday morning, February 5, will be on medical education. The program follows:

Opening of the Conference, Dr. Arthur Dean Bevan, Chairman of the Council on Medical Education, Chicago.

"Progress of the Year in Medical Education," Dr. N. P. Colwell, Secretary of the Council on Medical Education, Chicago.

"The Problem of Higher Degrees in Medicine," Dr. Horace D. Arnold, Dean, Harvard Graduate School of Medicine, Boston.

Symposium: "Economy of Time in Preliminary and Medical Education." Dr. John L. Heffron, President of the Association of American Medical Colleges, Syracuse, N. Y. Hon. P. P. Claxton, United States Commissioner of Education, Washington, D. C. President Harry Pratt Judson, University of Chicago.

Discussion: President George E. Vincent of the University of Minnesota, Minneapolis. Professor C. H. Judd, University of Chicago.

On Monday afternoon the general topic will be medical licensure. The program follows:

"Practical Examinations by State Licensing Boards," by Dr. Walter P. Bowers, Secretary of the Massachusetts Board of Registration in Medicine, Boston.

"Minnesota Practical Examinations—As They Are and As We Should Like to Have Them," Dr. Annah Hurd, Member of the Minnesota State Board of Medical Examiners, Minneapolis.

Discussion opened by Dr. W. J. Means, Chairman, Executive Council, Association of American Medical Colleges, Columbus, Ohio.

Report of Examination Held by the National Board of Medical Examiners, Dr. Isadore Dyer, a Member of the National Board and Dean of the Tulane University of Louisiana School of Medicine, New Orleans.

Discussion opened by Dr. John M. Baldy, President, Pennsylvania Bureau of Medical Education and Licensure, Philadelphia.

"The Problem of the Medical Cults," Dr. David A. Strickler, President of the Federation of State Medical Boards and Secretary of the Colorado State Board of Medical Examiners, Denver.

Discussion opened by Mr. Harry E. Kelly, formerly attorney for the Colorado State Board of Medical Examiners, Chicago.

On Tuesday morning public health topics will be discussed. The program follows:

Opening of the Conference, Dr. Frank Billings, Chairman of the Council on Health and Public Instruction, Chicago.

"Public Health Training in Medical Colleges," Dr. George E. Vincent, President, University of Minnesota, and President Elect, Rockefeller Foundation, Minneapolis.

"What Training Should the Public Health Officer Receive in Medical Colleges," Dr. Hermann E. Biggs, State Commissioner of Health, New York.

Discussion opened by Dr. Victor C. Vaughan and Dr. S. J. Crumbine.

On Tuesday afternoon there will be a popular discussion of topics relating to medical licensure. The program follows:

"State Regulation of the Practice of Medicine an Educational Problem," Prof. Edmund J. James, President, Illinois State University.

"The State Regulation of the Practice of Medicine as an Executive Problem," Honorable James M. Cox, Governor of Ohio.

Discussion opened by Dr. C. St. Clair Drake, Dr. W. B. Hinsdale, and Dr. William P. Best.

FOREIGN

Experimental Research on Leprosy.—The *Dermatologische Wochenschrift* states that Privat-Dozent J. Kyrle of the University of Vienna has been awarded 1,000 kronen ($200) by the Austrian Academy of Sciences to continue his experimental researches on leprosy.

Prize Offered for Best Artificial Limb.—The Istituto Ortopedico Rizzoli of Bologna has inaugurated a nation-wide exposition of orthopedic appliances, to be held at Bologna in February under the auspices of the national federation of committees engaged in welfare work for blinded, mutilated and crippled soldiers. The institute has announced a prize of 5,000 lire for the best appliance, and is urging others to collect funds for additional prizes.

Monument to Llobet at Buenos Aires.—The unveiling of the monument to this leading Argentine surgeon occurred September 24, on the grounds of the Hospital Rawson while the first national medical congress was in session. For twenty years A. F. Llobet was surgeon-in-chief of this large hospital, founded through his efforts. This is the third memorial to pioneer surgeons in Buenos Aires, the monuments to Pirovano and to Aguilar being on the grounds of two other hospitals.

Retirement of Murri.—The professor of clinical medicine at the University of Bologna, Italy, Augusto Murri, has retired from his post, having reached the age limit of 75, and will henceforth be professor emeritus. He has been connected with this university since 1876, and has published numerous works on hemoglobinuria, the cardiovascular system, regulation of the temperature, etc. The fiftieth anniversary of his entering on his profession was celebrated in 1914 with much ceremony throughout scientific circles in Italy and by his friends elsewhere.

Women Physicians in Italy for Medical Service with the Troops.—The *Revista critica di Clinica Medica* states that the Italian minister of war has done away with all measures discriminating between civilian men and women physicians in the active military service. Women physicians are urged to accept positions in the advanced lines, stating their qualifications and specialties in applying for positions. Those with less than five years of medical practice will be appointed "medical sublieutenant"; those with more than five years of practice will be medical lieutenants, and those with fifteen years' practice will rank as captains.

PARIS LETTER

Paris, Nov. 30, 1916.

The War

A NEW DISEASE IN THE ARMY: RELAPSING FEBRILE HEMORRHAGIC JAUNDICE

Recently there has prevailed among the troops, at different points of the front, a disease resembling in its clinical manifestations, febrile hemorrhagic jaundice (Weil's disease). There is present in the blood in these cases a special spirillum which can be inoculated in the guinea-pig. This disease, which has also been called icterohemorrhagic spirochetosis, has been observed in Japan by Itana and Ito. In France it has been studied by Drs. Louis Martin and Auguste Pettit. It has recently formed the subject of an interesting communication made by Professor Chauffard of the Académie de médecine. Although the symptoms of icteric spirochetosis resemble quite closely those of the other serious jaundices, there are some among them which are peculiar, notably the injection of the conjunctiva. The course of the disease is that of an acute hepatonephritis with frequent relapses. Cases have, however, been observed which have followed the course of simple febrile septicemia with various complications, such as bronchopneumonia and iritis, but without jaundice. This disease seems to develop preferably in muddy surroundings, in the neighborhood of stagnant or contaminated water or of drains, and in the trenches. It is contagious, and the urine seems to be the best recognized vehicle by which it may be conveyed. For this reason, M. Justin Godart, undersecretary of state for the army medical service, has given instructions to the effect that all cases of febrile relapsing jaundice shall be sought out with the greatest care, in order to insure their rapid isolation in a quarantine service, where the necessary measures are taken to disinfect the urine.

AMERICAN RELIEF WORK

M. Millerand, formerly minister of war, recently gave an address at the Sorbonne on the relief work of the United States. He chose for special mention the service rendered by the American Relief Clearing House (The Journal, Oct. 30, 1915, p. 1567), by means of which the charitable effort of Americans is centralized at Paris.

THE MOBILIZED CHEMISTS

The army commission of the Chamber of Deputies has adopted the resolution proposed by MM. Henri Paté and Jean-Louis Breton, granting to military chemists, for the duration of the war, military rank equivalent to that of holders of university degrees and diplomas of chemists. This measure, which is applicable to the mobilized chemists employed in their specialty (divisional toxicologic laboratories at the front, and laboratories of the artillery, of the health service, of the commissariat, of the aviation service, of the engineering service, of the chemical supplies for the army, and of the service for the chemical control of war industries), will recompense according to their merits the scientists and technicians who have done so considerable a work. At present, military chemists cannot qualify for the ranks of commissioned officers. The measure thus demanded could be carried out without confusion in the services; a ministerial decree, which classed in one body, with commissioned rank, the chemists at present employed, would be sufficient.

Death of Dr. Doyen

Dr. Eugène-Louis Doyen has just died at the age of 57 years. He was the son of Dr. O. Doyen, professor of anatomy at the school of medicine at Rheims, in which town he was born, Dec. 16, 1859. He commenced his medical studies at Rheims, but soon removed to Paris where he completed them. In 1881 he was appointed intern for the hospitals, and in 1885 presented his thesis for the doctorate. He then returned to Rheims, where he acted successfully as demonstrator of anatomy, lecturer on surgical pathology, and finally as extra professor of surgery and midwifery. In 1896 he gave up this post and established himself at Paris. His personality was the subject of much discussion, and the methods of publicity which he adopted were severely criticized, not always unjustly; but it must be admitted that as an operator he was possessed of great skill and might be termed a virtuoso of the scalpel.

Death of Professor Tripier

Dr. Raymond Tripier, former professor of pathologic anatomy at the Faculté de médecine at Lyons, has died at the age of 78. He published a work on general pathologic anatomy in 1904, and another on anatomico-clinic studies of the heart, blood vessels and lungs in 1909.

LONDON LETTER

London, Dec. 4, 1916.

The War

EFFECT OF THE WAR ON THE MEDICAL PROFESSION

At the General Medical Council, Sir Donald Macalister in his presidential address, referring to the war's influence on the supply of physicians, said that he had submitted to the Army Council an analysis of the medical students of the United Kingdom. It showed:

	Men	Women	Total
First year students	1,422	636	2,058
Second year students	783	295	1,078
Third year students	519	163	682
Fourth year students	1,078	145	1,223
Final year students	922	140	1,062

Of the first and second years, about 500 are males under 18 years of age in May, 1916. In the other years all are over 18. Fourth and final year students have already been directed by the Army Council to pursue their studies; the others, at the schools of Great Britain, are or will soon become subject to recruitment under the military service act. He called the attention of the military authorities to the shortage of students in the second and third years, and suggested that, in the interest of the state, certain steps should be taken to diminish the apprehended danger from further depletion.[*] The Army Council, having considered these suggestions, recently issued orders to the effect that medical students whose physical condition does not allow them to be classed as "fit for general service" are to be relegated to the reserve on condition that, while left to pursue their professional studies, they enroll themselves in the Officers' Training Corps. The call for qualified physicians for our ever growing forces is more insistent now than ever. The War Office would gladly engage 400 more physicians if they were forthcoming. The Central Committee established for the purpose of assisting the profession and the government in securing a proper allocation of the available medical men, having regard to the requirements of the military and of the civilian services, have to decide what men can be spared from civil practice for military service. It has also to protect the interests of those absent on duty with the forces. With the aid of local committees in every district, schemes have been devised under which the remaining physicians cooperate for these purposes, and in many areas every member of the profession has joined to further them. If the voluntary organization of the profession fails to meet all the requirements of the medical services, we may have to face some form of legislative compulsion for districts that are backward in their response to the calls of patriotism.

THE PRACTICES OF PHYSICIANS WHO HAVE JOINED THE ARMY

The means adopted to conserve the practices of the large number of physicians who have joined the army have been described in previous letters to The Journal, but, as might have been expected with the prolonged absence, have not proved altogether satisfactory. Complaints have reached the Central Medical War Committee that some physicians are not recognizing as fully as they should their moral obligations to professional brethren who have undertaken military service at great sacrifice. It seems that the practices of many have almost disappeared. This is said to be mainly due to the fact that physicians do not take the trouble to ascertain whether or not new patients belong to the practices of the absent men. The Central Medical War Committee has therefore made the following suggestions: 1. On a new patient presenting himself, he should be asked the name of the physician who last attended him. If his physician is absent on service and has left a locum tenens, an attempt should be made to induce the patient to go to the locum tenens. 2. If the last physician who attended is on military service, t should be explained to the patient that attendance will willingly be given on behalf of that physician and on no other terms. 3. Any attendances on behalf of such patients should be carefully and separately recorded, and a list of uch attendances sent at regular intervals to the representaive of the absentee. 4. An attempt should be made to ascerain the fees charged by the absentee, and a charge not less han this should be made on his behalf. 5. Accounts rendered on behalf of the absentee (if sent in by the deputy) should mention the absentee's name, and money received should be ivided according to the scheme adopted by the Local Medial War Committee. 6. The rule dividing the fees should apply to all kinds of work. No exception for example, should be made as regards operation, inquests, consultations and anesthetics, unless some special arrangement has been arrived at as regards particular services by the Local Medical War Committee after consulting the local profession. 7. New patients introduced by the patient of an absentee should be regarded as belonging to the absentee's practice. 8. In cases in which the patient's frequent change of physician leads to doubt as to who should be regarded as the regular attendant, the absentee should be given the benefit of the doubt. 9. No patient attended on behalf of an absentee should be attended by the deputy for at least one year after the absentee's return. 10. The greatest discretion should be used as to the introduction of a partner or assistant or in commencing a new practice in an area from which men are absent on service. 11. Great care should be taken in the buying and selling of practices. Newcomers to a district should be doubly scrupulous in regard to the practices of absentees and should at once ascertain and join in any arrangements that have been made for the protection of absent physicians. 12. The honor of the profession is especially involved when a vacancy occurs through the death of a physician on service. Definite arrangements have been made to meet such a contingency in some areas. Every assistance should be given in enabling the successor to the practice to have such a fair start as will entitle the dependents on the practice to expect a fair price for it. The local physicians should carry out the same procedure with regard to the successor as they had undertaken with regard to the man who has fallen while on service, namely, refuse to attend the patients of the practice except on behalf of the successor, for a period of at least a year after the practice has been taken over.

Another scheme to help the physicians who have joined the army has been started in the form of a loan fund for which an appeal is being made to the whole profession. The idea is that those physicians who have lost their practices by joining the army will be lent money on their return to buy new practices. At the offices of the British Medical Association, a meeting to inaugurate this patriotic fund was held. It was attended by the principal office holders of the association, and representatives of the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Royal College of Surgeons of Edinburgh.

BERLIN LETTER[*]

Berlin, Nov. 7, 1916.

Causes of Deaths in Prussia in 1914

The total number of deaths occurring in Prussia in 1914 was 766,828. The death rate per ten thousand population for the various diseases reported was as follows (figures in parenthesis are for the year 1913): Accidents and violence, 28.24 (4.06); gastro-intestinal diseases, 20.11 (17.39); senility, 17 (15.71); diseases of the circulatory organs, 16.12 (15.09); tuberculosis, 13.87 (13.65); pneumonia, 11.84 (12.03); epilepsy and other diseases of the nervous system, 10.54 (10.31); congenital weakness and errors of development, 10.39 (10.25); diseases of the respiratory tract, 8.29 (7.85); cancer and other new growths, 8.09 (8.24); diseases of the genito-urinary organs, 2.92 (2.87); diphtheria and croup, 2.17 (1.81); suicide, 2.08 (2.21); whooping cough, 1.68 (1.89); scarlet fever, 1.44 (1.08); erysipelas and wound infections, 1.3 (0.92); measles and German measles, 1.02 (1.75); childbirth, 0.89 (0.96); typhoid, 0.9 (0.34); influenza, 0.74 (0.72); other infectious diseases, 0.44 (0.34); murder and manslaughter, 0.35 (0.21); infectious diseases of animals, 0 (0.01); other named causes of death, 16.51 (15.89); unnamed and unknown causes, 4.59 (3.39).

Infectious diseases caused 151.542 deaths—19.75 per cent. (145,081—23.51 per cent.); tuberculosis, 58,577—7.64 (56,861—

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[*] To this letter was attached the following note:

Für den Zensor.—Sämtliche Artikel sind vom zuständigen Sanitätsamt zur Ausfuhr ins neutrale Ausland genehmigt. Bemerkungen, die trotzdem beanstandet werden, bitte ich zu durchstreichen (oder herauszuschneiden) damit Rücksendung des Briefes und überflüssige Portowiederholung vermieden wird.

To the Censor.—All the articles herein have been passed by the local censor for exportation into neutral countries. Please cut out any part of these articles which is disapproved so that it will not be necessary to return the letter to the writer, and further postage expense will be avoided.

9.16) ; pneumonia, 50,002—6.52 (50,084—8.07) ; diphtheria and croup, 9,154—1.19) ; whooping cough, 7,113—0.93 (7,859—1.27) ; scarlet fever, 6,067—0.79 (4,506—0.73) ; erysipelas and other wound infections, 5,506—0.72 (3,818—0.62) ; measles and German measles, 4,325—0.56 (7,286—1.17) ; typhoid, 3,785—0.49 (1,433—0.23) ; influenza, 3,121—0.41 (3,010—0.49) ; puerperal fever, 2,010—0.26 (1,957—0.32) ; other infectious diseases, 1,861—0.24 (1,415—0.23) ; infectious diseases of animals, 21—0 (22—0).

Hysteria Among Soldiers

Professor Nonne of Heidelberg recently demonstrated before the Hamburg Medical Society three cases in which hysterical symptoms developed—in two cases on the basis of an acute articular rheumatism and in one on the basis of typhoid. Two were cases of superior monoplegia; one was a case of hemiplegia. One patient resisted for eight months the usual forms of mechanotherapy and waking suggestion, but speedily recovered under hypnotic suggestion. Nonne also demonstrated a spontaneous relationship between the sensory disturbance and the motor paralysis, showing that the former disappeared spontaneously with the latter. A fourth case shown was one of deaf-mutism. The patient had received training in lip reading for five months without result. In a single hypnotic session Nonne removed the syndrome entirely. The condition was reproduced and again removed in like manner. In a fifth case Nonne showed experimentally that extensive muscular tremor, such as follows in most cases of prolonged loss of consciousness from shock, is of functional origin. The patient had received a severe shock, but returned to duty at the front after a few days. He suffered a slight flesh wound and was sent to the hospital. He dreamed that he was in action, and that a shrapnel bomb exploded beside him; he became badly frightened, wakened, and had an intense tremor. Such cases are refractory to hypnotic suggestion. A sixth patient had presented a hysterical syndrome for fifteen months. Following prolonged loss of consciousness, incident to a shell explosion, the right leg had become rigidly contracted, with tremor of the head and left arm and loss of speech. The patient had resisted all efforts at treatment in five different hospitals. In one sitting Nonne succeeded in restoring speech and suppressing tremor by means of hypnosis while at the second sitting he succeeded in removing the rigid contraction of the leg muscles. The man has now completely recovered. In this case also Nonne showed how he could reproduce and remove the symptoms by means of hypnosis.

Marksmanship and Alcoholism

At a recent meeting of the Temperance Society of German Physicians, Kraepelin discussed the results of a shooting tournament held in the fall of 1908 under the direction of the Bavarian Ministry of War for the purpose of determining the influence of alcohol on marksmanship. Twenty carefully selected marksmen fired 27,000 shots in sixteen days. Previous results were confirmed, namely, that a single small dose of alcohol—in this case, 40 gm. or about the equivalent of 1 liter of beer—taken in the morning, had a detrimental effect on accuracy of aim five minutes later; the most pronounced effect being noted from twenty-five to thirty minutes after the liquor had been imbibed. The average loss in accuracy was about 3.1 per cent. The effect of the alcohol was not so great when taken after the noon meal, nor was it apparent as soon, confirming the belief that alcohol taken after a heavy meal does not have as injurious an effect as when taken on an empty stomach or after a light meal. In a few instances, marksmanship improved for a short time after the ingestion of alcohol; then it became very inaccurate, the loss in marksmanship being as high as 9, 10 and 12 per cent. in the case of eleven men. Self-deception, so commonly associated with alcohol ingestion, was evident in these cases. It should be remembered that the subjects of these experiments were in prime physical condition. Similar experiments made on soldiers in time of war would show still greater loss of accuracy since loss of sleep, overexertion, insufficient nutrition and psychic disturbances would exert an unfavorable influence.

German Psychiatric Society

At the meeting of the German Psychiatric Society in Munich, September 21-22, Professor Bonhoeffer of Berlin narrated war experiences with regard to the etiology of psychopathic conditions, emphasizing the influence of exhaustion and emotions. Among the Serbian prisoners, physical exhaustion was intense. There were great emaciation, diffuse muscle atrophy and dilatation of the heart, edema of the lower extremities, and extraordinary weakness, in some instances necessitating months of rest in bed, leading to increased morbidity and mortality, increasing the susceptibility to tuberculosis and causing slow healing of phlegmons. In the case of the older prisoners there was a marked inability to make a good recovery. So far as the nervous system was concerned, the expressions of this state of exhaustion consisted in an increase in the mechanical muscle irritability in the form of percussion swellings, mild neurotic symptoms and the auditory and visual hallucinations of exhaustion. Real psychoses, the result of such exhaustion, have not been noted, although an acute nervous exhaustion, manifesting itself by insomnia, moroseness and hyperesthesias, does occur. Still such psychoses do not occur among the Serbians.

The development of cerebrospinal syphilis is said to be influenced favorably by exhaustion, but there is no proof at hand to show that recently acquired syphilis has a predilection for the nervous system. Epilepsy developing during the campaign often had a syphilitic basis and constituted the only cerebral symptoms of syphilis.

The psychic results of fear were also discussed. It was stated that while fear may be productive of various mental or psychic disturbances, the normal brain is quite resistant to any real pathologic influence of the fear thought or emotion; in other words, if fear does cause a psychopathy, there must have been some underlying pathologic condition in the brain which made it possible or paved the way for a further pathologic condition to develop.

Professor Wilmanns of Heidelberg discussed the fitness for military service of the psychopath. Sufferers from hysteric war neuroses, he says, are more fit for service at the front than they would be at home; therefore any such as must be sent to a hospital for sickness or wounds should not be sent to a base hospital but should be kept in a field hospital, thus keeping them fit for further military service when they are discharged from the hospital. If they must be sent to a base hospital, then they cannot be returned to the front, but should be assigned to garrison duty or as workers. On the whole, it is preferable to assign these men to duty in a commercial war industry or to allow them to return home and resume their customary vocation.

Prof. E. Meyer of Königsberg discussed the effect of various psychoses on military fitness. Among 2,561 cases of psychic and nervous disturbances were 194 cases of dementia praecox, 43 cases of manic-depressive insanity (27 existing before the war), 66 cases of paralysis (27 existing before the war), 63 cases of epilepsy (59 existing before the war) and 5 cases of arteriosclerotic insanity. In most of these cases the disease had existed prior to enlistment or service at the front, and in only rare instances could wounds, shock or illness of any kind be considered as etiologic factors in the production of these nervous diseases. The clinical manifestations were no different from what they are in civil life; therefore their existence cannot be regarded a reason for declaring the victim unfit for military service. Finally, the conclusions reached are that (1) there is no such disease entity as a military or war psychosis, and (2) persons affected with a psychosis are less apt to be rendered unfit for service at the front than for service at home.

Marriages

Robert Ralph Walton, M.D., Spokane, Wash., to Miss Mabel Monson of Elk River, Idaho, at Spokane, December 1.

Walter E. Kiefer, M.D., Buffalo, to Miss Clara Leota Bartles of Martinsburg, W. Va., at Easton, Pa., December 4.

Capt. Thomas Dupuy Woodson, M. C., U. S. Army, to Miss Pocahontas Butler of Elliott, N. C., November 30.

Charles G. Zimmerer, M.D., Norfolk, Neb., to Miss Margaret Ceil Fallon of O'Neill, Neb., November 30.

Michael Joseph Maguire, M.D., Naches, Wash., to Miss Margaret Flett of Sprague, Wash., December 2.

Oswald Hope Robertson, M.D., New York, to Miss Ruth Allen of New Bedford, Mass., recently.

Wallace Simonds, M.D., Sedalia, Mo., to Miss Ethel Murray of Holden, Mo., November 30.

Glen Ross Young, M.D., Detroit, to Miss Avis Lydia Green of Corunna, Mich., December 6.

Donald S. Numbers, M.D., to Miss Zoe Dunn, both of Payette, Idaho, November 29.

Deaths

George Ben Johnston, M.D., Richmond, Va.; New York University, New York, 1876; aged 63; a Fellow of the American Medical Association, and a member of the House of Delegates, representing the Medical Society of Virginia in 1904 and 1905; a well known surgeon; died suddenly at his home, December 20, from acute dilatation of the heart.

Dr. Johnston was a grandson of Dr. John Floyd, once governor of Virginia, and the son of United States Senator John W. Johnston of that state. In 1878, Dr. Johnston located in Richmond and soon became recognized as a leader in surgery. He was elected professor of anatomy at the Medical College of Virginia in 1884. Nine years later he was elected professor of didactic and clinical surgery, and in 1907 he was made professor of gynecology and abdominal surgery. In 1893, he organized and established the Hospital of the Medical College of Virginia, which afterward became the Old Dominion Hospital. Ten years later, 1903, he organized and built the Williams Memorial Hospital, and in 1909, he and his associate, Dr. Murat Willis, built the Johnston-Willis Sanatorium and the following year acquired the Abington Hospital. Dr. Johnston had been president of the American Surgical Association, of the Medical Society of Virginia, of the Southern Surgical and Gynecological Association and of the Norfolk and Western Railway Surgeon's Association. He has always been a leader in medical legislation and as chairman of the legislature committee of the state society secured one of the best laws extant for the protection of the people against charlatans. Dr. Johnston was a frequent contributor to surgical literature, a man of large ideas, clear vision and definite opinions, powerful in council.

John George Leitch, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1910; aged 40; formerly chief resident physician of the Polyclinic Hospital, and a member of the staff of the Howard Hospital, Philadelphia; first lieutenant, Medical Reserve Corps, U. S. Army, on duty with the Sixth U. S. Cavalry and in charge of the Army Hospital at Marfa, Texas; died at that place, December 12, from paratyphoid fever.

David Rittenhouse Porter, M.D., Kansas City, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1865; Bellevue Hospital Medical College, 1872; aged 78; a member of the Missouri State Medical Association; one of the founders and professor of internal medicine and lecturer on the duties of life insurance examiners in the University of Kansas; a veteran of the Civil War; died at his home, December 14.

Walter James Dodd, M.D., Somerville, Boston; University of Vermont, Burlington, 1908; aged 46; a Fellow of the American Medical Association; for many years in charge of Roentgen-ray work at the Massachusetts General Hospital; a member of the Second Harvard Surgical Unit; who had undergone a number of surgical operations on account of Roentgen-ray burns; died at his home, December 18.

Jabez Fisher, M.D., Fitchburg, Mass.; Harvard Medical School, 1851; aged 92; oldest surviving member of the Massachusetts Legislature, in which he served as senator in 1855 and 1856; a trustee of the Fitchburg Public Library; president of the Fitchburg Cooperative Bank for twenty-two years; died at his home, December 15.

Robert Brine Harrington, M.D., Grand Junction, Colo.; Tufts College Medical School, Boston, 1905; aged 37; a Fellow of the American Medical Association; for four years health officer of Mesa County, Colo., and Grand Junction; died in St. Mary's Hospital, Grand Junction, December 8, from pulmonary hemorrhage.

Andrew J. Watson, M.D., Cairo, Egypt; Jefferson Medical College, 1860; aged 82; who was ordained in 1861 and went as a missionary to Egypt; professor of systematic theology in the Cairo Theological Seminary and later president of the Cairo University; one of the foremost authorities on Arabic; died in Cairo, December 9.

George Albert Blair, M.D., Chambersburg, Pa.; College of Physicians and Surgeons, Baltimore, 1880; aged 58; a specialist on diseases of the eye, ear, nose and throat; who received injuries while riding in a railway car four weeks before; died in the Presbyterian Hospital, Philadelphia, December 6.

Elroy B. Whitaker, M.D., Barre, Vt.; New York Homeopathic Medical College, New York, 1868; aged 71; a member of the Vermont State Board of Registration for seven years; died at his home, December 7.

Joseph J. Pierron, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1893; aged 61; chief surgeon to the Chicago Terminal Traction Railroad Company and local surgeon of the Chicago Great Western Railway; died at his home, December 14, from diabetes.

Howard C. Reamer, M.D., Danville, Calif.; University of Maryland, Baltimore, 1885; aged 51; died in a hotel in Baltimore, December 12, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

Charles T. Gerlach, M.D., Getaway, Ohio; Kentucky School of Medicine, Louisville, 1887; aged 41; a member of the Ohio State Medical Association; died at the home of his father in Huntington, W. Va., December 9, from septicemia, following an infected wound of the hand.

William Everett Palmer, M.D., Hornell, N. Y.; College of Physicians and Surgeons in the City of New York, 1882; aged 78; formerly president of the Hornell Medical and Surgical Association; died at his home, December 11, from cerebral hemorrhage.

Elias J. Brock, M.D., Denton, Texas; Tulane University, New Orleans, 1861; aged 79; a member of the Walker Filibustering Expedition into Central America in the late fifties; a Confederate veteran; died at his home, December 8, from nephritis.

Thomas Leigh Lanigan, M.D., Denver; Medical College of Indiana, Indianapolis, 1905; aged 34; died at El Paso, Texas, December 7, from the effects of a gunshot wound, believed to have been self-inflicted, with suicidal intent, while temporarily insane.

Jirah Dewey Buck, M.D., Cincinnati; Cleveland University of Medicine and Surgery, 1864; aged 78; dean and professor of practice of medicine in Pulte Medical College, Cincinnati; a veteran of the Civil War; died at his home, December 13.

McClellan C. Kash, M.D., Salyersville, Ky.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 54; a member of the Kentucky State Medical Association; died in Daysboro, Ky., October 17, from cerebral hemorrhage.

Benneville H. Miller, M.D., Mohnton, Pa.; Southern Homeopathic Medical College, Baltimore, 1889; for twenty-five years a clergyman of the Evangelical Church; died at his home, November 23, from cerebral hemorrhage.

Henry Rolfe Dupuy, M.D., Norfolk, Va.; Louisville (Ky.) Medical College, 1874; aged 71; a member of the Medical Society of Virginia; for several years health commissioner of Norfolk; died at his home, December 11.

Eugene L. Deaderick, M.D., Jonesboro, Tenn.; Jefferson Medical College, 1873; aged 73; formerly a member of the Tennessee State Medical Association; died at Memorial Hospital, Johnston City, Tenn., December 4.

Luther B. Shumaker, M.D., Pharisburg, Ohio; Starling Medical College, Columbus, Ohio, 1898; aged 40; a member of the Ohio State Medical Association; died at his home, December 10, from heart disease.

Charles Alva Davis, M.D., Bakersfield, Calif.; Vanderbilt University, Nashville, Tenn., 1881; aged 60; formerly president of the California Mutual Benefit Society, San Francisco; died at his home, December 7.

Charles Burleigh, M.D., Waverly, Mass.; Medical School of Maine, Brunswick, 1891; aged 61; for many years a resident of Malden, Mass.; died at his home, recently, from cerebral hemorrhage.

Abdallah M. Howe, M.D., Wichita, Kan.; Miami Medical College, Cincinnati, 1873; aged 71; a specialist on diseases of the eye, ear, nose and throat; died at his home, December 12, from pneumonia.

George Folet Wells, M.D., Lakeport, Calif.; Northwestern Medical College, St. Joseph, Mo., 1889; aged 72; a practitioner for fifty-one years; died at his home, November 21, from heart disease.

Roe Foreman McClure, M.D., Albuquerque, N. M.; Kansas City (Mo.) Medical College, 1911; aged 28; died on his ranch, near Nara Visa, N. M., November 30, from a nervous breakdown.

Abraham Goltman, M.D., Sioux Falls, S. D.; McGill University, Montreal, 1896; L.R.C.P., L.R.C.S., L.R.F.P.S., Glasgow, 1914; aged 42; died in a sanatorium in Montreal, September 15.

Philip M. Lewis, M.D., Lecompton, Kan.; Kansas City (Mo.) Medical College, 1884; aged 76; a resident of Kansas for more than sixty years; died at his home, December 5.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TANRET'S PELLETIERINE

To the Editor:—Please print the formula of "Tanret's Pelletierine." I think it is given in the 1908 edition of the French Pharmacopeia, p. 445. Is the pelletierin tannate sold in the United States as efficient as the French proprietary preparation, and if so what would be the corresponding dose?

M. Carlton Vaughan, M.D., Buffalo.

Answer.—The exact composition of "Tanret's Pelletierine" is not known, but it is believed to be similar in a general way to the pelletierin tannate described in the U. S. Pharmacopeia. This is said to be a mixture in variable proportions of the tannates of the four chief alkaloids of pomegranate. "Tanret's Pelletierine" is not described in, nor is there any formula for its preparation in the 1908 Pharmacopée française. Pelletierin sulphate, however, is described in the French Pharmacopeia, and a method for its preparation given. The alkaloids of pomegranate, *Punica granatum*, are known in this country as punicin, isopunicin, pseudopunicin, methylpunicin and isomethylpunicin. In European literature, the name "pelletierin," with its combinations, is used in place of "punicin." The tenifuge properties of pomegranate are believed to lie chiefly in the punicin and isopunicin constituents; consequently the activity of the various crude commercial mixtures of the salts of the pomegranate alkaloids would depend on the relative proportions of these two alkaloids present. The pelletierin sulphate described in the 1908 French Pharmacopeia is said to be composed chiefly of punicin (pelletierin) sulphate and isopunicin (isopelletierin) sulphate.

O-DO-CURE

To the Editor:—What is the composition of O-Do-Cure? It is a perspiration remedy manufactured by the O-Do-Cure Toilet Company, Chicago.

L. P. N.

Answer.—Two original bottles (price 50 cents each) of O-Do-Cure were submitted to the chemical laboratory for examination.

Each bottle of O-Do-Cure contained about 90 c.c. (3 fluidounces) of green colored liquid, highly perfumed and having an acid reaction. The specific gravity at 15.6 C. was 0.9648. Qualitative tests demonstrated the presence of alcohol, boric acid and salicylic acid. The presence of 40 per cent. alcohol was declared on the label. Quantitatively, each 100 c.c. was found to contain:

Alcohol (absolute)	34.00 c.c.
Boric Acid (H_3BO_3)	5.95 gm.
Salicylic Acid ($C_6H_4(OH)COOH$)	0.26 gm.

The following statements appear on the label:

"A Daily Toilet Requisite for Perspiration.
"A Perfect Deodorant Toilet Water.
"Use it daily after the morning bath. It refreshes and purifies the pores; prevents odor—yet does not interfere with natural perspiration. Used freely to relieve tired, burning perspiring feet, it has no equal."

A solution essentially similar—except for the extravagant price—could be compounded as follows:

Salicylic acid	1 grain
Boric acid	30 grains
Alcohol	3 fluidrams
Perfume	sufficient
Water	to make 1 fluidounce

MERCURIC BENZOATE IN SODIUM CHLORID SOLUTION

To the Editor:—After reading Dr. Loyd Thompson's article on "The Intensive Treatment of Syphilis" (The Journal, Sept. 2, 1916, p. 734), I wrote to one of the prominent pharmaceutical laboratories to inquire if they would manufacture an ampule of mercuric benzoate in sodium chlorid solution as used by Dr. Thompson. The pharmaceutical house informed me that it was quite likely that mercuric benzoate added to a solution of sodium chlorid would result in the formation of mercuric chlorid and sodium benzoate. Kindly give me your opinion as to whether or not such an action would occur.

A. E. Kinney, M.D., Astoria, Ore.

Answer.—It is believed that when simple mercuric salts are treated with an excess of sodium chlorid solution, a complex mercury compound is produced in which the mercury is a part of the acid radical. If mercuric benzoate is treated with an excess of sodium chlorid solution there should be formed a sodium mercuric chlorid, which is soluble. It is safe to assume that the therapeutic effect of a given weight of mercury as mercuric benzoate in a stated volume of sodium chlorid solution will be the same as that of the same weight of mercury in the form of mercuric chlorid in the same volume of sodium chlorid solution.

HYPODERMIC INJECTION OF QUININ

To the Editor:—In this part of the country we have a great amount of malarial infection during the whole year, and especially during the summer and fall months. Of course, as these conditions arise, it is absolutely necessary to use quinin hypodermically. A great deal of complaint has arisen from several physicians regarding the unpleasant, and at times alarming effects arising from the use of quinin in this way; that is, the formation of a necrotic area around the site of the injection of the medication. It has been my experience, and the experience of my fellow practitioners in this and surrounding counties, to have very severe conditions of this kind. It is not an infection, for all aseptic precautions are observed, but rather a necrosis of the tissues that takes place several days after the medicine has been used. I have talked to representatives of the various pharmaceutical houses, but they are at a loss to account for this very unpleasant result. Please explain it in The Journal. It seems that the attention of the various manufacturers of hypodermic quinin should be called to this matter, and if at all possible by better chemistry, to eliminate this too frequent occurrence after quinin hypodermic medication. Your explanations and suggestions will be greatly appreciated.

Owen H. Williams, M.D., Savannah, Tenn.

Answer.—Necrosis and abscess following the injection of quinin are not, as our correspondent seems to believe, due to any impurity in the drug. Strong solutions of pure quinin salts will produce necrosis by their direct action on the tissues and by preventing phagocytosis. By taking proper precautions the number of these accidents can be greatly reduced, but the danger of their occurring cannot be entirely eliminated. For this reason all authorities are unanimous that the administration of quinin by injection should be confined to the most urgent cases of pernicious malaria. In all other cases it should be administered by mouth. As asepsis is not nowadays likely to be neglected, the two most important points to bear in mind are, first, that the injection must be intramuscular and not hypodermic, and, second, that the solution should be as dilute as is practicable. The most suitable salt for use is quinin dihydrochlorid or quinin and urea hydrochlorid, the latter having the advantage of being a local anesthetic. Three grains of the double salt are equivalent to 2½ grains of quinin dihydrochlorid. A 10 per cent. solution is the strongest that should be used, and injections may be made into one or several places, according to the quantity. The initial dose should ordinarily be 15 grains, followed by injection of from 5 to 10 grains every six or eight hours as long as the symptoms demand it. For a child under 5 years of age, the first dose may be 1½ grains for each year. To repeat, the most important points are: a dilute solution, an intramuscular injection, and the use of the method only in the most urgent cases.

USE OF ANTIPNEUMOCOCCUS SERUM—PERTUSSIS VACCINE

To the Editor:—1. Is the intravenous injection of antipneumococcic serum in cases of lobar pneumonia considered beneficial? Has the treatment passed the experimental stage?

2. Do the results with pertussis vaccine justify its use as a routine measure?

B. W. Walker, M.D., Carthage, Miss.

Answer.—1. The injection of the proper antipneumococcus serum in pneumonia caused by pneumococcus Type I is believed to be beneficial, but the serum treatment of pneumonia must be said to be still in the experimental stage. It should be borne in mind that the pneumococci fall into various groups according to their immunologic relations—at least four groups—and that it would be as futile to use a serum specific for Group I in a case of pneumonia caused by Group III as it would be to use antimeningococcus serum in cases of meningitis caused by parameningococci or other bacteria. Hence the first requisite for a rational serum treatment in pneumonia is the determination of the particular type of the pneumococcus concerned in the given case.

2. The reply to this question appeared in The Journal, Sept. 16, 1916, page 897.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 9. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, Jan. 3. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, Jan. 2. Sec., John Wix Thomas, 306 Goodrich Bldg., Phoenix.

CALIFORNIA: Sacramento, Jan. 9. Sec., Dr. C. B. Pinkham, Forum Bldg., Sacramento.

COLORADO: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

ILLINOIS: Chicago, Jan. 24-25. Sec., Dr. C. St. Clair Drake, Capitol Bldg., Springfield.

INDIANA: Indianapolis, Jan. 9-11. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

IOWA: Des Moines, Feb. 6-8. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

MINNESOTA: Minneapolis, Jan. 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 8. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: New York City, Albany, Syracuse, and Buffalo, Jan. 29-Feb. 2. Chief, Examinations Division, H. H. Horner, University of the State of New York, Albany, N. Y.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 9-10. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, Jan. 2, Sec., Dr. Herbert S. Nichols, 802 Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 9-11. Sec., Nathan C. Schaeffer, Capitol Bldg., Harrisburg.

RHODE ISLAND: Providence, Jan. 4-5. Sec., Dr. G. T. Swarts, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 10. Sec., Dr. P. B. Jenkins, Waubay.

WASHINGTON: Spokane, Jan. 2. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

WISCONSIN: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. 2d St., Ashland.

Alaska July Report

Dr. Henry C. DeVighne, secretary of the Alaska Board of Medical Examiners, reports the written examination held at Juneau and Seward, July 5-6, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 9, of whom 8 passed and 1 failed. A graduate of the Woman's Medical College of Pennsylvania in 1909, who was examined in January, was also granted a license. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1902)	88
College of Physicians and Surgeons, Chicago	(1902)	78
Johns Hopkins University	(1911)	80
Maryland Medical College	(1904)	75
Columbia University, College of Physicians and Surgeons	(1894)	88.2
	(1908)	76
	(1913)	90
Syracuse University	(1900)	75.5
FAILED		
Georgetown University	(1906)	68

West Virginia July Report

Dr. S. L. Jepson, Health Commissioner of the West Virginia Public Health Council, reports the oral, practical and written examination held at Clarksburg, July 11, 1916. The total number of subjects examined in was 10; the total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 49, of whom 48 passed, including 1 osteopath, and 1 failed. One candidate was granted a reregistration license by examination, and 25 candidates were licensed through reciprocity. The following colleges were represented.

College	Year Grad.	Per Cent.
PASSED		
Atlanta Medical College	(1915)	84.2
Bennett Medical College	(1915)	80.9
Chicago College of Medicine and Surgery	(1916)	88.1, 88.4, 89.1, 90.1, 90.2, 90.4.
Loyola University	(1916)	82.4, 87.2
University of Louisville	(1914)	86.2
	(1916)	86.2, 86.9, 93.2
Baltimore Medical College	(1913)	84.6
College of Physicians and Surgeons, Baltimore	(1914)	90.3
	(1915)	83.3, 86.9, 88.3, 91.7.
University of Maryland	(1915)	88.5
	(1916)	81.4, 85.8, 87, 89, 89.6, 90.5.
Eclectic Medical College	(1916)	87.5
Ohio State University	(1916)	86.6, 89.1
Western Reserve University	(1915)	89.1
Jefferson Medical College of Philadelphia	(1910)	90.5
	(1914)	86.5
	(1916)	88.4, 89, 89.2.
University of Pennsylvania	(1915)	87.6
Meharry Medical College	(1912)	82.4
Medical College of Virginia	(1914)	85.4, 87.5
	(1915)	86.6, 87.1, 87.3, 92.5
	(1916)	84.6, 84.9, 88.8.
FAILED		
North Carolina Medical	(1915)	77.8

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Southern Medical College	(1895)	Georgia
Kentucky University	(1906)	Penna.
Louisville Medical College	(1895)	Ohio
University of Louisville	(1912)	Virginia
	(1912)	Tennessee
	(1915)	Kentucky
Tulane University of Louisiana	(1913)	Mississippi
Baltimore Medical College	(1907)	Virginia
College of Physicians and Surgeons, Baltimore	(1914)	Kentucky
Johns Hopkins University	(1913)	Maryland
Maryland Medical College	(1904)	Maryland
Eclectic Medical College	(1904)	Kentucky
Starling Medical College	(1906)	Ohio
Jefferson Medical College of Philadelphia	(1907)	Penna.
	(1908)	Virginia
University of Pennsylvania	(1901) (1906)	Penna.
Medical College of the State of South Carolina	(1914)	S. Carolina
Tennessee Medical College	(1903)	Tennessee
University of Tennessee	(1889)	Kentucky
Vanderbilt University	(1914)	Tennessee
Medical College of Virginia	(1909) (1913) (1914)	Virginia
National University, Athens	(1895)	Florida

Higher Preliminary Education

The New York Board of Regents has announced that, beginning Jan. 1, 1917, the minimum requirement of preliminary education in that state will be increased to one year of college work including courses in physics, chemistry and biology. For several years the sciences named have been required, but high school credits were accepted. The new ruling requires that they must be of college grade. This is the thirty-fourth state in which the licensing board has adopted one or two years of college work as the minimum requirement of preliminary education. The complete list of states, the number of years required and the dates when the requirement affects matriculants and graduates in medicine are as follows:

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Graduates
Requiring Two Years:			
Alabama	2	1915-16	1919
Arizona	2	1918-19	1922
Colorado	2	1910-11	1914
Indiana	2	1911-12	1915
Iowa	2	1911-12	1915
Louisiana	2	1918-19	1922
Maryland	2	1918-19	1922
Minnesota	2	1908-09	1912
New Hampshire	2	1915-16	1919
New Jersey	2	1917-18	1921
New Mexico	2	1918-19	1922
North Dakota	2	1908-09	1912
Oklahoma	2	1917-18	1921
Rhode Island	2	1918-19	1922
South Dakota	2	1911-12	1915
Virginia	2	1917-18	1921
Washington	2	1918-19	1922
Wisconsin	2	1915-16	1919
Requiring One Year:			
Arizona*	1	1914-15	1918
Arkansas	1	1915-16	1919
California	1	1915-16	1919
Connecticut	1	1910-11	1914
Illinois	1	1915-16	1919
Indiana*	1	1910-11	1914
Kansas	1	1910-11	1914
Kentucky	1	1914-15	1918
Louisiana*	1	1915-16	1919
Maryland*	1	1914-15	1918
Michigan	1	1914-15	1918
Mississippi	1	1915-16	1919
New Hampshire*	1	1914-15	1918
New Jersey*	1	1916-17	1920
New York	1	1917-18	1921
North Carolina	1	1914-15	1918
Oklahoma*	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island*	1	1914-15	1918
Tennessee	1	1915-16	1919
Texas	1	1914-15	1918
Utah	1	1913-14	1917
Vermont	1	1913-14	1917
Virginia*	1	1914-15	1918
Washington*	1	1914-15	1918
West Virginia	1	1917-18	1921

* The 2-year requirement becomes effective at a later date.

Social Medicine, Medical Economics and Miscellany

The Convalescent Problem

The present trend toward socialization of medical practice finds an interesting concomitant in the trend toward hospitalization of the sick public. The latter, in turn, follows a closer acquaintance with the hospital on the part of the people, and extending recognition of its service to them, and especially on a reorganization of the hospital administration, equipment, staff and ideals. Internally the hospital has been put on an efficient basis. As a result, new and external lines of development have arisen, such is the care of convalescent and posthospital patients. The old style convalescent home does not meet the need. The new convalescent field has recently been outlined by Frederic Brush, superintendent of the Burke Foundation in New York (*Modern Hospital,* June, 1916, p. 393). He names six groups of convalescent institutions which should find legitimate place in posthospital care. Among these are the old type of convalescent home, which ministers to a small and limited clientele; larger institutions bordering on the sanatorium type, with nursing and medical service, classification of patients, and equipment for physical therapy, recreation, occupational training, etc., and country branch hospitals located from 4 to 12 miles from the city hospital, on spacious grounds, with provision for cheaper accommodation of earlier transferred patients, as well as supplying usual hospital service to the immediate neighborhood.

Another class comprises small pay convalescent homes, for which Brush finds there is a definite demand. An important group consists of the development and proper control of home convalescence under the supervision of the social service department, or at least in the fullest cooperation with it. He notes special advantages for this group in the matter of low cost compared to institutional convalescence, continuity of service to patient, preservation and education of the home, and finally in that it meets the need of probably 60 to 80 per cent. of convalescents who cannot afford any institutional care. The final group is concerned with convalescence within the hospital, with a specialized use of balconies, grounds, outdoor camps, libraries and similar accessories.

Brush then takes up the question as to what constitutes the convalescent field. In the New York district, there are seven types of cases properly coming under the jurisdiction of convalescent institutions. In a broad view he includes surgical dressing cases, as wounds heal more readily under the new environment, and motor transportation makes early transfer easy and safe. The recent development in New York of a trade school for cardiacs brings to attention another large group whose members require posthospital care, who need instead of the hospital an occasional rest to prevent decompensation, or who because of youth offer nearly a virgin field for preventive therapeutics. At present there is no adequate provision for men convalescents, especially those whose return to self-supporting work can be accelerated and who otherwise would have no place to go for recuperation. Rheumatism and the arthritides supply another large group. Tuberculosis, especially of the bones, skin, glands, joints and kidneys, requires such facilities, even if in practice pulmonary tuberculosis should be excluded.

Of unusual importance is the application of the new convalescent methods in mental cases, especially borderline and observation cases. Success here will depend on occupational facilities, and these in turn on sufficient sales outlets for the products. The adolescent convalescent is properly put in a separate classification, and in New York and some other sections a separate class is necessary for the colored people. The last and most strategic classification is called by Brush "preventive convalescence," and means opportunities for health-building periods in suitable institutions, chiefly for those in cities who by such periods can have their economic efficiency maintained and increased, and who will thus be better enabled to avoid acute illness and physical or mental breakdown.

In a further discussion of this problem (*Modern Hospital,* November, 1916, p. 367) Dr. Brush describes the methods of the Burke Foundation at White Plains, N. Y. Strong emphasis is placed on an atmosphere of "self-help, self-respect, self-mastery and the urge to normal life." Every possible means is employed to avoid the danger of convalescence leading to a chronic neurasthenic, hypochondriacal, self-centered individuality. While medical supervision and nursing are fully adequate, a democratic spirit is encouraged by a noticeable lack of special dietetic or physical therapy. The strong impetus is toward a common normal standard of life in which each convalescent plays an aggressive rather than a passive rôle. Results are the gage of efficiency, and Brush measures the results in terms of quicker and more complete recovery from acute illness, and the increased economic and personal efficiency of such groups as cardiacs, borderline mental cases, selected arthritides, choreics, protracted surgical dressing cases, patients with hyperthyroidism or nonpulmonary tuberculosis, and others.

Such exact delineation of the convalescent field as a modern extension of the hospital meets a large need, and should prove no small factor in the general improvement of public health and the further development of preventive medicine.

Pension Systems for Employees

At the meeting of the National Municipal League with a number of affiliated social organizations at Springfield, Mass., in November, Lawson Purdy, president of the New York City Department of Taxes and Assessments, discussed the question of employees' pensions and presented an outline of a plan proposed by him. He indicated that the plan might be extended beyond the ranks of city employees, and called attention to the burden of present pension plans in Europe. He said that in France the proportion of the active pay roll paid in pensions is 17 per cent., in Austria 33 per cent. and in Berlin, 37 per cent. Purdy's plan provides for the creation of a capital fund from contributions of employees which shall never be spent, but constantly increased. When the employee reaches the age of 70 he is entitled to retire and draw a pension, which would be made up of the earnings of his own contributions, the share of the earnings of persons of the same age who had died before him, and a per capita share, along with other pensioners, of the income of the general endowment which would be created by the death of all persons of a year-class. With a reasonable contribution, after the plan had been in operation some time it would be expected that the annual increase would pay not only pensions, but the annual contributions as well.

Medical Service in Health Insurance

The American Association for Labor Legislation has just issued a pamphlet[1] containing a plan for medical services in health insurance which has been endorsed by the Council of the Medical Society of the State of New York. It provides for the separation of the functions of certification and treatment, and for the representation of the medical profession in administration. Under the proposed plan, the physician who treats patients insured under health insurance will not be obliged to say whether or not his patients are eligible for cash benefit and thereby run the risk of incurring the displeasure of those who may have an unwarranted desire to be on the sick list. Instead, this duty is placed on a whole time medical officer who is engaged for this special work and who is not permitted to engage in practice under the act. This avoids the difficult position in which both German and British physicians are placed, of being at the same time the medical advisor of insured persons and an examiner for the funds. To assure the appointment of high grade men as medical officers by the local funds, the bill provides that the medical advisory board, elected by the state medical societies, shall establish the qualifications of local medical officers and that the local medical committee shall have power to veto undesirable appointments. This method avoids certain disadvantages of a civil service examination and assures that the medical officer is selected because of the confidence placed in him by physicians with whom he will be associated.

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[1] Copies of this pamphlet containing the provisions of special interest to physicians may be had by writing to the American Association for Labor Legislation, 131 East 23d Street, New York City.

The representation of the medical profession is secured through the state commission of three members appointed by the governor, one of whom shall be a physician, and through the state medical advisory committee of eleven, composed of the commissioner of health, ex officio, and ten members elected by the state medical societies. To this board all regulations affecting medical benefit shall be referred before adoption by the state commission. Any disputes involving medical benefit which come before the commission on appeal shall be heard by the board before the commission makes its decision. Local representation is provided through local medical committees composed of elected representatives of panel doctors, the attending physicians and surgeons of local hospitals and a delegate from the health department. This committee will pass on the appointment of medical officers and will hear any disputes involving physicians. Disputes not settled by the committee are appealed to an arbitration committee consisting of a representative of the fund, of physicians and of an impartial chairman.

These medical provisions have been submitted to the Council of the Medical Society of the State of New York which body decided that "these essentials safeguard the public interest, the public health and the welfare of the medical profession" and by resolution approved and endorsed them, instructing the Committee on Medical Economics and the Committee on Legislation to act accordingly. They are corporated in the latest draft of the model bill of the American Association for Labor Legislation and are submitted to physicians for criticism.

The Quantitative Determination of Morphin in the Various Organs After Injection into Cats and Rabbits

In the nontolerant individual, morphin is largely excreted in the feces, regardless of the method of ingestion, only a small fraction being oxidized in the tissues. In tolerants, larger quantities are oxidized and a considerable portion enters into loose combination with certain of the tissues, so that the poison is retained in the body for some time. Homberger and Munch (*Jour. Am. Chem. Soc.*, 1916, xxviii, 1873) injected known quantities of morphin sulphate in aqueous solution into the mesenteric circulation of cats and rabbits and, after three hours, the animals were chloroformed and (in some cases) embalmed by arterial injection of a formaldehyd embalming fluid. Analyses of the kidneys, liver, spleen, stomach and urine were separately made, at once and after two, four, six, eight and twelve weeks' burial. The tissues surrounding the organs contained no alkaloid. The authors conclude that soon after the injection a portion of the morphin combines with some cell constituent, which compound is relatively more resistant to decomposition than is the organically uncombined morphin. Decomposition of the organ produces chemical compounds which break up the uncombined alkaloid but which do not at once appreciably affect the organically combined alkaloid. This decomposition and removal of morphin constitutes a "preliminary drop" in the morphin content, after which for a time the morphin content remains practically constant. A "secondary drop" then results in which the organically combined morphin is destroyed gradually or is no longer recoverable, so that after twelve weeks' burial only 23 per cent. is obtainable. If the analysis is started very soon after death, by means of a five-hour extraction, and three extractions with ether in both acid and sodium hydroxid solution, Autenrieth's modification of the Stas-Otto process is capable of yielding 97.5 per cent. of the morphin injected into an animal. The presence of formaldehyd as embalming fluid has no appreciable effect on the extraction results and seems to have no effect on the preliminary disappearance of the alkaloid, but the secondary decomposition is greatly retarded by embalming.

Medicolegal

Advising Unnecessary Operation — Mistreating Postoperative Insanity — Giving False Assurances

(Fausette vs. Grim et al. (Mo.), 186 S. W. R. 1177)

The Kansas City Court of Appeals reverses a judgment for $1,000 which was rendered for the plaintiff, against the defendants, two physicians and surgeons who conducted a hospital. The plaintiff, a married woman who was pregnant, was taken suddenly ill with a severe pain in the region of the right ovary. It was charged that the defendants negligently diagnosed the trouble as acute appendicitis and advised an operation therefor, which was not necessary and resulted in an abortion, etc. The court says that there was no evidence that the defendants were incompetent or unskilful surgeons, nor was there any claim that the operation itself was not performed in a skilful and proper manner. The charge was that the defendants negligently advised an operation. In this kind of a case the plaintiff must not only prove that the operation was unnecessary but also that the operation was one so palpably unnecessary that a surgeon of ordinary care and skill would not have advised it. If conditions were such as to lead surgeons of ordinary care and skill to think an operation was necessary, and the defendants, in the honest exercise of their best judgment, thought an operation was proper, then the defendants would not be liable even if it turned out afterward that they were mistaken in their diagnosis. The burden was on the plaintiff to establish the negligence charged. Hence it devolved on her to show that the operation which she said the defendants negligently advised was one which surgeons of ordinary care and skill in the honest exercise of their best judgment would not have advised. She failed to do this, and was not entitled to go to the jury on the question whether the defendants were negligent in advising an operation.

But, while there was evidence on the defendants' part tending to justify the removal of the plaintiff from the hospital, the court thinks there was sufficient evidence to take to the jury the charge that the defendants negligently directed the removal, whereby the plaintiff was rendered violently insane. The evidence clearly showed that on a certain date the plaintiff began to manifest symptoms of postoperative insanity and that the defendants immediately telephoned to her stepfather to come and get her, as she was well and ready to go; that they did not inform her relatives that she had postoperative insanity or advise them of the necessity for keeping her quiet in order to prevent it developing into the violent type; there was also evidence that they hastened the departure of the plaintiff from the hospital, insisting on her being taken the evening of the day her friends arrived to get her; that her pulse and temperature at the time she left, as shown by the defendants' own charts, showed that she was not in a condition to be taken away; that the excitement of the trip on the train caused her to become violently insane and to remain so for a long period of time. The court is of the opinion that the plaintiff introduced substantial evidence to show a negligent disregard of duty in sending the patient away under the circumstances.

In overruling a motion for a rehearing, the court says that it had not overlooked the fact that the plaintiff testified that the defendants assured her the operation would not affect her pregnancy. Perhaps such false assurance that the operation would have no effect on pregnancy might be a circumstance to be taken into consideration along with other facts, in determining whether or not the operation was negligently advised; and therefore the fact of such false assurance would not be inadmissible under a charge of negligent advice in regard to an operation. But such false representation or assurance, alone and of itself, would not be sufficient to establish the charge that the operation was unnecessary, and so palpably unnecessary that a reasonably skilful and prudent surgeon would not have advised it. An operation might be imperatively necessary, and yet, for various reasons, a patient might not be told the truth as to an incidental or auxiliary effect thereof. But if a surgeon should obtain a patient's consent to an operation by a false and fraudulent representation, the surgeon might be liable on that cause of action. In such a case he would perhaps be liable to an action for deceit.

Privileged Information

(*Wesseler vs. Great Northern Railway Co.* (*Wash.*), *157 Pac. R. 461*)

The Supreme Court of Washington, in denying a petition by the defendant for a rehearing, says that the defendant invoked a ruling on the lower court's excluding questions to its witness, the plaintiff's physician, after what the supreme court deems objections by the plaintiff both seasonable and proper. The Washington statute says that a physician shall not testify without the patient's consent, or be examined "as to any information acquired in attending such patient which was necessary to enable him to prescribe or act for the patient." This physician on his visit expected to prescribe, but the defendant asked him whether the plaintiff was up and dressed, whether he was moving about, whether he was staggering, walking in a hesitating manner, reeling, or showing any signs of nausea or dizziness. The defendant would justify these because: First, he was not asked to quote the patient; second, that while these symptoms might be observed for prescribing, it would be for the plaintiff to show that they were the basis of that; and, third, that the plaintiff had previously related that he took from this physician a draft of medicine which put him asleep. As to the first, it is not simply information gained through the patient's mouth that the statute excludes, but information "acquired in attending," not merely told or overheard. As to the second, the burden of justification plainly should be on the defense. As to the third, all that the plaintiff had said was that he had taken the draft from him and had fallen asleep after a headache. This was no attempt to describe the physician's treatment or theory of the disease, or to quote a physician while shutting his mouth. The supreme court passed these arguments because it deemed them quite without merit.

Illegal Treatment by Alleged Prayer with a Laying on of Hands

(*State vs. Pratt* (*Wash.*), *158 Pac. R. 981*)

The Supreme Court of Washington affirms a conviction of the defendant of the crime of practicing medicine without a license. The court says that he maintained a place known as the "Progressive Healing Institute," and had previously treated the sick and afflicted by a system or method which he called "Suggestive Therapeutics." His method of treatment was described in the case of *State* vs. *Pratt*, 80 Wash. 96, 141 Pac. R. 318, as a laying on of the hands on that part "of the body where the trouble is . . . on certain parts of the spine that controls . . . nerves or the nerves that control the organ," and by the giving of certain suggestions which go from the mind of the operator to the mind of the patient so that the mind of the patient will control his body, and a cure be thus effected. It was further shown in this case that the complaining witness went to the office of the defendant seeking, or pretending to seek, treatment for one Augerson, who accompanied him, and who declared to the defendant that he was suffering from a private disease. The defendant made a physical examination and diagnosis confirming the opinion or pretended opinion of Augerson, and thereupon, after assurance that he treated by prayer only, treated his patient by the same physical methods and in the same manner as described in the former case. The defendant contended that his treatment fell within the proviso of the statute; that he treated diseases, and did so in this case, only by prayer. He further contended that he made no charges, and testified: "People who come in here, the majority, are used to paying $1 a treatment, or some $5 for six treatments, and then we don't get any more from them for a week." After the treatment had been concluded, he gave the patient some advice as to diet. While the court is not disposed to define either a form of prayer or an essential posture for those who invoke it (see "The Prayer of Cyrus Brown," by Walter Foss), and while prayer, accompanied by the laying on of the hands, finds ample warrant and justification in the "Holy Writings," the court cannot escape the conclusion that the defendant had done no more than make a superficial adjustment of his practice so as to avoid the effect of the former adjudication against his methods. He attempted to distinguish the cases, but they were essentially the same. It might be contended with reason that this was a stronger case against him, for the testimony of the witness who was treated was that, after the warmth of the hands of the defendant had become noticeable, they were moved to another place on his body, thus indicating that the defendant's faith was not entirely without questioning, or above the aid of physical manipulation, which is sometimes quite as efficient in promoting circulation and health as are the prayers of the faithful. The only distinction that the court can see between this case and the other one is that the defendant had renamed his method of suggestion. Formerly he conveyed his own suggestion of mind through his hand to the mind of the patient, and the patient cured himself, or believed that he was healed. Now he would, by the employment of the same methods, invoke the will of the Supreme Being as a direct curative force. There had been no change in the defendant's methods, either in form or in substance.

Illegal Practice by Teacher of Chiropractic

(*People vs. Oakley* (*Calif.*), *158 Pac. R. 505*)

The District Court of Appeal of California, Second District, affirms a judgment of conviction of the defendant of having practiced a system and mode of treating the sick and afflicted without possessing a certificate issued by the state board of medical examiners entitling him so to do. The court says that, while the defendant's practice, as shown, was as a teacher and demonstrator of the chiropractic system before a class in a chiropractic school, the subjects of such demonstration being the sick and afflicted who at his hands sought and received treatment free of charge, such fact did not exempt him from the operation of the law.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

December, XIV, No. 12

1 Conservative Treatment of Congenital Club Foot. E. W. Fiske, Pittsburgh.—p. 693.
2 *Direct Neurotization of Paralyzed Muscles; Direct Nerve Implantation. A. Steindler, Iowa City, Iowa.—p. 707.
3 *Influence of Os Calcis on Production and Correction of Valgus Deformities of Foot. P. W. Roberts, New York.—p. 720.
4 Scoliosis; Etiology and Treatment. F. E. Peckham, Providence.—p. 725.
5 Case of Spinal Cord Tumor. W. W. Plummer, Buffalo.—p. 734.

2. **Direct Neurotization of Paralyzed Muscles.**—Steindler believes that direct neurotization is possible. The natural limits of physiologic regeneration allow a motor nerve, directly implanted into paralyzed muscle tissue, to establish by regeneration the entire chain of neuromotor connections. From his experiments on dogs, using the anterior crural and sciatic nerves, it appears that this regeneration becomes complete in from eight to ten weeks after the implantation. In close succession to the regeneration of nerve tissue, the muscle tissue also regenerates, and this becomes manifest in the reappearance of the normal contours of the fibers and the normal striations. Physiologic test of the reneurotized muscles also shows that regeneration of the muscle takes place centrifugally from the point of implantation. In none of the experiments could Steindler observe in a normal muscle any inclination to take on additional nerve supply, though ample occasion was furnished to this effect. For this reason he is inclined to be rather skeptical in regard to the question of hyperneurotization. Apparently totally paralyzed muscles in infantile paralysis were regularly found to contain a variable number of perfectly normal muscle fibers and a considerable amount of nervous elements. The finding of considerable

amount of healthy muscle tissue in muscles which had been paralyzed for years offers a strong possibility for the clinical application of this principle. Investigations in this direction are under way.

3. **Influence of Os Calcis on Valgus Deformities.**—It is urged by Roberts that the influence of the os calcis on lateral deformities of the foot is deserving of more consideration than it has heretofore received, for through control of this bone much may be accomplished in the prevention and correction of malpositions and in the relief of symptoms which so frequently ensue.

Annals of Ophthalmology, St. Louis

October, XXV, No. 4

6 Intimate Relation Between Eye and Ear, Nose and Throat; Report of Some Unusual Cases. J. C. Beck, Chicago.—p. 659.
7 Case of Pituitary Body Disease with Reference to Effects of Early Operation. W. E. Bruner, Cleveland.—p. 692.
8 Unusually Large Osteoma of Frontal, Ethmoidal and Sphenoidal Sinuses Involving Orbit and Anterior Cerebral Fossa, Presenting No Subjective Symptoms Other than Proptosis of Eyeball. C. A. Veasey, Spokane, Wash.—p. 699.
9 Hereditary Posterior Polar Cataract; Report of Pedigree. S. L. Ziegler and J. M. Griscom, Philadelphia.—p. 704.
10 Extraction of Cataracts in Capsule by Slight Modification of von Graefe Method. E. Torok, New York.—p. 712.
11 Ambulant After-Treatment of Cataract Extraction; with Postoperative Delirium and on Striped Keratitis. H. D. Bruns, New Orleans.—p. 718.
12 Hand Magnet of Inner Pole Type. H. S. Gradle, Chicago.—p. 724.
13 Case of Glaucoma Following Use of Atropin, with Unusual Complications. T. Y. Sutphen, Newark, N. J.—p. 730.
14 High Hyperopia from Clinician's Standpoint. H. F. Hansell, Philadelphia.—p. 734.
15 Blind Spot. H. S. Gradle, Chicago.—p. 740.

Annals of Otology, Rhinology and Laryngology, St. Louis

September, XXV, No. 3

16 Diagnosis and Management of Vasomotor Disturbances of Upper Air Passages. J. L. Goodale, Boston.—p. 527.
17 Anatomic Relations of Cavernous Sinus to Other Structures, with Consideration of Various Pathologic Processes by Which It May Become Involved. H. G. Langworthy, Dubuque, Iowa.—p. 554.
18 Case of Vagotonia, Apparently Originating in Nasal Accessory Sinuses. G. Fetterolf, Philadelphia.—p. 587.
19 Case of Septic Thrombosis of Jugular Bulb, with Repeated Formation of Septic Thrombi in Sigmoid and Lateral Sinuses. Reference to Literature on Involvement of Torcular Herophili in Such Cases. J. R. Page, New York.—p. 595.
20 Malaria Simulating Diseases of Mastoid and Frontal Sinus. C. W. Richardson, Washington.—p. 602.
21 Innervation of Nasal Chambers. A. P. Brubaker, Philadelphia.—p. 607.
22 Relation of Diseases of Accessory Sinuses to Diseases of Eye, Especially in Children; Report of Two Cases. J. H. Bryan, Washington, D. C.—p. 618.
23 Two Cases of Chronic Pansinuitis Associated with Systemic Infection. G. E. Shambaugh, Chicago.—p. 625.
24 Report of Two Severe Cases of Ulceromembranous Angina. I. Frank, Chicago.—p. 631.
25 Ear Affections and Diabetes. C. Zimmermann, Milwaukee.—p. 637.
26 Esophagotracheal Fistula. R. Levy, Denver.—p. 649.
27 Epidemic of Severe Form of Acute Infection of Throat, with Abscess Formation; Report of Fifty-Eight Operations. C. F. Theisen, Albany.—p. 661.
28 Acute Mastoiditis with Unusual Symptoms Indicative of Intracranial Involvement, Operation; Recovery. E. B. Dench, New York.—p. 672.
29 Oral Cavity in Relation to Ear, Nose and Throat. T. E. Carmody, Denver.—p. 676.
30 Adenoma of Palate. G. B. New, Rochester, Minn.—p. 687.
31 Surgical Anatomy of Frontal Sinus; Anatomic Preparations. G. E. Shambaugh, Chicago.—p. 701.
32 Case of Acute Mastoiditis with Influenzal Meningitis. Treatment by Operation on Mastoid and Anti-Influenzal Serum, Followed by Brain Abscess, Operation; Recovery. F. R. Packard, Philadelphia.—p. 706.
33 Suppuration of Accessory Nasal Sinuses as Possible Etiologic Factor in Multiple Sclerosis. H. H. Stark, El Paso, Texas.—p. 710.

Bulletin of Johns Hopkins Hospital, Baltimore

December, XXVII, No. 310

34 *Nonprotein Nitrogen and Urea in Maternal and Fetal Blood at Time of Birth. J. M. Slemons and W. H. Morriss, New Haven, Conn.—p. 343.
35 *Types of Lesion in Chronic Passive Congestion of Liver. R. A. Lambert and B. R. Allison, New York.—p. 350.
36 *Reaction of Spleen in Acute Infections. F. A. Evans, Baltimore.—p. 356.
37 Iron Impregnation and Incrustation of Various Tissues. O. Klotz, Pittsburgh.—p. 363.

34. **Nonprotein Nitrogen and Urea in Maternal and Fetal Blood.**—As nearly as possible the specimens examined by Slemons and Morriss were obtained simultaneously at the end of the second stage of labor. The fetal blood was collected from the placental end of the severed umbilical cord which bled into a sterile flask; the maternal blood was aspirated from a vein in the mother's forearm. In thirty-five normal obstetric patients at the time of birth the average rest nitrogen in the maternal blood was 25.2 mg. per 100 c.c. (extremes 18.5 to 33.5 mg.); in the fetal blood the average was 24.9 mg. (extremes 19 to 34.2 mg.). In sixteen normal patients the average quantity of urea nitrogen in the maternal blood was 10.5 mg. per 100 c.c. (extremes 8.4 to 14 mg.); in the fetal blood the average was 10.4 mg. (extremes 7.9 to 13.5 mg.). The urea nitrogen represented 44 per cent. of the rest nitrogen in the maternal and 45 per cent. in the fetal blood. The same concentration of urea in both circulations indicates that this substance passes through the placenta by diffusion. Complications accompanied by an increase of urea in the maternal blood—toxemias of pregnancy, syphilis, decompensated heart lesions, and others—are also attended with a corresponding increase in the fetal blood urea. Pathologic cases thus confirm the conclusion that urea diffuses through the placenta. The administration of chloroform during pregnancy causes alterations first in the fetal and later in the maternal blood. Primarily the fetal blood urea is increased. Prolonged anesthesia causes a moderate increase in the rest nitrogen of both circulations. Asphyxia dependent on impairment of the fetal heart action is attended with a notable increase in the urea of the fetal blood. In cases of still birth this generally represents 60 to 85 per cent. of the rest nitrogen.

35. **Chronic Passive Congestion of Liver.**—One hundred and twelve cases of well marked chronic passive congestion were studied by Lambert and Allison. Five types of lesion were recognized: (*a*) capillary dilatation with atrophy of the cells toward the center of the lobule; (*b*) central degeneration with or without capillary dilatation; (*c*) marked fat accumulation in the cells about the hepatic veins with midzonal hyperemia; (*d*) central necrosis with hemorrhage; (*e*) collapse fibrosis. The type of lesion present at necropsy is determined chiefly by the degree of circulatory disturbance and its duration. Long continued stasis of slight or moderate grade leads to capillary dilatation with progressive atrophy of the liver cells (Type 1). Degenerative changes in the liver cells (Type 2) are due either to stasis of more marked degree, or to moderate congestion in conjunction with infection. Extreme stasis results in central necrosis with hemorrhage (Type 4), which passes over into collapse fibrosis (Type 5) if death be delayed long enough. The latter lesion also results occasionally from an extreme degree of atrophy (Type 1). Central fat accumulation with hyperemia of the intermediate zone is commonly associated with chronic rheumatic endocarditis in young individuals.

The authors believe that the necrosis of the liver cells in chronic passive congestion is the effect of stasis alone, leading to asphyxia of the cells farthest removed from their arterial blood supply. Infection plays a minor part in causing a definite necrosis, although it probably contributes to the production of degenerative changes in the liver cells (Type 2). Very extensive necrosis is not infrequently seen in cases of extreme stasis unassociated with infection. Active regeneration of liver tissue is not regularly seen in chronic passive congestion. It is conspicuously absent in those cases of hemorrhagic necrosis where the loss of liver tissue is greatest. It is observed most often in cases of circulatory disturbance of long standing. Chronic passive congestion never leads to the development of cirrhosis of the usual portal or nodular type. Collapse fibrosis, not infrequently seen, is not a true cirrhosis, but a condensation of the reticular fibers where the liver cells have disappeared. In only two out of the 112 cases of chronic passive congestion was an active new growth of connective tissue observed. In these the change was limited to certain parts of the liver, with an involvement of the central portion of the lobule only, producing a picture very different from that of portal cirrhosis.

36. **Reaction of Spleen in Acute Infections.**—It has been Evans' object to interpret the histology of acute splenic tumor, as seen at necropsy, on the basis of what is already known of the cells in the spleen, and to control these interpretations by experimentally induced acute splenic tumor in animals under various conditions. This analysis brings further proof that a separation of the vitally staining histogenous macrophages and the endothelial cells from the other cells of the mature organism is justified functionally, although not always possible on morphologic grounds; and that the spleen is an integral part of the blood system of the body, responding quickly to any influence inhibiting or stimulating hematopoietic activity. In regard to the reaction of the spleen in the commoner acute infections, Evans says, that acute splenic tumors all fall into one or two major groups; the red type, associated with typhoid and closely related infections, and the gray type, with pneumococcus, staphylococcus, streptococcus and other infections. The spleen in each type of acute splenic tumor shows active congestion on the extent of which depends the size, consistence, and, in large part, the color of the organ. The histologic picture of red acute splenic tumor is distinctively characterized by hyperplasia and activity, as evidenced by phagocytosis of the reticulo-endothelial macrophages and decrease in number of the other cells of the pulp; and these changes are dependent on a toxic inhibition of the leukopoietic functions of the body associated with typhoid, and a stimulation, perhaps functional, of the reticular and endothelial cells. The histologic picture of gray acute splenic tumor is distinctively characterized by an increase in the pulp cells, especially the oxydase containing myeloid elements, without any proliferation, or increased activity, of the reticular and endothelial cells; and these changes result for the most part from a functional demand for leukocytes.

California State Journal of Medicine, San Francisco

December, XIV, No. 12

38 Principles and Problems of Industrial Accident Work. M. R. Gibbons, San Francisco.—p. 470.
39 *Streptococci Infections of Skin. E. D. Chipman, San Francisco.—p. 472.
40 Fibromyoma Uteri; Treatment, Operative and Otherwise, with Speciail Reference to Roentgen Ray Therapy. H. J. Kreutzmann, San Francisco.—p. 475.
41 Incipient Systemic Disturbances as Shown by Ocular Signs. E. W. Alexander, San Francisco.—p. 478.
42 Salvarsan and Neosalvarsan in Tropical Diseases. H. Gunn, San Francisco.—p. 481.
43 Report of Human Cases of Rabies in California. J. C. Geiger, Berkeley.—p. 482.
44 Recent Work in Epilepsy. E. W. Twitchell, Sacramento.—p. 483.
45 Roentgen Treatment of Localized Pyogenic Infections; Report of Eight Cases. H. E. Ruggles, San Francisco.—p. 486.
46 Blindness Following Injuries to Back of Head. L. Newmark, San Francisco.—p. 487.
47 Two Freak Accidents During Tonsillectomies. H. S. Moore, San Francisco.—p. 487.

39. **Streptococci Infections of Skin.**—Success in the treatment of superficial streptococcic dermatoses, Chipman says, lies not in the application of the chosen medicament alone. In crusted, impetiginous lesions the keynote to efficient treatment is found in the thorough removal of all the crusts, thereby allowing the remedy access to the oozing surface. Unless this is done all attempts are predestined to fail. In those lesions where the process has extended by a circumferential vesicular lesion which has ruptured, leaving a sort of epidermal collarette, great pains must be taken to cut away the dead corneous layer, for otherwise a pocket is left in which the organisms flourish because the remedy does not reach them. Once the surface is properly cleared away of crusts or epidermal pockets the remedy of choice is white precipitate ointment or the Eau d'Alibour of common French use. White precipitate ointment in its official 10 per cent. strength will probably cure any case if properly applied. For infants and those of delicate skin 5 per cent. is probably better.

Eau d'Alibour is a combination which varies much in its published formulas. The most used for this purpose is as follows: copper sulphate, 2 parts; zinc sulphate, 3 parts; spts. camphor, 10 parts; aq. destil., q. s. ad 500 parts. After thorough preparation of the surface this is applied on tampons three or four times daily, the lesions being protected in the intervals with zinc ointment. For the infections of the retro-auricular fold, the nostrils, or perlèche, 5 per cent. of the tincture of iodin in 80 per cent. alcohol is recommended while in lesions affecting the inguinal folds the percentage of the tincture of iodin may be doubled.

Florida Medical Association Journal, Jacksonville

November, III, No. 5

48 Pyelography as Aid to Diagnosis of Certain Obscure Renal and Abdominal Conditions. H. A. Peyton and E. Jelks, Jacksonville.—p. 129.
49 Roentgen Diagnosis of Renal Calculus; Report of One Hundred and Twenty-Seven Examinations. L. W. Cunningham, Jacksonville.—p. 134.
50 Diagnosis and Treatment of Pellagra. M. L. Tisdale, Tampa.—p. 137.
51 Gunshot Wound of Abdomen with Multiple Perforations of Small Intestine and Mesentery. W. R. Warren and H. C. Galey, Key West.—p. 141.
52 Significance of Eye Symptoms in Relation to Systemic Diseases. S. F. Smith, Lakeland.—p. 142.
53 Eye-Strain; Its Diagnosis and Treatment. J. W. Taylor, Tampa.—p. 144.
54 Sagging Abdominal Viscera; Their Nonsurgical Treatment. G. M. Niles, Atlanta, Ga.—p. 146.
55 Complete Efficient Surgery. R. R. Kime, Lakeland.—p. 150.
56 Unrecognized Nasal Diphtheria. U. S. Bird, Tampa.—p. 153.

Journal-Lancet, Minneapolis

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57 Relations Between Emotions and Glands of Internal Secretion. W. B. Cannon, Boston.—p. 685.
58 *Large Quantities of Milk in Treatment of Disease. J. E. Crewe, Rochester.—p. 688.
59 Unrecognized Fractures of Wrist and Ankle Joints. V. J. LaRose, Bismarck, N. D.—p. 691.
60 Peritonitis in Children; Study of Its Pathologic Physiology. S. M. Hohf, Yankton, S. D.—p. 696.
61 Radium in Treatment of Lymphangioma of Tongue; Report of Case. G. B. New, Rochester, Minn.—p. 699.
62 Etiology of Acute Anginas. W. R. Murray, Minneapolis.—p. 701.
63 Surgical Aspects of Goiter. A. T. Mann, Minneapolis.—p. 703.
64 State Aid for Sanatoria for Tuberculosis. H. M. Bracken, Minneapolis.—p. 706.

58. **Milk in Treatment of Disease.**—Theoretically, milk is the most nearly perfect food. It contains all the elements necessary for the growth of tissue and the maintenance of the body. Chemically it resembles blood; and it is blood before it is milk. The secretory activity necessary for its assimilation is much less than for any other food. It appears to be an independent chemical excitant of the digestive canal. Milk makes more blood, and better blood, faster than any other substance; it is an excellent diuretic. It is good to cure disease, improve elimination, make better blood and more blood, feed the tissues, destroy invading bacteria, quickly remove bacterial and other toxic products, and build up the body resistance. About 3 to 3½ quarts of milk daily will sustain the average adult indefinitely under ordinary circumstances. If the patient can be made to assimilate from 3 to 5 quarts more, combined with complete rest and baths, Crewe says, we have a wide margin to go toward correcting the conditions causing disease.

There should be no ironclad rules; discretion must be used. As a rule Crewe begins the treatment by giving the patient large quantities of water and oranges, or orange juice, without other food, for one or two days. Following this the patient is confined strictly to bed, but is allowed to walk to the bathroom when necessary, unless this is contraindicated. In most instances the daily feeding begins with 3 or 4 quarts of milk, given half-hourly, thirty-two times a day, beginning at 6 a. m. and continuing half-hourly feedings until 9:30 p. m. A daily enema of soapy water or salt solution is important, because patients to whom it is not given frequently have gas distention and nausea, and develop an aversion to the milk. In addition to the milk the patients are allowed a dish of prunes or orange juice daily. No other food or water is given. Increase the amount of milk given one quart every other day until the amount the patient can take is reached which in most cases is from 6 to 8 quarts. Crewe has had patients gain 20 pounds in two weeks on 8 quarts a day. To obtain the best results, whole raw milk must be given in large amounts combined with complete rest in bed and hot baths. Unless contraindicated each patient is given a hot bath daily, lasting from ten minutes to three-fourths of an hour, and then wrapped in a blanket to cause perspiration. During the past four years Crewe has treated 136 cases by this method, including cases of tuberculosis, arteriosclerosis, chronic rheumatism, chronic nephritis, gastric ulcer and diseases of the nervous system.

Medical Record, New York

December 9, XC, No. 24

65 Scope and Technic of Roentgen-Ray Therapy. I. Levin, New York.—p. 1015.

66 Worth of Early Roentgen Ray Examination in Gastric Cancer. G. M. Niles, Atlanta, Ga.—p. 1025.

67 Complete Transposition of Viscera; Report of Two Cases. H. J. Hartz, Philadelphia.—p. 1027.

68 Diversional Therapy in Mental Disease. L. F. Robinson, Raleigh, N. C.—p. 1028.

69 Nausea and Vomiting After Nitrous Oxid Oxygen Anesthesia. W. L. Soule, New York.—p. 1030.

70 Is Angina Rather than Tonsillitis Precursor of Acute Rheumatism? J. G. Drennan, Rosebank, Staten Island.—p. 1032.

71 Diagnosis of So-Called Sciatica. E. W. Bedford and E. O. Ravn, Chicago.—p. 1033.

Modern Hospital, St. Louis

December, VII, No. 6

72 First Units of New Buffalo City Hospital. Green and Wicks, Buffalo.—p. 447.

73 Four Years of Washington County (Iowa) Hospital. C. A. Boice, Washington, Iowa.—p. 456.

74 Edible Pastes—Macaroni, Spaghetti, Vermicelli, Noodles. J. P. Street, New Haven, Conn.—p. 463.

75 Plans for County Tuberculosis Hospital. W. H. Watterson and L. F. Sutton, Oak Forest, Ill.—p. 466.

76 What Dispensary Work Should Stand For. R. C. Cabot, Boston.—p. 467.

77 Lighting of Hospitals in Great Britain. S. F. Walker, Bath, England.—p. 469.

78 Care of Alcoholics in Modern Hospital. C. B. Towns, New York.—p. 473.

79 For Hospital Standardization. J. G. Bowman.—p. 481.

80 Hospital Accounting and Finances. A. R. Warner, Cleveland.—p. 482.

New York Medical Journal

December 9, CIV, No. 24

81 Gonorrhea Curable Scourge. G. A. Wyeth, New York.—p. 1125.

82 Hay Fever. W. Scheppegrell, New Orleans.—p. 1127.

83 Surgical Immunity. W. W. Babcock, Philadelphia.—p. 1132.

84 Psychopathology of Noise. A. A. Brill, New York.—p. 1134.

85 Profound Secondary Anemia Due to Ulcerated Internal Hemorrhoids; Report of Three Cases. J. F. Saphir, New York.—p. 1138.

86 Internal Hemorrhoids. A. A. Landsman, New York.—p. 1139.

87 Hard Water and Health. F. L. Rector, New York.—p. 1142.

88 Parenchymatous Glossitis; Report of Case. M. Luhman, New York.—p. 1146.

Ohio State Medical Journal, Columbus

December, XII, No. 12

89 Unfortunate Surgical Experiences. W. E. Ranz, Youngstown.—p. 791.

90 Why Is Early Tuberculosis So Often Not Recognized? C. O. Probst, Columbus.—p. 793.

91 Practical Value of Stereoroentgenograms of Mastoid. J. M. Ingersoll, Cleveland.—p. 796.

92 Foreign Bodies in Eye. W. E. Shackleton, Cleveland.—p. 798.

93 Vaccine Therapy in Gonorrhea. A. Ravogli, Cincinnati.—p. 800.

94 Pituitary Extract; Its Use and Abuse. A. J. Skeel, Cleveland.—p. 801.

95 Epilepsy. H. H. Drysdale, Cleveland.—p. 802.

96 Should State and Industrial Corporations Be Recipients of Charity Dispensed by Hospitals? H. Wright, Cleveland.—p. 804.

Ophthalmic Record, Chicago

December, XXV, No. 12

97 Congenital Glaucoma and Some Allied Conditions. R. H. Elliot, London.—p. 595.

98 Ocular Complications of Anterior Polimyelitis. W. C. Posey and W. C. Swindells, Philadelphia.—p. 609.

99 Spontaneous Explosion of Snellen Improved Artificial Eyes. A. S. Rochester, Chicago.—p. 614.

100 Case of Blepharochalasis—Variety of Dermatolysis. R. L. Randolph, Baltimore.—p. 616.

101 Facial Pigmented Nevus Involving Sclera. W. A. Pusey, Chicago.—p. 618.

102 Case of Congenital Suppurative Choroiditis with Microphthalmos. R. L. Randolph, Baltimore.—p. 619.

103 Anophthalmos. H. R. Wright, Columbus, Ohio.—p. 620.

Texas State Journal of Medicine, Fort Worth

December, XII, No. 8

104 Paratyphoid Infection. J. D. Whitam, U. S. Army.—p. 314.

105 Whole Time County Health Officer. P. W. Covington, Austin.—p. 317.

106 Medical Inspection of Schoolchildren. C. E. Durham, Hico.—p. 319.

107 Some Essentials in Management of Tuberculous Patients. C. M. Hendricks, El Paso.—p. 322.

108 Scope of Artificial Pneumothorax in Pulmonary Diseases. A. E. Greer, Houston.—p. 324.

109 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. W. C. Farmer, San Antonio.—p. 326.

110 *Treatment of Asthma and Mixed Infection of Pulmonary Tuberculosis with Autogenous Vaccine. T. C. Terrell, Fort Worth. p. 330.

111 Vaccines in Respiratory Diseases. B. F. Stout, San Antonio.—p. 332.

112 Successful Excision of Spleen for Traumatic Rupture, Complicated by Traumatic Intestinal Paresis, Malaria and Hookworm. H. A. Barr and W. F. Thomson, Beaumont.—p. 334.

110. **Asthma and Tuberculosis Treated with Autogenous Vaccine.**—Three cases of pulmonary tuberculosis and one of asthma in which the use of autogenous vaccines was followed by favorable results are cited by Terrell. He says that in cases of this kind vaccines, when properly prepared and intelligently administered, together with the proper attention to rest and diet, result in great benefit to the patients. If patients are in an advanced stage before vaccine treatment is started it is needless to say that one cannot expect to obtain the wished for improvement. In cases of pulmonary tuberculosis it is not the tubercle bacilli, but the mixed infection that causes the rapid breaking down of the lung tissue and it is this mixed infection that is affected by autogenous vaccines. The method followed by the author is detailed.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

November, XXI, No. 6

1 Accurate Roentgenography of Pituitary Fossa and Sphenoidal Sinuses. H. T. George.—p. 169.

2 Simple, Rapid and Accurate Method for Localization of Foreign Bodies so as to Indicate to Surgeons Position of Patients when Roentgenographed. H. E. Gamlen.—p. 175.

3 Rotating Plate Changing Table. A. St. G. Caulfeild and R. Knox.—p. 177.

4 Report with Roentgenogram of Dislocated Lens. J. D. Morgan.—p. 181.

5 Case of Functional Dysphagia. T. L. Bunting.—p. 182.

6 Case of Diffuse Fibromyoma of Esophagus, Causing Dysphagia and Death. A. J. Hall.—p. 183.

British Journal of Children's Diseases, London

November, XIII, No. 155

7 Congenital Tuberculosis. F. P. Weber.—p. 321. To be continued.

8 Teeth in Rickets. J. L. Dick.—p. 332.

9 *Two Cases of Splenectomy for Splenic Anemia. W. F. Cholmeley.—p. 338.

9. **Splenectomy for Splenic Anemia.**—The two patients reported on by Cholmeley were children aged 6 and 12 years. The first had been ailing for about three years. The removal of the spleen gave no trouble. The day after the operation there were well marked evidences of improvement. Two days before operation the red cells numbered 1,850,000; white cells, 6,500 per cm. Seventeen days after operation, red cells, 2,700,000; white cells, 11,500. Six weeks after operation, the red cells numbered 2,425,000; white cells, 15,600; hemoglobin, 70 per cent. The second patient had apparently been quite well, except for some slight paleness, until a week before

admission, when he had a bad fright. The blood count was: red cells, 1,330,000; white cells, 5,000; hemoglobin, 35 per cent. No difficulty was experienced in removing the spleen. Three days before operation a blood count was taken: red cells, 1,600,000; white cells, 11,000. A week after operation the blood count was: red cells, 2,900,000; white cells, 10,000; hemoglobin, 70 per cent.

British Medical Journal, London

December 2, II, No. 2918

10 Mechanism of Serum Reaction. H. R. Dean.—p. 749.
11 Five Cases of Labor Obstructed by Contraction Ring. C. White.—p. 752.
12 Life History of Ascaris Lumbricoides. F. H. Stewart.—p. 753.
13 Use of Filtered Roentgen Rays for Relief of Fibrous Bands and Adhesions Resulting from Bullet Wounds. A. W. Williams.—p. 754.
14 *Treatment of Wound Infection. J. O'Conor.—p. 755.
15 Acidosis in Children. A. C. Stark.—p. 756.
16 Case of Congenital Cystic Disease of Kidneys. T. Holmes.—p. 757.
17 Return to Work—Legal and Other Impediments. J. Collie.—p. 757.

14. **Treatment of Wound Infection.**—O'Conor strongly recommends that, when the general symptoms, as indicated by elevation of pulse and temperature and coated tongue, are combined with a foul discharging wound, ether should be administered, a tourniquet applied well above the lesion, and a few (four to six) incisions made into parts in which fluctuation or bogginess is indicated on digital palpation, always carrying one or two such incisions into or from the original wound. The edges of the wound are drawn apart with retractors and the field mopped dry with gauze sponges. A careful inspection is then made of the interior, while digital pressure is made all round the exterior of the wound; if any leaking into the cavity is observed, a closed forceps or director is pushed into the track, the secondary collection located and a direct incision made into it. The cardinal factor is the conversion of a septic cavity or cavities into one large open sore, and, in nine cases out of ten, if this be properly done, and followed by irrigation every four hours with hot "peroxid carbolic" lotions and hot fomentations, with absolute rest on a splint, the onset of repair is only a matter of hours, or at most a few days. When feasible, submersion in warm peroxid lotion, once or twice daily, is a useful adjunct. O'Conor's treatment of infected wounds consists of four hourly irrigations with hot peroxid solutions (2 ounces to liter), followed instantly by hot carbolic lotion (½ ounce to liter), and the application of hot mercuric chlorid fomentations (wrung dry).

Dublin Journal of Medical Science

November, CXLII, No. 539

18 Fractures and Fracture Dislocations. J. S. McArdle.—p. 289.
19 Heliotherapy in Tuberculosis of Bones and Joints. E. M. Hewitt.—p. 295.

Journal of Laryngology, Rhinology and Otology, London

November, XXXI, No. 11

20 Pathology of Otosclerosis. J. S. Fraser and R. Muir.—p. 465.
21 Influence of Position on Appearances of Normal Pharynx. D. Guthrie.—p. 479.

Journal of Tropical Medicine and Hygiene, London

November 15, XIX, No. 22

22 Suggestions for Institution of Rural Antimosquito Measures in Antigua. W. M. McDonald.—p. 261.

Lancet, London

December 2, II, No. 4866

23 *Cases of Tetanus Treated in Home Military Hospitals. D. Bruce.—p. 929.
24 Injuries of War. A. M. Sheild.—p. 932.
25 Six Cases of Esophagectasia. H. B. Shaw and A. W. Woo.—p. 934.
26 Problem of Tuberculous Soldier. E. H. R. Harries.—p. 939.
27 *Three Cases of Acute Myeloid Leukemia in Children Under Seven. A. Ross.—p. 940.
28 Ligature of Left Hypogastric Artery for Traumatic Gluteal Aneurysm. H. M. Frost.—p. 942.

23. **Treatment of Tetanus.**—Among 195 cases under consideration by Bruce, 77 are noted as having been treated with antitetanic serum before the onset of symptoms; all these were inoculated overseas. Not a single case is reported as having received a prophylactic injection of antitoxin in any home hospital. Of these 77, 44 recovered and 33 died, giving a mortality of 42.8 per cent. Of the remaining 118, of which there is no record of prophylactic treatment, 56 recovered and 62 died; 52.5 per cent. Of 50 patients inoculated on day of wound, the 29 patients which recovered had an average incubation period of 37.8 days. Of the 21 fatal cases the average incubation was thirty-three days. Of 67 patients inoculated within five days of having been wounded, the 38 patients which recovered had an average incubation period of 37.7 days; the 29 which died had an average incubation period of twenty-eight days. Out of the total of 195 cases the number treated with antitetanic serum after the onset of symptoms was 175 (90 per cent.). Twenty cases did not receive curative treatment with antitetanic serum in England. Of these 6 recovered and 14 died; mortality, 70 per cent. Of the 175 patients which received serum treatment 92 recovered and 83 died; mortality, 47.4 per cent. All evidence goes to show that antitoxin is the more effective the earlier in the disease it is given. Twenty-two cases were treated by phenol; 7 recovered, 15 died; mortality, 68 per cent. Eighteen cases were treated by magnesium sulphate, 6 by subcutaneous injection; 4 recovered and 14 died; mortality, 78 per cent..

The advantage of the intraspinal route over the subcutaneous or other routes was not conclusive. With our present knowledge the treatment of a case of tetanus, Bruce says, might be as follows: (*a*) place in a quiet, darkened room under the care of a sympathetic and capable nurse. "Rest, sleep and food" are looked on as the first essentials of treatment; (*b*) if thorough surgical treatment is carried out on wounds from the beginning, so as not to allow the presence of necrotic tissues or foreign bodies, the number of cases of tetanus should sensibly diminish, if not altogether disappear. But if a case does occur then the wound should not be actively interfered with until the tetanic symptoms have subsided; (*c*) the intraspinal injection of large doses of anti toxin, of high potency if available, should be begun at once, and supplemented by intramuscular and subcutaneous injections; (*d*) in addition, if necessary, the patient should receive sedatives, of which morphin in ¼ grain dose and administered every four hours is perhaps the most suitable. Chloral and other sedatives are also given by the mouth or rectum.

27. **Acute Myeloid Leukemia in Young Children.**—In Ross' 3 cases (fatal) no very definite history of onset could be obtained, and it was usually the discovery of glands or of an enlarged liver and spleen that led to a blood examination and thence to a diagnosis. In two cases the mouth, teeth and gums were in a bad state; in the remaining one they were good. In two very definite subcutaneous and other hemorrhages were present clinically; in one the presence of hemorrhages was doubtful, a suspicious spot or two only being observed. In all the enlargement of the liver and spleen, while perfectly obvious and definite, was only of a moderate degree. All had one or more sets of glands palpable and enlarged to a greater or less extent.

Hemorrhages constituted the principal feature in the two permitted necropsies of Cases 1 and 3. In both the pericardium and heart muscle showed petechiae; in addition, in each the latter gave macroscopic evidence of fatty change. In Case 1 the marrow contained 96.66 per cent. of nongranular mononuclear cells and 92.33 per cent. of myeloblastic or stem cell types; also for Case 3 in the marrow count the percentage figures of the same varieties of cell were 91.5 and 84.5 respectively. In every example the deficiency of red cells was great. Case 3 alone had an antemortem count of just over 2½ millions; on the other hand, Cases 1 and 2 were each about 1½ millions at the final examination. In no instance was a count of 3 millions obtained. The color index was 0.8 for two and 0.6 to 0.7 in the remaining one. Nucleated red cells were usually absent, and always so before death; only 8 were seen in the first differential count of Case 1 and none afterward; they were wanting in Case 3, and in 2 a single megaloblast was once observed in five counts.

In Case 1 myeloblasts were 75 per cent. and lymphocytes 23.33 per cent., to be followed by percentages of 58.5 and 36 respectively. In Case 2 the percentage of myeloblasts taken in the order of five counts were 42.5, 67.5, 81.0, 60.5 and 72.5. In Case 3 the myeloblasts reached 86 per cent. in the only examination that was possible. Next taking the leukocytes, the only example showing anything approaching a leukocytosis was Case 2, namely, 17,200 on the first examination and 22,000 on the third; later on before death the counts were 7,800 and 3,132. Case 1 gave counts of 6,900 and 2,200. In Case 3 the leukopenia amounted to 1,132. Although few cells could be got together to form a differential count, the predominance of the myeloblast was unquestionable. Confirmation was added by the postmortem findings and the count of the marrow film. Case 1 was 6 years of age; Case 2, 3½ years and Case 6, 5½ years old.

Medical Journal of Australia, Sydney

October 28, II, No. 18

29 Biologic Aspects of Venereal Diseases Problem. J. B. Cleland.—p. 359.
30 Venereal Problem. R. Arthur.—p. 361.
31 Some Cases in 1915-1916 Epidemic of Infantile Paralysis. R. B. Wade.—p. 364.

Medical Journal of Australia, Sydney

November 4, II, No. 19

32 Administrative Control of Pulmonary Tuberculosis in Australia. J. K. Patrick.—p. 379. To be continued.
33 *Point in Technic in Cultivation of Meningococcus. R. O. Douglas.—p. 382.
34 Insecticidal Fumigation in Ships, with Special Reference to Use of Hydrocyanic Acid and Prevention of Ship Borne Yellow Fever. C. E. Corlette.—p. 384. To be continued.
35 Case of Diabetic Conjunctivitis. G. H. Hogg.—p. 387.

33. **Cultivation of Meningococcus.**—In all attempts to grow the meningococcus, Douglas says, much greater certainty of success may be expected if the medium used is warmed to optimum temperature before the inoculation.

Sei-I-Kwai Medical Journal, Tokyo

November, XXXV, No. 11

36 Investigation of Diabetes Mellitus Among Japanese. S. Iwai.—p. 65. To be continued.

Annales de Gynécologie et d'Obstétrique, Paris

September-October, XII, pp. 257-320

37 Delivery of Double-Headed Child. (Naissance d'un monstre dérodyme.) A. Herrgott.—p. 257.
38 Embryologic Study of Beef Double Monster. (Historique des monstruosités et étude embryologique d'un monstre double: anadidyme monocéphalien.) A. Keilin.—p. 268.
39 *Origin of Certain Types of Monsters. (Tératogenèse d'un monstre humain, athoracique, acardiaque, acéphalique.) H. O. White.—p. 298.

39. **Origin of Athoracic Monsters.**—White's communication describes a monstrosity, the third of a set of triplets. The cephalic portion of the Müllerian ducts evidently had failed to develop, while the caudal portion had developed normally. The article is illustrated and some literature on the subject of this type of teratogenesis is reviewed. His conclusion is that it seems logical to assume some constriction cutting off part of the embryonal disk, amputating the fetus, as it were.

Archives des Mal. de l'App. Digestif, Paris

IX, No. 1, pp. 1-60

40 *Vertigo from Ear Trouble Aggravated by Stomach Factors. (Vertige stomacal et vertige auriculaire.) G. Linossier.—p. 1.
41 *Polypous Carcinoma of the Stomach. W. Oettinger and P.-L. Marie.—p. 18.
42 *Stenosis of the Pylorus plus Occlusion of the Intestine; Three Cases. A. Mathieu and A. S. Alivisatos.—p. 26.

40. **Treatment of Vertigo.**—Linossier shows by the literature of the last decade how the old conception of vertigo from stomach disturbance is being restricted more and more. The consensus of opinion is now that the internal ear is responsible for vertigo in the majority of cases, but Linossier insists that—even admitting that the labyrinth is responsible for the dizziness—yet gastric disturbance is often a subsidiary factor, and correction of this may lower the threshold of the other below the symptom-producing point. There may be a triple combination of disturbance in the labyrinth, the stomach and the nervous system, and treatment of the accessible factors will influence the others. He emphasizes the necessity for study and treatment of the digestive apparatus in the routine treatment of Ménière's disease.

41. **Polypous Cancer of the Stomach.**—In the case reported, the man of 48 rapidly recuperated after removal of a malignant tumor, almost smooth and as large as a mandarin orange, growing from a fold in the stomach wall near the lesser curvature, on a short pedicle. The whole tumor weighed 134 gm. and measured 56 by 75 by 65 mm. It was in two lobes and was free from ulceration. The only symptoms had been hemorrhages, each preceded by an attack of vertigo and buzzing in the ears and loss of consciousness. No functional nor objective signs of gastric trouble otherwise could be detected except that chemical investigation showed occult blood and apepsia. At the laparotomy the tumor could be felt rolling around in the stomach, and it was easily resected. The diagnosis of cancer was based on the apepsia and constant occult blood in the stools although there was but little loss of weight and no appreciable digestive disturbances except the gastric hemorrhages. A liver affection might have been responsible for these. Palpation and roentgenoscopy were also negative.

42. **Stenosis of the Pylorus with Occlusion of Neighboring Intestine.**—In the three cases reported, the strangulation of the bowel was from adhesions developing in consequence of a chronic inflammatory process in the pylorus region. In one case there was ulceration which led to stenosis of the colon in the iliac region. The bowel was released from the adhesions but two years later there was stenosis of the pylorus from the same cause. Operative treatment restored the man to clinical health. In the second case the jejunum was strangulated and kinked by adhesions within two months of a gastro-enterostomy done for cancerous stenosis of the pylorus. The third case terminated fatally, with attacks of tetany. The pyloric stenosis was due to an ulcer; an operation for a gallstone impacted in the common bile duct was also necessary. The stenosis of the jejunum did not develop until seven years after the gastro-enterostomy for the ulcer. The possibility of these tardy sequels of an ulcer should not be forgotten when confronted with a case of occlusion of the bowel with or without stenosis of the pylorus.

Bulletin de l'Académie de Médecine, Paris

November 7, LXXVI, No. 44, pp. 345-368

43 *Ictero-Hemorrhagic Spirochetosis. Committee Report.—p. 346.
44 Relations between Psoriasis and Tuberculosis. Gaucher.—p. 361.
45 Shrapnel Ball Free in Left Ventricle. Lobligeois.—p. 364. Described in Paris Letter, p. 1861.
46 *Air Bubble Test for Coagulating Time of Blood. (Estimation du temps de coagulation du sang in vitro, par le procédé de la "bulle d'air.") E. Lenoble.—p. 365.
47 Revival of Endemic Malaria in France. (Reviviscence, en 1916, d'un foyer endémique de paludisme en Beauce.) P. Rousseau. p. 367.

43. **Febrile Hemorrhagic Jaundice.**—As a spirochete has been found probably responsible for this disease, it is now called "icterohemorrhagic spirochetosis" by some writers, as it differs in certain respects from the classic Weil's disease. The history, clinical details and treatment and prophylaxis are discussed at length in this committee report on the article by Martin and Pettit which was reviewed in these columns Dec. 9, 1916, p. 1794.

46. **Air Bubble Test for Coagulation of Blood.**—Lenoble imprisons a little air in the test tube with the blood (Hayem's hematimeter). The air moves around, like the drop of fluid in a spirit level, as long as the blood is fluid. The moment the blood begins to coagulate, the bubble of air is immobilized and no slow tilting of the tube makes it move again. He has found it possible by this means to estimate the very second when coagulation begins, with greater precision than by any other technic.

Presse Médicale, Paris

November 20, XXIV, No. 64, pp. 513-528

48 *The Nervous Shock. (Le choc nerveux.) H. Roger.—p. 513.
49 *Treatment of Foreign Bodies in the Lungs. (Traitement des corps étrangers du poumon.) V. Pauchet.—p. 516.

50 *Bone Graft to Reenforce Fractured Tibia. (Quatre tentatives de greffes osseuses pour pertes de substance tibiale.) P. Cruet.—p. 517.
51 Traumatic Anastomosis between Urethra and Rectum. J. Boeckel.—p. 520.

48. **The Nervous Shock.**—This is a summary of our present knowledge on the nervous shock from trauma from operations, especially operations on the abdominal viscera, and on moral shock from emotional stress. Roger comments on the important contributions made by American surgeons and research workers to the study of shock, and reports some personal experiences showing the modification of the blood pressure in rabbits in the course of operations on the abdominal viscera. The carotid artery was connected with the manometer, and it was seen that incising the abdominal wall did not lower the pressure, but maltreating the intestine caused it to drop and the decline was lower and more durable, the more serious the injury of the bowel. Roger reports further experiments on rabbits which confirm Crile's statements in regard to the prompt reaction to centripetal stimulation when shock is not very deep, the blood pressure rising. But when the shock is profound the response is exactly the reverse, the pressure dropping durably. He noticed further an increase in the sugar content of the blood during shock, probably result of reduced oxidations. Also that shock retards the effect of intoxications. A dose of strychnin which would cause tetanic contractions in fourteen minutes in normal frogs, did not cause them until after an hour when injected into frogs in a state of shock. By intravenous injection the interval was from twenty to twenty-five minutes, instead of less than one minute.

49. **Projectiles in the Lungs.**—Pauchet emphasizes the simplicity and ease with which a projectile can be removed from the lung under regional and paravertebral anesthesia. This is far preferable to general anesthesia for operations on the lungs, as the respiration proceeds normally and the patient can be moved around to suit.

50. **Graft to Close Gap in Tibia.**—The gap in the tibia was from 2 to 9 cm. long in the four cases described. Cruet cut a long subperiosteal strip from the crest of the tibia and twisted it around to bridge the gap. It soon grew solidly in place, and was able to produce its own callus when a graft accidentally broke in one of the cases. He gives six illustrations of each of his four cases, and commends the method to others. He fastens the graft in place with bronze wire. There was slight suppuration in two cases, and in these consolidation came quicker and seemed to be more durable than when there was no suppuration. It probably stimulated the periosteum to increased functioning. The graft with its periosteum is a living tissue which retains its shape and grows solidly to its support in time and may even become hypertrophied. The ends of the graft are planted in the tibia stumps.

Berliner klinische Wochenschrift

October 30, LIII, No. 44, pp. 1185-1208

52 Difficulty of Differential Diagnosis of Dysentery. (Bedeutung der anatomischen Diagnose der Ruhr.) D. v. Hansemann.—p. 1185.
53 *Typhus and Lice. (Ueber Fleckfieber und Entlausung.) Arneth.—p. 1187.
54 *Five-Day Fever. (Ueber Fünftagefieber.) Linden.—p. 1191.
55 Experience in Treatment of Syphilis. M. von Zeissl.—p. 1193. M. von Zeissl.—p. 1195.
56 *Objective Test for Night Blindness. (Ein objektives Symptom zur Prüfung der Nachtblindheit.) H. Feilchenfeld.—p. 1195.

53. **Typhus and Lice.**—The freedom from typhus in Arneth's corps, although it was occasionally imported but never spread, he ascribes to the systematic search for lice which is imposed on the men twice a day. Morning and afternoon they are given time to examine their bodies, clothing and bedding for lice. This was obligatory whether they had lice or not. The men were glad to take the time and pains for the search, and the nurses did it for the sick and wounded. Nothing else answers the purpose continuously, not even naphthalin, to keep lice away. This loses its odor in two weeks.

54. **Five-Day Fever.**—In Linden's four cases there was a regular recurrence of fever every fifth day on an average, but the predominant symptoms were intense pains in the calves, in the limbs, and headache. The gastro-intestinal canal also seemed to be involved and in one of his cases there was a tetanic condition.

56. **Objective Test for Night Blindness.**—Feilchenfeld noticed that after being in the dark for an hour, the eye will react to a weak light stimulus which, before the dark hour, would not have modified it in the least. By this means it is possible to detect true nyctalopia with a pocket flash light in the last phase of its activity.

Deutsche medizinische Wochenschrift, Berlin

November 2, XLII, No. 44, pp. 1341-1372

57 *Thumb Made from Radius after Amputation of Hand. (Lebendiger Handersatz durch Schaffung eines neuen Gelenks.) Walcher.—p. 1341.
58 Dysenteriform Intestinal Disease with Edema. T. Rumpel and A. V. Knack.—p. 1342. Continued.
59 *Extract of Blood Platelets in Treatment of Hemorrhagic Diseases and Hemophilia. (Zur Behandlung der häm. Diathesen und der Hämophilie durch das Koagulen.) A. Fonio.—p. 1344.
60 Intravenous Infusion of Camphor. Hosemann.—p. 1348.
61 Deviation of Complement by Hemolytic Rabbit Immune Serums. P. Schmidt.—p. 1350.
62 Transplantation of Tendons to Remedy Radial Paralysis. (Zur Behandlung der Radialislähmung.) H. Weitz.—p. 1351.
63 The Wassermann Test in General Practice. (Zur Ausführung der Wassermannschen Reaktion in der Praxis.) E. Saalfeld.—p. 1351.
64 *No Memory of Gunshot Wound of the Head. (Fehlende Erinnerung des Verletzten für einen Schädelschuss. Verkannter Mordversuch.) J. Härtl.—p. 1352.
65 *Acute Articular Rheumatism with Meningitis. Herzog.—p. 1353.
66 *The Typhus Germ. (Zur Aetiologie des Fleckfiebers.) H. da Rocha-Lima.—p. 1353.
67 Combination of Syphilitic Primary Chancre and Diphtheric Vulvitis in Girl of Seven. H. Egyedi.—p. 1354.
68 Case of Persisting Optochin Amaurosis. Lorant.—p. 1355.
69 Advantages of Centralized Organization in Each Province of all Forces Working for Health: the Social Insurance, Public Health and Military Services. (Zweckverbände für Gesundheitsfürsorge.) Ascher.—p. 1355.

57. **Making a Thumb with Movable Joint Out of the Radius.**—The right hand had been amputated in the case described by Walcher with five illustrations. He cut down to the radius and divided it about 6 cm. from the lower end. In the gap thus formed he inserted a piece of fascia from the thigh, folded over to bring the fat side inside. This was sutured in place. The lower end of the radius thus forms a new "thumb." Extension is somewhat hampered, but as all the flexion tendons are fastened to the new thumb, it can be flexed with great force. Supination and pronation are also possible. The man wears a supporting open splint for the new thumb to press against, like the support afforded the natural thumb by the palm. One illustration shows the man holding a wooden chair in the air with the grasp from the new hand. Six months have passed since the operation and, as the functional use of the hand has regularly improved, it may be counted on to be permanent.

59. **Extract of Blood Platelets in Treatment of Hemorrhagic Tendency.**—Fonio's long report on intravenous treatment of hemorrhagic diatheses in general with his extract of blood platelets emphasizes that, as this has only a symptomatic action, it has to be kept up indefinitely. It is certainly, he says, the simplest and easiest method of supplying the lacking blood platelets when this seems to be the cause of the trouble, as in Werlhof's disease. In hemophilia, on the other hand, a single application may turn the scale and a permanent cure follow. He urges that in every case of a hemorrhagic tendency the blood platelet count should be made as regularly as the hemoglobin percentage is estimated in chlorosis, the sugar in diabetic urine, etc. This method of treatment is contraindicated when there is reason to suspect changes in the vessel walls or abnormal conditions in the circulation liable to favor thrombosis or embolism, as in certain stages of syphilis, arteriosclerosis, inanition and septic processes.

64. **No Memory of Having Been Shot.**—The man remembered all the happenings up to and after his supposed "stroke of apoplexy," but reading in the paper of a murder under similar circumstances, he found that the murderer was the same stranger who had been with him at the time of his

"stroke." Roentgen examination then revealed a bullet in the upper spine. It had inflicted a grazing wound on the head, ascribed at the time to the fall during the "stroke."

65. **Acute Arthritis with Meningitis.**—In Herzog's case the joint troubles seemed to be the work of the meningococcus, but marked benefit was realized from salicylic medication in this and in three other cases in which acute articular rheumatism seemed to casually accompany meningitis. In the case described at length the joint trouble was not improved by puncture, potassium iodid or serotherapy, but it yielded promptly to the salicylates.

66. **The Typhus Germ.**—Rocha-Lima reiterates that the *Rickettsia prowazeki* may be and probably is a bacillus, but until absolutely certain of this he gives it this non-committal name. He adds that when its bacterial nature is established beyond question, then the "rickettsia" can be dropped and the germ called merely *Bacillus prowazeki.*

Medizinische Klinik, Berlin

October 22, XII, No. 43, pp. 1117-1142

70 *Infectious Diseases among the Troops. (Erfahrungen über Infektionskrankheiten im Felde.) A. Lehndorff.—p. 1117.
71 *Treatment of Eye Affections by Parenteral Injection of Nonspecific Protein—Milk. (Heilung der Iritis und anderer Augenerkrankungen durch parenterale Eiweissinjektionen.) L. Müller and C. Thanner.—p. 1120.
72 Tetanus in the First Year of the War. H. Pribram.—p. 1124. Concluded.
73 Experience of a Surgeon at Main Dressing Station. (Chirurgische Tätigkeit und Erfahrungen auf dem Hauptverbandplatz.) Petermann.—p. 1127.
74 Unilateral Dislocation of Cervical Vertebrae. (Ueber halbseitige Halswirbelluxationen.) E. Schmidt.—p. 1132.
75 Adjustable Extension Splint Made from Cramer Ladder Splint. (Die Lyraschiene für den Arm.) O. Vulpius.—p. 1133.

70. **Infectious Diseases in the Field.**—Lehndorff has been connected in turn with a number of different hospitals for infectious diseases, all more or less close to the firing line, and he comments on the atypical clinical picture presented by most of the common infectious diseases. He has had opportunity to compare the course in those with and without vaccination against typhoid. In the vaccinated the course was much milder and shorter, the mortality during the last nine months, for instance, was only 4.5 per cent. while it was 24.1 per cent. in the nonvaccinated civilians. But the vaccination did not seem to ward off or mitigate complications. Agglutination is not instructive, his experience indicates, except from 1 : 400 onward. Early and high agglutination seems to be a favorable omen. In differentiating typhus from typhoid, a sudden onset is no criterion. Either may begin suddenly or insidiously, with or without a prodrome or chill, and the fever curve be atypical. There may or may not be a catarrhal condition of the upper air passages and eyes with typhus while severe laryngitis he found common in typhoid. Acceleration or slowing of the pulse may occur with either, as also central deafness and the local exacerbation of the exanthem when the skin is rubbed with a rubber eraser, the *Radiergummiphänomen.* The exanthem, in short, is the main differentiating feature for typhus. It is almost invariably present, in adults at least. In the forty-nine cases he examined for the purpose he found an enanthem on the hard palate, uvula and the pillars. The mind is usually clear during the first four days of typhus, and there is characteristic euphoria, in marked contrast to the depression in typhoid. In typhoid the mind grows clear as the fever subsides, but with typhus as the fever subsides the delirium may increase. Necropsy explains this by the anatomic changes in the brain and the edema and hyperemia of the meninges. Another characteristic feature of typhus is the resistance displayed by the fever to antipyretics. In typhoid, in the third week as the ulcerations are healing occult or visible blood may be found in the stools. Two physicians who had been vaccinated against typhus developed a severe type of typhus but finally recovered. The Felix-Weil reaction proved an important differential measure. He adds that it was negative in other diseases.

He says of cholera that the only treatment that displayed any efficacy was a preparation of digitalis. Drugs given by the mouth were vomited too soon for effectual action. Even saline infusion did not help. The algid phase seems to be due to a toxic paralysis of the vasomotors, especially in the splanchnic area. He also describes an intermittent fever of a cyclic character, keeping up for weeks, the febrile attacks only a day or two long. The spleen was not enlarged but as the temperature rose there were paroxysms of pain in the calves. The malaria and relapsing fever germs could not be found in the blood. This disease was encountered only in the swamps along the Ikwa river so he calls it Ikwa fever.

71. **Parenteral Injections of Albumin in Treatment of Eye Affections.**—Müller and Thanner cite a number of clinicians who have reported excellent therapeutic results from injection of nonspecific protein to influence acute and chronic infectious diseases. They then describe personal experiences with this method of treatment in eye affections. They selected milk as the best available form of albumin for the purpose, not only on account of its accessibility but because the patients have no dread of milk as they might of a drug. The dose was 5 c.c. of fresh whole milk, boiled for four minutes, and injected into the gluteal muscle. In four cases of parenchymatous keratitis from inherited syphilis practically no benefit had been derived from specific treatment, but marked improvement set in after a single injection of the milk, and continued to progress as one or four more injections were given. The patients were 11, 19 and 32 years old, the older patient being given an albumose preparation instead of the milk. The milk injections were given exclusively in eleven cases of severe primary iritis, and prompt and striking improvement testifies emphatically, they declare, to the great value of the principle of parenteral treatment with some protein. Within twenty-four hours the photophobia and pains had all vanished after having tormented the patients for weeks, and the whole trouble was materially shortened. The iritis was ascribed to rheumatism in most of the cases; one was of gonorrheal origin, and another patient had had a gonorrheal iritis twenty years before. The improvement was not so prompt in these cases and a second injection was required before the cure was complete. From one to five injections were made in the different cases.

Favorable results were also obtained in nine cases of opacity of the cornea with or without choroiditis. The cornea partly cleared up remarkably quickly, but complete subsidence of the opacity was not realized in any case and the choroiditis did not seem to be modified. In one case of gonorrheal conjunctivitis of long standing, the edema of the lids and conjunctiva promptly subsided, the effect in this case being so conclusive, they say, that this treatment should certainly be given a trial in every case of gonorrheal conjunctivitis, at least in adults. They make three injections in a week and this usually completes the cure. If not, they continue after a pause. No by-effects were noticed in any case with the exception of one man of 56 who complained of a sensation of oppression over the heart but it disappeared within twenty-four hours.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 9, XXXVII, No. 90, pp. 1409-1424

76 *Experimental Cholemia. (Azione della bile sul sistema nervoso centrale e periferica. I processi di disintossicazione nella colemia sperimentale.) A. Berti.—p. 1413.

November 12, No. 91, pp. 1425-1440

77 Conservative Surgery; Four Special Cases. S. Tarantino.—p. 1426.

November 16, No. 92, pp. 1441-1456

78 Pyelotomy Versus Nephrotomy. L. A. Oliva.—p. 1444.

76. **Experimental Cholemia.**—In this instalment of his long report of research in this line, Berti describes the action on the central and peripheral nervous systems of the bile injected into a vein. Also its action on the ductless glands, on the temperature and metabolism and, further, the various ways in which the organism throws off the bile or neutralizes or overcomes its injurious properties.

Policlinico, Rome

November 12, XXIII, No. 46, pp. 1329-1354

79 *Pathogenesis of Infectious Febrile Jaundice. (Ittero castrense.) V. Rosei.—p. 1329; (Ittero epidemico.) M. Chiadini.—p. 1341.
80 Involvement of Nerves or Other Tissues in Freezing of Hands and Feet. (Considerazioni sul congelamento delle estremita degli arti.) V. Bedarida.—p. 1339.

79. **Jaundice in Soldiers.**—Rosei refers to jaundice coming on with gastro-intestinal symptoms, lassitude and diarrhea. There was no fever except in one of his fifteen cases, and the spleen was not enlarged. No micro-organisms could be cultivated from the blood except occasionally paratyphoid B bacilli—possibly a casual coincidence. There was nothing to suggest a contagious element, but much that indicated that an excess of meat in the diet was responsible for the upset entailing the jaundice and other symptoms. The soldiers were mostly from the rural districts, not accustomed to eating so much meat as is supplied in the army ration, while they miss the fresh vegetables and fruit to which they have been accustomed. When the diet could be modified in this respect, clinically normal conditions were soon restored. Chiadini reports the necropsy findings in three cases in which there was an unmistakable paratyphoid A or B infection localized in the liver and bile passages.

Siglo Medico, Madrid

November 4, LXIII, No. 3282, pp. 705-720

81 Duodenal Ileus. (Oclusion duodenal.) S. de S. Maria.—p. 706.
82 *Rarity of Tuberculosis in Persons Working in Lime; Therapeutic Deductions. (El terreno y la semilla.) G. Fisac.—p. 717.

November 11, No. 3283, pp. 721-736

83 History and Evolution of Operative Treatment of Glaucoma. J. A. Barraquer.—p. 722.
84 Ferments of the Plasma and of the Serum. G. Pittaluga.—p. 727.

82. **Rarity of Tuberculosis in Workers on Lime.**—Fisac recalls that in various national and international congresses he has repeatedly drawn attention to the immunity against tuberculosis displayed by persons whose occupation brings them into close contact with lime and plaster. No one has impugned his statements in this line from 1905 to 1916, but no one has acted on the logical therapeutic conclusions therefrom, giving time to thoroughly modify the soil in treatment of tuberculosis, on a scale large enough to be conclusive. He reiterates that each individual soil has its special chemical composition. How otherwise could a dog recognize its master by the sense of smell alone? This chemical composition decides whether tubercle bacilli can get a foothold and generate toxins in profusion or whether the tissues react with a fibrous growth, checking the proliferation of the germs. He quotes data tending to show that lungs and bones affected with tuberculosis have an abnormally low lime content. All the evidence to date is in favor of measures to render the soil more resistant, and he says that the compounds of lime take a leading position among such measures. He gives no technical nor clinical details here beyond these general statements.

Russkiy Vrach, Petrograd

XV, No. 40, pp. 937-960

85 Military Orthopedics and Supplying Artificial Limbs. (O doliechivanii preterpievshikh povrezhdeniya na voinie i o snabzhenii uviechnikh protezami.) G. I. Turner.—p. 937.
86 *Neutralization of Toxins by the Isolated Kidney and Spleen. (Obezvrezhivanie yadov izolirovannimi pochkoi i selezenkoi.) V. N. Vorontsoff.—p. 947.
87 War Hysteria and Its Treatment. (Akineticheskiya i hyperkineticheskiya formi boevoi isteric i sposobi ikh liecheniya.) L. A. Arinshtein.—p. 950.

86. **Neutralization of Toxins by Isolated Kidney and Spleen.**—The experiments were made on dogs. The isolated kidney washed free from blood took up or destroyed a certain amount of alcohol passed through it in Ringer-Locke solution, but not nearly as much as isolated muscles or the isolated liver. The kidney also failed to display any efficacy in reducing the toxicity of ricin passed through it under the same conditions, and the isolated spleen failed to reduce the toxicity of ricin and muscarin. The details of the tests are given in six tables showing the effect when the fluids afterward were injected into white mice.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXXVII, No. 11, pp. 1397-1524

88 *Fibrous Ostitis with Tumor Production and So-Called Giant-Cell Sarcoma. (Bencyster og saakaldt kjæmpecellesarkom.) E. Platou.—p. 1397.
89 Huntington's Chorea in a Man and Woman in the Thirties. V. Magnus.—p. 1433.
90 *Obstruction of Inferior Posterior Cerebellar Artery; Two Cases, V. Magnus.—p. 1438.
91 Infection with Proteus Vulgaris; Two Cases. T. Thjøtta.—p. 1443.
92 *The Functions of the Spleen. (Eksperimentelle bidrag til studiet av miltens funktion.) A. Brinchmann.—p. 1451. Concluded.

88. **Bone Cysts and Sarcomas.**—Platou shows in thirty illustrations the frequent difficulty experienced in distinguishing between fibrous ostitis, inducing a tumor, and sarcoma. The former is benign even when the periosteum has been broken through. The Roentgen picture is usually characteristic, and treatment must be surgical, removing all tissues affected into sound tissue, but otherwise conservative, leaving as much of the periosteum as possible. Even if not certain whether the affection is this fibrous ostitis or sarcoma, both patient and physician are usually inclined to run the risk of assuming the former rather than exarticulating the femur, often the only recourse when malignant disease is certain. If the tumor is malignant, he adds, the prognosis is dubious even with the most radical treatment, while if the trouble is simply ostitis the patient is a cripple for life when a conservative operation might have restored him to complete health. The persons affected are usually under 20, but in the nine cases here described the ages ranged from 10 to 46, five being over 20. The average thus was 26, a higher age than others have encountered as a rule. When the fibrous ostitis is associated with a giant-cell tumor, the resemblance to sarcoma is striking, but the slow development and good general health turn the scale away from sarcoma. The outline is sharper than with sarcoma; the periosteum shows more involvement with a central gumma or abscess than with this ostitis. A tuberculous process may also be difficult to differentiate, but these patients are usually younger, and a fistula develops before the process has reached a corresponding stage.

90. **Obstruction of Cerebellar Artery.**—The clinical picture was practically identical in the two cases described: in the midst of good health, sudden vertigo, ataxia in the left arm and leg, and crossed right sensory paralysis, with, in one case, aphonia, ptosis and myosis.

92. **The Functioning of the Spleen.**—The first instalment of this article was reviewed in these columns, Nov. 11, p. 1482, describing Brinchmann's experimental work on rabbits and guinea-pigs. Here he describes research undertaken to ascertain the modifications of the blood induced by feeding with spleen substance. The blood findings and other details day by day are tabulated from animals fed with spleen substance. The data presented demonstrate that the spleen is an organ with a highly complex function. There is considerable evidence that in some indirect way it exerts a regulating influence on the blood-producing organs. It thus steadies the factors which direct the normal production and destruction of the elements of the blood. None of the spleen's functions seem to be specific, and the data indicate that some of these functions are accomplished with the cooperation of other organs, the liver, for instance. Assumption of a hormone as responsible for spleen functioning has not been confirmed to date. Besides the experiments on guinea-pigs, rabbits, dogs, rats and mice, Brinchmann applied spleen organotherapy also in some cases of anemia, in one presumably from myeloid metaplasia, of the type of anemia pseudoleukemica infantum. This patient was a youth of 17 and under the influence of spleen feeding—a teaspoonful of fresh scraped beef spleen three times a day, given in his porridge—the proportion of nucleated reds dropped in a most remarkable manner. On suspension of the spleen feeding, or when he was given corresponding amounts of scraped raw meat, the proportion either rose or remained stationary. The figure declined from 7,520 to 2,650 in three weeks of the spleen feeding. It rose again to 13,600 when the spleen was discontinued, reaching 16,400 the day after the spleen feeding had been resumed, and then dropping under it to 6,600. Beef meat was then given instead, and the figure dropped anew to 5,180. As the spleen feeding was resumed in four days the figure dropped to 2,450. The patient then was put on a mixed diet without spleen, and the figure dropped to 1,140 and then to zero, all in the course of about two months and a half. This paralleled the findings in the experiments on the animals.

Miscellany

The Ethics of Scientific Controversy

[The following is not a strictly medical discussion but, considering its author and the circumstances under which it was written, we feel sure it will be read with interest. It is the introduction of Sir Almroth Wright's reply to Sir Watson Cheyne in their controversy on the treatment of infected war-wounds. It appeared in the London *Lancet*, Sept. 16, 1916, page 503.—Ed.]

It is a very open question whether polemical controversy is, or is not, an effective instrument for the advancement of the truth.

Of course, the man who has an open mind can always learn something from discussion. In dealing with complicated subject-matters such as that of the proper treatment of wounds, trustworthy conclusions are reached only when we have been compelled to look at the facts from opposite points of view. And when in controversy one man sets up a thesis, and the next man disputes it, these conflicting suggestions may have intellectual value. They may tend to make our mental outlook less narrow, and make us balance alternatives.

But when all is said and done, only a small minority of mankind have their minds clarified by polemical controversy. The greater number come away confused and in perplexity as to where the truth lies.

And no wonder. It is difficult, even for the man who has under his hands full materials for controlling such inductions, to decide between competing generalizations; and no one, knowing of the facts only what is put before him in controversy, would be in a position to reach such a decision. Again, it is, in all ratiocination which deals with the concrete, difficult to avoid lapsing into fallacy. And in controversy this is specially difficult. For the ordinary controversialist is perpetually leading his reader into verbal snares and oratorical traps, and into all manner of logical pitfalls. But while for these reasons polemical controversy conducts into perplexity and error, this really holds only of the broader and more difficult, and not of the narrower and less difficult inductions. And when we come to definite statements concerning questions of fact, the truth or falsity of these is in the course of controversy definitely settled. Again, polemical discussion renders also other useful service. It corrects incidental misapprehensions caused by inadequacy and default in the original exposition; and it rectifies more especially those initial and fundamental misunderstandings which come from the expositor having failed to keep touch with his reader. What has generally happened in the setting out of a new generalization is that the expositor—to keep things simple, and make a less circumscribed and less ephemeral appeal—has started off quite de novo, and has addressed himself to an entirely ideal type of reader. He has taken it that his readers will be of that sort that will be prepared to make a quite new start; and will have no fixed ideas to extirpate, and no cherished mental pictures to expunge. And he has further made the assumption that his readers will give to every argument its proper logical weight; will, when qualifications are attached to a statement, take close note of these; will not confuse things; and will assign to every term its precise meaning and quantitative value. Now, more often than not, exposition conducted upon the aforementioned assumptions and on general lines will not come off successfully. It will make as good as no impression upon the man who is attached to another reading of the facts, and who treasures other mental pictures. And as for the ordinary reader, exposition on general lines will at best only start him upon the road. It will not prevent his being held up by all sorts of small difficulties. And when he is held up exposition of the same kind as before will not extricate him. What he will then require is that kind of intellectual assistance that is given in private coaching.

And it is just this sort of intellectual help that controversy is competent to supply. What polemical criticism really does do is to set out the difficulties encountered by the reader who approaches the new doctrine with the conventional conceptions. And the function of the controversialist who undertakes the reply is to stand beside the reader and to explain things to him, whenever in reading a polemical criticism he is saying to himself: "Now what is the answer to that?" And this discovery of and replying to objections is indispensable to intellectual progress. In the end it is always controversy—it may be public, it may be private; it may be honest, it may be dishonest, controversy—that decides the fate of every generalization.

But in polemical controversy we have not only a conflict between two ideas, we have also a personal contest. And intellectual progress, and in particular the advancement of logic and intellectual morality, would seem to depend upon this factor of personal contest being always present in controversy.

For the ordinary man will not, on the chance that these may possibly some day enable him to decide between competing theories, attend to facts of science that have no personal interest; nor will he, on such a chance, listen to disquisitions on logical methods and the conduct of the intellect. But he can be got to attend to every kind of fact as soon as an important principle of practice, and the issue of a personal contest comes to turn upon it; and, given these conditions, every man will quite gladly consider points of logic and intellectual mortality. This is as much as to say: Controversy gives to every matter that comes into its orbit a vivifying personal interest, and in particular it makes of logic and intellectual ethics really live issues. It brings home to the mind that it really is desperately difficult in all ratiocination and deals with the concrete, to reason rightly. It shows up the confusion that results from using ambiguous and nonquantified terms; exposes loose and fallacious methods of proof which have got themselves accepted; shows that we ought to give consideration not only to familiar and acceptable, but also to unfamiliar and unacceptable, explanations; and makes apparent the moral danger of cherishing one's mental pictures till they turn into obsessions. And were it not for the interest that attaches to personal combat, I cannot think that any of these things—and they are the rules and ethics of the intellectual game—could ever be instilled into the ordinary man.

Moreover, the fact that thereby not ideas only, but men also, are adjudicated upon makes of controversy something more than a mere educational instrument; it also makes it an instrument of direct social service. When one reflects that it is public reputation that designates a man for office where he influences important action, and that it is popular estimation which gives driving force to a man's words, one sees that there is wanted some court of appeal to which popular estimates could be brought for revision, and some sort of machinery for settling whether this or that man who is trusted by the lay or professional public possesses the only kind of ability worth having—the gift of getting at the truth.

Now, we have in point of fact in polemical controversy a machinery for settling this. While, as we have seen, controversy can never enable a man who is out of touch with the facts to decide between competing doctrines, it does give to every reader data by which he can adjudicate between the men who are disputing about those doctrines. It does show whether the disputants are competent, or incompetent; logical, or illogical; *honest*—eschewing fallacious arguments, and giving way if they can no longer conscientiously hold their ground, or *intellectually dishonest and immoral*—trying, when things go against them, to make the worse appear the better reason; and resolutely holding out even when cumulative evidence piles up against them. And what is really wrong with the world is that, through reluctance to involve ourselves in controversy; and fear of offending public sentiment (which is want of moral courage), we allow many a man who has neither a gift for getting at the truth, nor yet (in my meaning of the word) intellectual honesty, to continue in undisturbed enjoyment of reputation and authority.

Now this, of course, runs counter to what is generally accepted. You hear everywhere that the personal element is the unethical element in every controversy. And the cynic will confide to you that polemical controversy is always a personal vendetta. And this is the point of view from which controversy is judged. Whenever the question is raised as to whether it was, or was not, justifiable to have said this or that in controversy, your man of the world goes and turns up the previous papers to see what amount of provocation was given, and what reprisals it was legitimate to take. In other words, to the man of the world the whole thing is a question of retaliation; and justification is to him a question of provocation given. But, after all, polemical controversy is not on exactly the same ethical plane as the duel and vendetta; and its psychology is a little different. In the duel or vendetta there is always a personal and private issue, and only that. In controversy, though the private motive does often come in, there is always a matter of public concern—the question as to whether this or that generalization should be accepted. And while in polemical controversy there is, as in the vendetta, always a joy of battle—a satisfaction when you get your shots in straight—you do not in reputable controversy, any more than in actual warfare, derive satisfaction from wounds inflicted. You need not even be insensible.

But as soon as this possibility is hinted at, down there comes upon you the pacifist with his humanitarian proposals. And the sort of thing he says to you is this: "If you—the controversialist—are really not out for your pound of flesh, if what you want is to advance your cause, to smooth the way for the acceptance of your doctrine, and to prevent truth being obscured by false reasoning and intellectual immorality, then you could achieve all you want without hurting any individual. Whatever you have got to say, you can say impersonally. Or, if you really must have someone to attack, you could at any rate get rid of all that objectionable personal sting by attacking, instead of some unfortunate individual, the group or body corporate to which your particular antagonist belongs."

The real answer to this sort of humanitarian appeal is that it takes singularly little account of what I have referred to under the heading of direct social service; and it proceeds upon fundamental misconceptions. It bases itself upon the—in exposition admissible, in controversy inadmissible—false assumption that your reader has no *parti pris;* that he is governed entirely by intellect; that he is with respect to competing theories and disputants completely neutral, and had as lief attach himself to the one doctrine and the one disputant as the other. In other words, what you are asked to believe is that by pacific processes you can win all intellectual victories, and that you will in controversy get every one over to your side if you point out, without censure, and quite quietly, mistakes in fact and reasoning committed on the other side. But the brutal fact remains. All controversy is a warfare from which the one or the other of the parties has got to emerge discredited. And it is the task of every disputant to diminish the prestige of the protagonist on the other side; and also, if possible, to bring home to the reader that he is, when reading the author he favors, as liable to be led away into fallacy as is a man listening to an advocate setting out his cause.

But the pacifist still sees an opening left for his humanitarian intervention. It would still, so he thinks, be possible to attenuate the personal sting that controversy leaves by diverting the attack from the individual to the class to which he belongs. Prima facie there would appear to be logical point and also justice in this proposal. For behind the man who is proceeded against, there are always others who share his views. And in such a case equity would seem to require that the indictment should issue not against the individual but against the group.

But the moment we begin to think, things always look differently. One discovers that it would be almost impossible to frame an indictment which could equitably be brought against an entire group, let alone against a body corporate. For though men may hold a doctrine in common, you find, as soon as you come to investigate, that each holds it with a difference.

And again, as soon as one thinks it over, one realizes that there are two distinct types of controversial writing. In the one the materials on which the inductions rest are revised, new data being brought forward, and data which ought never to have been accepted being discarded; also fallacies are exposed; issues which have been tangled up together are unraveled; and throughout the prescriptions of logic and intellectual morality are observed. In critical comment of this kind every one, of no matter what school of thought, will gladly be a partner. But there is also polemical writing with which no one would willingly be associated. No one wants to be associated with controversial writing which takes its stand on erroneous data; which, no matter how intricate the facts, tells you that they can be construed in only one way; which then introduces confusion by using undefined and ambiguous terms, tangles up together issues which are logically distinct, and shows an intention to hold out everywhere against no matter what pressure of cumulative evidence. Again, no one wants to have anything to do with endeavors to knock out a controversial antagonist by depreciatory comment directed to things quite foreign to the issue under discussion; nor yet to associate himself with the unjust criticisms with which a man will relieve his feelings when he finds problems he had comfortably settled reopened, and sees, where he before saw a limit to his work, fresh complications introduced, and more labor and more thinking piled on him. Now we have in most controversial writing critical commentary of each kind: on the one hand, comment which all the clear and honest minds on either side would accept; on the other hand, comment which the writer's partisans would unanimously wish to disown; and again comment which some of these partisans would approve, and others not approve. And, carrying into actual practice the pacifist's injunctions would mean ignoring in controversy everything one's antagonist's partisans might wish ignored. But whosoever followed this counsel would place himself in an altogether false position. He would lay himself open to the charge of ignoring in criticism directed against himself all that was specially difficult to answer. And the controversialist who was thus edited would feel that his criticism was being bowdlerized of its best and most effective points. At the same time the controversialist, who under a self-denying ordinance overlooked in his opponent's writings all that that opponent's partisans would themselves have eliminated, would be bound to feel that he had weakened his own case quite unfairly. For, of course, in his view the passages in question would be just those which showed the desperate straits into which the defense of an erroneous generalization conducts. And finally the reader also would be ill-satisfied. If a partisan, he would be sure to think that his cause and his protagonist had been prejudiced. And if simply an ordinary reader, he would be sure to feel that, with everything watered down and everything personal eliminated, he was getting absolutely no fun, and correspondingly little use out of the discussion; and, above all, that no light was being shed on the capacities and moral characters of those who aspired to be his intellectual guides.

But to go into all this is perhaps to attach undue intellectual importance to the suggestion that controversialists should be sheltered from the consequences of their own action. And it is really beyond question that the only proper way of conducting controversy is to hold every man responsible for everything that appears over his signature, and nobody else responsible.

Trephining the Sheath of the Optic Nerve

L. Müller suggests this as a new operation to cure choked disk. He resected the temporal wall of the orbit, pushed the eyeball forward, and thus obtained access to the optic nerve. He resected then a piece of the sheath 3 or 4 by 6 mm. This relieved the pressure on the nerve in the cases in which he has applied this method, and not only arrested the further progress of the visual disturbances but caused their partial retrogression, and at the same time improved the cerebral symptoms from pressure on the brain. The original article is said to have been published in the *Wiener klinische Wochenschrift,* 1916, No. 32, one of our missing exchanges.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1916

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

American Journal of Anatomy. Bi-m. $7.50. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $3. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Insanity. Q. $5. Johns Hopkins Press, Baltimore.
American Journal of the Medical Sciences. M. $5. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Diseases of Women and Children. M. $5. William Wood & Co., 51 Fifth Ave., New York.
American Journal of Orthopedic Surgery. M. $4. 126 Massachusetts Ave., Boston.
American Journal of Physiology. M. $5. Johns Hopkins Medical School, Baltimore.
American Journal of Public Health. M. $3. 755 Boylston St., Boston.
American Journal of Roentgenology. M. $5. 67 E. 59th St., New York.
Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
Annales de médecine. M. 23 francs. Paris.
Annals of Ophthalmology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
Annals of Surgery. M. $5. J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Annals of Tropical Medicine and Parasitology. Q. $5. Liverpool.
Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archives of Diagnosis. Q. $2. Rebman Co., 141 W. 36th St., New York.
Archives of Internal Medicine. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.
*Archives de médecine des enfants. M. 18 francs. Paris.
*Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.
Archives of Ophthalmology. Bi-m. $5. G. P. Putnam's Sons, 2 W. 45th St., New York.
Archives of Pediatrics. M. $3. E. B. Treat & Co., 241 W. 23d St., New York.
Archives of Radiology and Electrotherapy. M. $4.50. London.
Berliner klinische Wochenschrift. W. 24 marks. Berlin.
Boston Medical and Surgical Journal. W. $5. 126 Massachusetts Ave., Boston.
Brain: A Journal of Neurology. Irregular. $4. London.
Brazil Medico. W. 20 milreis. Rio de Janeiro.
British Journal of Children's Diseases. M. $5. London.
British Journal of Surgery. Q. $6.50. William Wood & Company, 51 Fifth Ave., New York.
British Journal of Tuberculosis. Q. $1.25. G. E. Stechert & Co., 151 W. 25th St., New York.
British Medical Journal. W. $8.50. London.
Bulletin de l'Académie de médecine. W. 20 francs. Paris.
Bulletin of the Johns Hopkins Hospital. M. $2. Baltimore.
Bulletin of the Lying-in Hospital of the City of New York. Irregular. $1. 23 E. 93d St., New York.
Bulletin of the Medical and Chirurgical Faculty of Maryland. M. $0.25. 1211 Cathedral St., Baltimore.
California State Journal of Medicine. M. $1. Butler Bldg., San Francisco.
Canadian Medical Association Journal. M. $5. 145 Wellington St., W., Toronto.
Cleveland Medical Journal. M. $2. 2318 Prospect Ave., Cleveland.
Colorado Medicine. M. $2. Metropolitan Bldg., Denver.
Correspondenz-Blatt für schweizer Aerzte. W. 22 francs. Basel.
Cronica Medica. Semi-m. 6 soles. Lima, Peru.
Delaware State Medical Journal. M. $1. Wilmington.
Deutsche medizinische Wochenschrift. W. 32 marks. Berlin.
Dublin Journal of Medical Science. M. $5.
Edinburgh Medical Journal. M. $6.
*Finska Läkaresällskapets Handlingar, Helsingfors. M. Helsingfors.
Gazzetta degli ospedali e delle cliniche. Semi-w. 25 francs. Milan.
Glasgow Medical Journal. M. $5.
Grèce médicale. Semi-m. 12 francs. Athens.
Hospitalstidende. W. 27.5 kronen. Copenhagen.
Hygiea. M. $5. Stockholm.
Illinois Medical Journal. M. $2. 3338 Ogden Ave., Chicago.
Indian Medical Gazette. M. $5. Calcutta.
Journal de chirurgie. M. 44 francs. Paris.
Journal de médecine de Bordeaux. W. 15 francs.
Journal of Abnormal Psychology. Bi-m. $4. R. G. Badger, 194 Boylston St., Boston.
Journal of the American Medical Association. W. $5. 535 N. Dearborn St., Chicago.
Journal of the Arkansas Medical Society. M. $1. 810 State Bank Bldg., Little Rock, Ark.
Journal of Bacteriology. Bi-m. $5. Williams & Wilkins Company, Baltimore.
Journal of Biological Chemistry. M. $3. 2419 Greenmount Ave., Baltimore.
Journal of Cancer Research. Q. $5. Williams & Wilkins Company, Baltimore.
Journal of Cutaneous Diseases. M. $5. W. M. Leonard, 101 Tremont St., Boston.
Journal of Experimental Medicine. M. $5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
Journal of the Florida Medical Association. M. $1. 334 St. James Bldg., Jacksonville, Fla.
Journal of Immunology. Bi-m. $5. Williams & Wilkins Company, Baltimore.
Journal of the Indiana State Medical Association. M. $1. 219 W. Wayne St., Fort Wayne, Ind.
Journal of Infectious Diseases. M. $5. 629 S. Wood St., Chicago.
Journal of Iowa State Medical Society. M. $2. Des Moines, Ia.
Journal of Kansas Medical Society. M. $2. 303 Commerce Bldg., Topeka, Kan.
Journal of Laboratory and Clinical Medicine. M. $3. C. V. Mosby Company, St. Louis.
Journal of Laryngology, Rhinology and Otology. M. $5. London.
Journal of Maine Medical Association. M. $2. Portland, Maine.
Journal of Medical Association of Georgia. M. $1. Harison Bldg., Augusta, Ga.
Journal of Medical Research. Bi-m. $4. 240 Longwood Ave., Boston.
Journal of Medical Society of New Jersey. M. $2. 12 Cone St., Orange, N. J.
Journal of Michigan State Medical Society. M. $3.50. 91 Monroe Ave., Grand Rapids, Mich.
Journal of Missouri State Medical Association. M. $2. 3517 Pine St., St. Louis.
Journal of Nervous and Mental Diseases. M. $8. 64 W. 56th St., New York.
Journal of Oklahoma State Medical Association. M. $2. Muskogee.
Journal of Parasitology. Q. $2. Urbana, Ill.
Journal of Pathology and Bacteriology. Q. $5.50. Cambridge, England.
Journal of Pharmacology and Experimental Therapeutics. M. $5. 2419 Greenmount Ave., Baltimore.
Journal of South Carolina Medical Association. M. $2. Greenville, S. C.
Journal of Tennessee State Medical Association. M. $2. Independent Life Bldg., Nashville, Tenn.
Journal of Tropical Medicine and Hygiene. Semi-m. $5. London.
Journal-Lancet. Semi-m. $2. 839 Lumber Exchange, Minneapolis.
Kentucky Medical Journal. M. $2. State and Twelfth Sts., Bowling Green, Ky.
Lancet. W. $8. London.
Laryngoscope. M. $5. 3858 Westminster Place, St. Louis.
Lyon chirurgical. M. 25 francs.
Lyon médical. M. 15 francs.
Medical Journal of Australia. W. 6 d. Sydney.
Medical Record. W. $5. W. Wood & Co., 51 Fifth Ave., New York.
Medizinische Klinik. W. 32 marks. Berlin.
Military Surgeon. M. $3.50. Seventh and B Streets, S. W., Washington, D. C.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität Kyushu. Irregular. Price varies. Fukuoka.

Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität zu Tokyo. Irregular. Price varies. Tokio.

Modern Hospital. M. $3. Metropolitan Bldg., St. Louis.

Münchener medizinische Wochenschrift. W. 32 marks. Munich.

Nebraska State Medical Journal. M. $2.00. 468 Brandeis Bldg., Omaha.

Nederlandsch Tijdschrift voor Geneeskunde. W. 10.50 florins. Amsterdam.

New Mexico Medical Journal. M. $2. P. O. 23, Las Cruces, N. M.

New Orleans Medical and Surgical Journal. M. $2. 1551 Canal St., New Orleans.

New York Medical Journal. W. $5. A. R. Elliott Publishing Co., 66 W. Broadway, New York.

New York State Journal of Medicine. M. $1. 17 W. 43d St., New York.

*Nordiskt Medicinskt Arkiv. Irregular. 30 marks. Stockholm.

Norsk Magazin for Lægevidenskaben. M. $5. Christiania.

Northwest Medicine. M. $2. Cobb Bldg., Seattle, Wash.

*Nourrisson. Bi-m. 14 francs. Paris.

Ohio State Medical Journal. M. $2. Physician's Bldg., Columbus, Ohio.

Ophthalmic Record. M. $4. 7 W. Madison St., Chicago.

Ophthalmology. Q. $5. 708 Cobb Bldg., Seattle, Wash.

Paris médical. W. 16 francs.

Pennsylvania Medical Journal. M. $2. Athens, Pa.

Philippine Journal of Science. Irregular. $7. Manila, P. I.

Policlinico. W. 32 lire. Rome.

Practitioner. M. $6.50. London.

Presse médicale. Semi-w. 15 francs. Paris.

Praktitcheskiy Vrach. W. 7 rubles. Petrograd.

Progrès médical. W. 12 francs. Paris.

Providence Medical Journal. Bi-m. $1. Francis and Hayes Sts., Providence, R. I.

Public Health Journal. M. $2. York Publishing Co., Lumsden Bldg., Toronto.

Quarterly Journal of Medicine. $6.50. London.

Revista de la Asociacion Medica Argentina. M. Buenos Aires.

Revue de Chirurgie. M. 33 francs. Paris.

*Revue de Gynécologie. M. 30 francs. Paris.

Revue médicale de la Suisse romande. M. 14 francs. Geneva.

*Riforma medica. W. 35.50 lire. Naples.

Russkiy Vrach. W. 13 rubles. Petrograd.

Sei-I-Kwai. M. $2. Tokio.

*Semana médica. W. $5. Buenos Aires.

Siglo Medico. W. 20 pesetas. Madrid.

Southern Medical Journal. M. $3. 807 Empire Bldg., Birmingham, Ala.

Southwest Journal of Medicine and Surgery. M. $1. El Reno, Okla.

Surgery, Gynecology and Obstetrics with International Abstract of Surgery. M. $10. Surgical Publishing Co., 30 N. Michigan Ave., Chicago.

Svenska Läkaresällskapets Handlingar. Q. 7.50 kronor. Stockholm.

Texas State Journal of Medicine. M. $1.50. Western National Bank Bldg., Fort Worth, Tex.

Therapeutische Monatshefte. M. 12 marks. Berlin.

Ugeskrift for Læger. W. 20 kronen. Copenhagen.

United States Naval Medical Bulletin. Q. $1. Washington, D. C.

Upsala Läkareförenings Förhandlingar. Irregular. 10 kronen.

Vermont Medicine. M. $1. Rutland, Vt.

Washington Medical Annals. Bi-m. $1. 2114 18th St., N. W., Washington, D. C.

West Virginia Medical Journal. M. $1.50. Huntington, W. Va.

Wiener klinische Wochenschrift. W. 24 marks. Vienna.

Wisconsin Medical Journal. M. $2. Goldsmith Bldg., Milwaukee.

Zeitschrift für Tuberkulose. Irregular. 22.40 marks. Berlin.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B," "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

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SOCIETIES

A.—Association.
Acad.—Academy.
Am.—American.
Coll.—College.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Dist.—District.
Hosp.—Hospital.
Internat.—International.
M.—Medical or Medicine.
Nat.—National.
Phar.—Pharmaceutical.
Phys.—Physician.
Ry.—Railway.
S.—Society.
Surg.—Surgical, Surgeon or Surgery.

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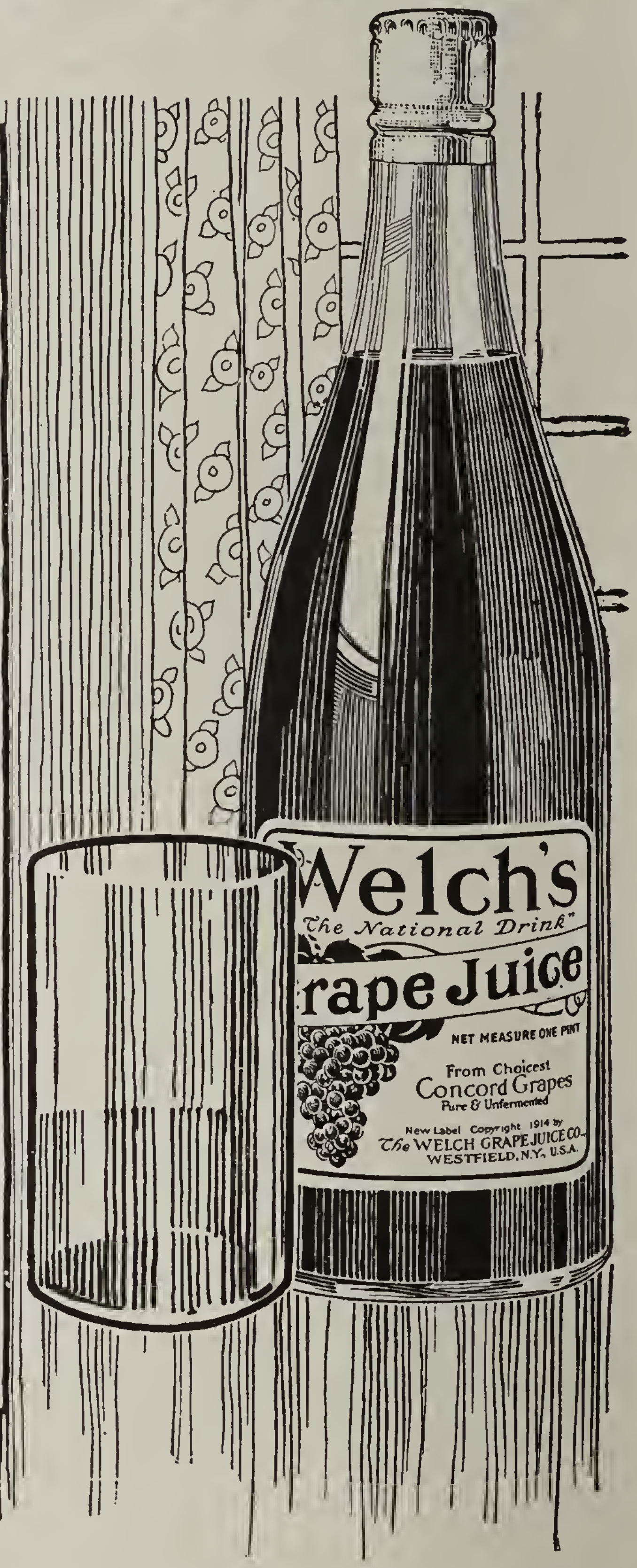

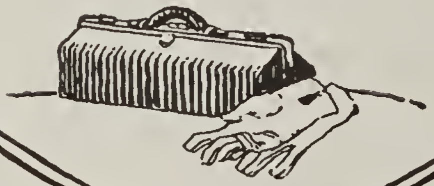

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(Pure Living Cultures of the Bulgarian Lactic-Acid Bacillus)

For the treatment of intestinal putrefactive fermentation and toxemia and chronic intestinal disturbances of children and adults. Useful in local infections.

Laboratories used for the propagation of Glycerinized Vaccine Virus Mulford.

Three points are essential in prescribing:

1. **The cultures must contain the true Bulgarian Bacillus.**
2. **The cultures must be free from other living bacteria.**
3. **The cultures must be alive and active.**

To secure these three essentials, specify Bulgarian Bacillus Mulford. It is prepared in a complete and modern biological laboratory, and is the true living **Bulgarian Bacillus.** Its production is safely guarded by the same precautions taken in the preparation of the Mulford serums and bacterins, **and the purity of each lot is made certain by careful bacteriological tests before releasing from the laboratory.**

Bulgarian Bacillus Mulford is supplied in packages containing 20 tubes (20 doses), each package stamped with an expiration date to insure active, living cultures. It should be kept in a cold place.

Treatment and Prophylaxis of Lobar Pneumonia

Recovery from pneumonia depends chiefly upon the formation of antibodies destructive to the pneumococci and capable of neutralizing their toxic principles.

Antipneumococcic Serum, Polyvalent, Mulford is the blood serum of horses immunized against different strains of pneumococci that produce corresponding antibodies, and is, therefore, polyvalent. **Used in the early stages of pneumonia** and in sufficient doses, the serum affords valuable aid on account of these contained specific antibodies.

Syringe Package of Pneumo-Serobacterin. Ready for immediate use. The graduations of the syringe permit convenient administration of divided doses

Dosage and Administration.—The therapeutic dose should be at least 100 mils (c.c.), repeated every four to six hours to secure sufficient antibodies in the patient to overcome infection. Since quick response is desired, intravenous use of the serum is preferred. In a series of cases reported the total amount of serum administered intravenously ranged from 190 to 460 mils (c.c.); one patient received a total of 700 mils (c.c.).

Antipneumococcic Serum Mulford (polyvalent) is furnished in aseptic glass syringes containing 20 mils (c.c.) and in 50-mil (c.c.) ampuls with special apparatus for intravenous injection.

Pneumo-Serobacterin Treatment

The value of Pneumo-Serobacterin in the treatment of pneumonia depends upon the polyvalency, the production of antibodies and early administration. It is frequently employed as an adjunct to serum treatment, stimulating the production of greater amounts of antibodies by the patient.

Time is a vital factor in the treatment of pneumonia. The early use of **Pneumo-Serobacterin** is advised its action is prompt and increased doses may be given at short intervals, securing quicker immunizing response.

Prophylactic Immunization Against Pneumonia

Summarizing a report by Sir Almroth E. Wright, on immunization among a large number of African native miners having very low resistance against the pneumococcus, the London Lancet says: "It seems difficult to resist the conclusion that the pneumococcus vaccines employed by these observers lessened the incidence and mortality of pneumonia and other conditions produced by the pneumococcus. and among large collections of natives who were highly susceptible to its activity and under conditions favorable to the spread of infection."

For prophylaxis, Wright suggests doses of 1000 million pneumococci as the first dose, followed by a second dose of 1000 million. It is desirable to immunize persons especially susceptible to the pneumococcus, such as those who suffer from repeated attacks of pneumonia, and particularly aged persons.

Another field in which prophylactic immunization has been extensively employed is where pneumonia threatens as a complication of typhoid, influenza, etc. The work of Wright and his collaborators verifies in a conclusive manner the usefulness of this practice.

Section of laboratory and grounds devoted to the production of veterinary biologicals.

Pneumo-Serobacterin Mulford is supplied in packages of four graduated syringes, A, B, C, D strength, and in syringes D strength separately.

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Streptococcic Infections

The **specific treatment** of streptococcic infections by means of biological products consists of two measures which may be employed separately or combined.

First.—The use of polyvalent antistreptoccic serum containing immunizing substances (antibodies)—transferred immunity.

Second.—The use of killed sensitized streptococci (strepto-serobacterin) to stimulate the patient to produce his own immunizing substances—active immunity.

Syringe Package of Antistreptococcic Serum. Ready for immediate use.

Antistreptococcic Serum Polyvalent Mulford is the serum of horses highly immunized against the virulent strains of streptococci producing corresponding antibodies as found in erysipelas, puerperal fever, septicemia, pneumonia, scarlet fever and other streptococcic infections. Antistreptococcic serum and strepto-serobacterin should be "polyvalent"—that is, prepared from the different strains of streptococci which produce their corresponding antibodies.

Dosage.—Antistreptococcic serum acts by means of the contained antibodies. The activity of these antibodies is **specific** and is in direct ratio to the amount and polyvalency of the serum. In streptococcic infection large doses, 100 to 200 mils (c.c.), should be given intravenously at the earliest possible moment, to be followed by doses of 50 to 200 mils (c.c.) every 4 hours (subcutaneously or intravenously, according to indications) until the patient is out of danger. In no case should less than 100 mils (c.c.) be given during the first 24 hours, no matter how administered. The earlier the serum is given the better are the results.

Antistreptococcic Serum Polyvalent Mulford is supplied in syringes of 10 mils (c.c.) and 20 mils (c.c.), and in 50-mil (c.c.) ampuls, with special apparatus for intravenous injection.

Antistreptococcic Serum Scarlatinal Mulford is prepared exclusively from streptococci secured from scarlet-fever cases. Furnished in packages containing two 10-mil (c.c.) syringes and in 50-mil (c.c.) ampuls, with special apparatus for intravenous injection.

Corner of Analytical Laboratory.

Strepto-Serobacterin Mulford

is a standardized suspension of many strains of killed streptococci sensitized with antistreptococcic serum containing specific antibodies for each variety of streptococci employed.

The advantages are:

1. **Produces prompt immunizing response**—according to Besredka, within 24 to 48 hours.
2. **The "Negative Phase" is avoided.**
3. **Local and general reactions are reduced.**
4. **Larger doses may be given** more frequently.
5. **Greater efficiency in the face of epidemics,** because of the prompt immunizing response.

Supplied in graduated aseptic glass syringes (four syringes, A, B, C, D, in each package). In single syringes, D only.

Strepto-Serobacterin Scarlatinal Immunizing Mulford is prepared from streptococci obtained from scarlet-fever patients, sensitized with the corresponding serum. In aseptic glass syringes (first, second, and third doses in each package).

Strepto-Serobacterin Scarlatinal Therapeutic Mulford is supplied in graduated aseptic glass syringes (four syringes, A, B, C, D, in each package). In single syringe, D only.

Typho-Serobacterin Mulford

For Prevention and Treatment of Typhoid Fever

"In the United States about 400,000 persons are incapacitated and 30,000 die of typhoid fever each year" (U. S. Pub. Health Bulletin No. 69, May, 1915), in spite of the fact that the immunizing value of typho-bacterin is thoroughly established.

Large silver-plated machines used for filtration of serums.

The results secured in the United States Army and Navy prove that it is more efficient in preventing typhoid fever than vaccine virus for preventing smallpox.

Antityphoid Immunization is Harmless.—During the past five years millions of persons, a large percentage of them in the military and naval service, have been immunized without untoward results.

Typho-Bacterin is composed of killed typhoid bacilli suspended in physiologic saline solution, and the number of bacteria standardized per cubic centimeter.

Typho-Serobacterin is prepared by carrying out the preliminary process of immunization by combining the killed typhoid bacilli with the amboceptors, agglutinins, etc., secured from the serum of sheep immunized against the typhoid bacillus.

Serobacterins, being saturated with specific antibodies, are attacked by the complement of the blood and taken up by the phagocytes much more rapidly than the unsensitized bacterin. **Serobacterins are characterized by rapidity of action, freedom from toxicity, and the production of efficient and durable immunity.**

View of grounds—section of Finishing Laboratory in foreground.

Typho-Serobacterin Immunizing Mulford is furnished in packages of **three** aseptic glass syringes, graduated to contain: **First Dose,** 1000 million, to be followed within 2 to 5 days with the **Second Dose,** 2000 million, at like interval with the **Third Dose,** 2000 million sensitized typhoid bacilli.

Typho-Serobacterin Therapeutic Mulford, for the treatment of typhoid fever, is furnished in packages of **four** aseptic glass syringes, graduated to contain: Syringe A, 250 million; Syringe B, 500 million; **Syringe C,** 1000 million; **Syringe D,** 2000 million sensitized typhoid bacilli. Also supplied in 5 c.c. ampuls.

Typho-Serobacterin Mixed Mulford is used for the prophylaxis and treatment of paratyphoid and mixed typhoid infection. It is supplied in packages of **three** aseptic glass syringes, graduated as follows:

	FIRST DOSE	SECOND DOSE	THIRD DOSE
Bacillus typhosus	1000	2000	2000 million
B. paratyphosus "A" . . .	500	1000	1000 million
B. paratyphosus "B" . .	500	1000	1000 million

Also supplied in 4-syringe therapeutic package and 5 c.c.

Typho-Serobacterin Mixed is coming into general favor for preventive immunization, as well as for treatment, as it affords immunity against the typhoid bacilli and the paratyphoid bacilli present in about 10 per cent of typhoid cases.

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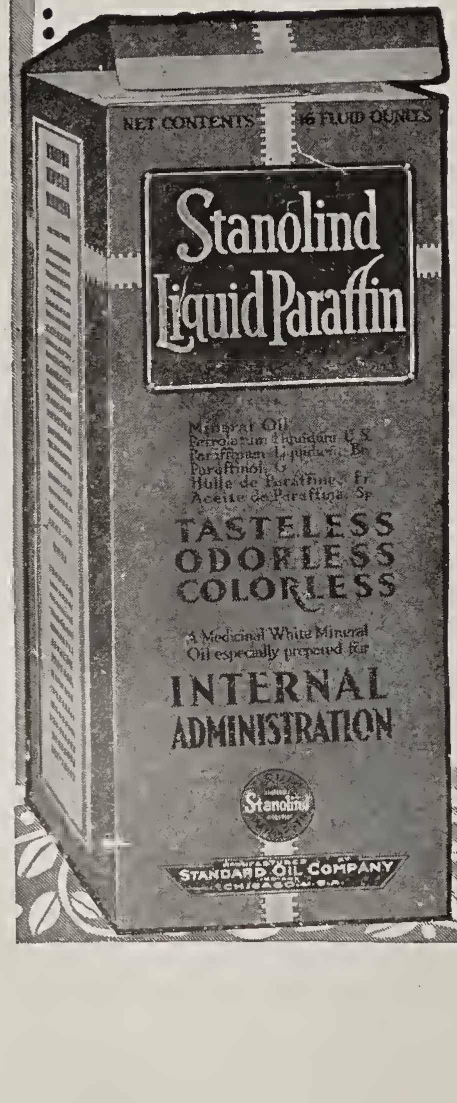

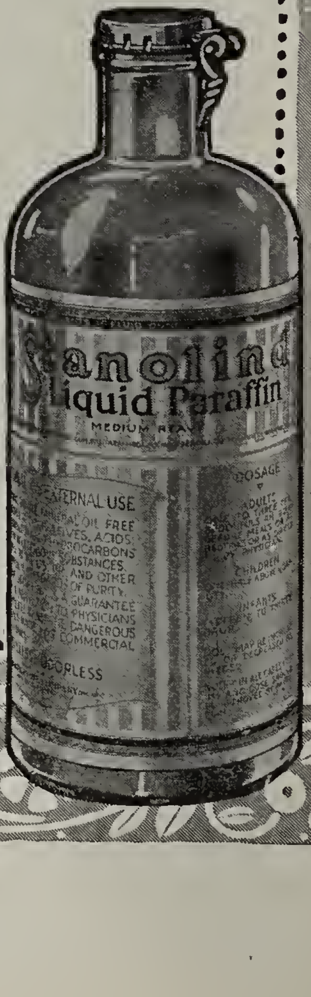

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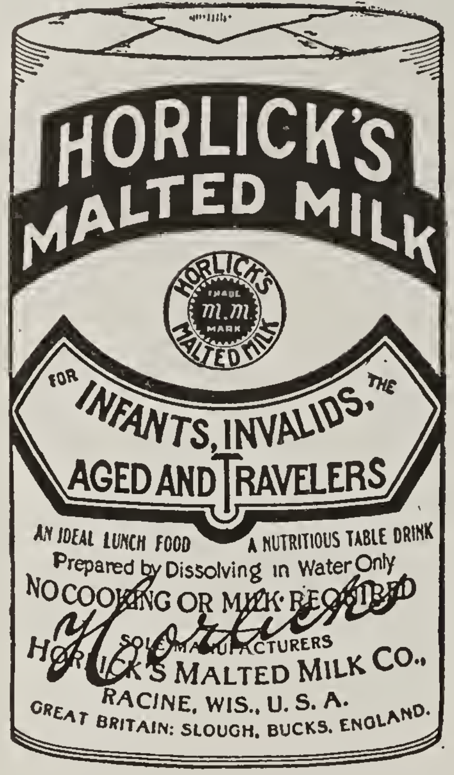
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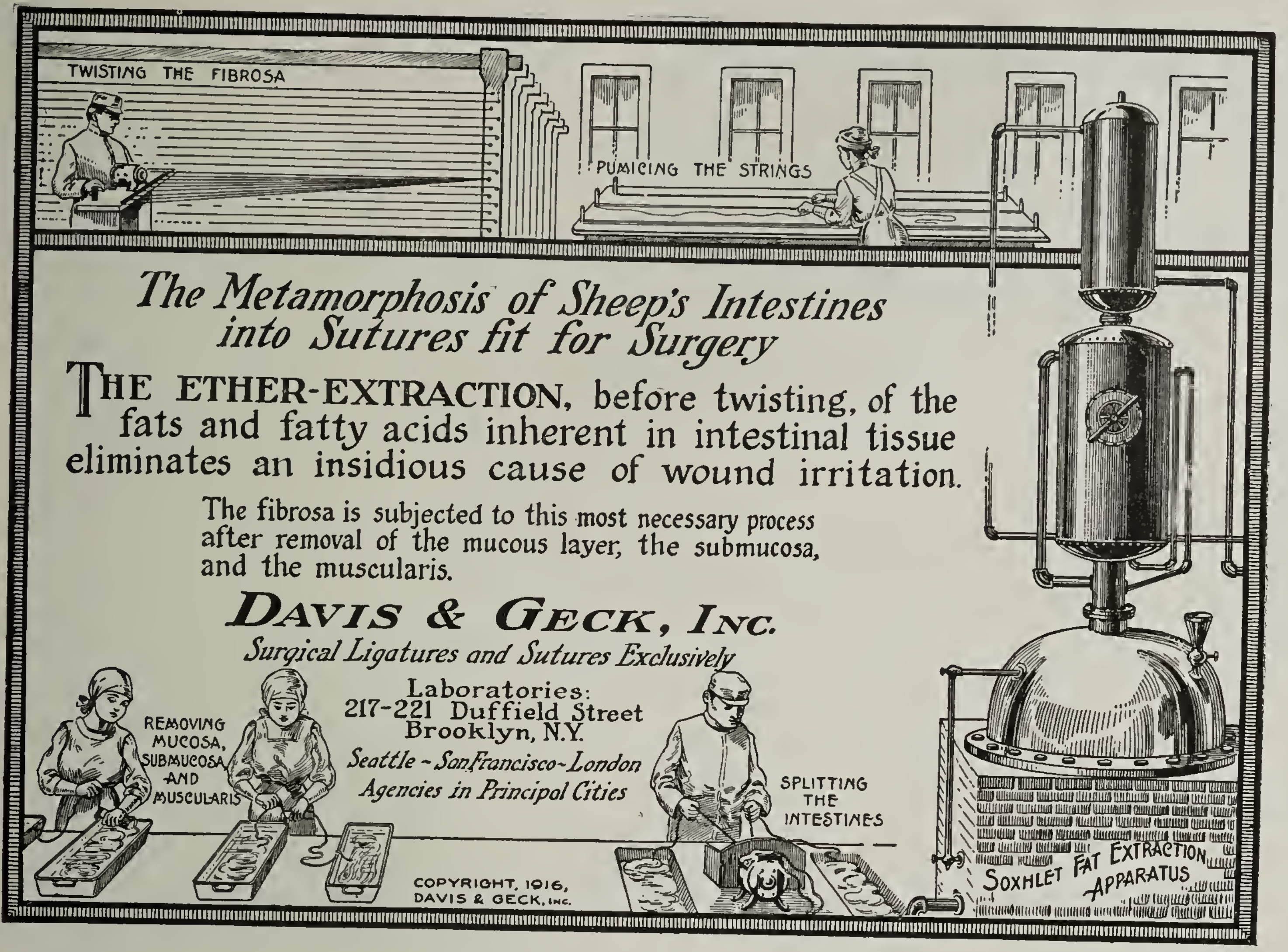
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(*Continued on page 22*)

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Dr. Samuel Fomon, 11 N. Ashland Ave., Chicago

PLEASE MENTION THE JOURNAL A. M. A. WHEN WRITING TO ADVERTISERS

CLASSIFIED ADVERTISEMENTS

Advertisements under the following headings cost **$1.50 for 50 words or less,** additional words 3c each. This rate applies for each insertion.

WANTED	**Partner**	**Sanitaria**
Apparatus	**Partnership**	**Drug Stores**
Assistant	**Situation**	**Locations for Sanit.**
Books	**FOR SALE**	**FOR RENT**
Intern	**Apparatus**	**EXCHANGE**
Location	**Practice**	**MISCELLANEOUS**
Locum Tenens		

RESULTS are better when an advertisement receives several consecutive insertions, and to those who remit $6 ($6.25 if answers are to be sent through this office) for four insertions of a 50-word advertisement we will give, *free, two more insertions* provided the first four do not consummate a deal. Notice for free insertions must be received within two weeks from date of last insertion.

RESULTS VS. ECONOMY—DO NOT TRY TO economize at the expense of the effectiveness of your advertisement by omitting important and attractive features. In selling a practice, value of which runs into hundreds of dollars, it is surely unwise to run the chance of losing a prospective purchaser by not including every important fact and favorable item pertaining to the location and practice. Extra words over fifty cost 3 cents each.

For the following classifications the rate is **$1.50 for 30 words or less**—additional words 5c each. This rate applies for each insertion. No gratuitous insertions given under these headings.

Abstracting	**Medical Brokers**	**Med. Illustrators**
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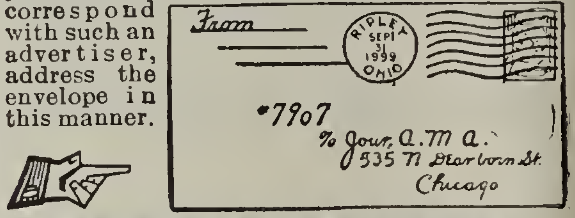
Carriages	**Tr. Sch. for Nurses**	**Printers**
Collections	**Nurses Wanted**	**Salesmen**

Miscellaneous Commercial Advts.

SPECIAL NOTE—A fee of 25c. is charged those advertisers who have answers sent % AMA. Letters sent in our care are forwarded promptly.

Frequently, we receive requests to this effect: "Please send me the address and particulars regarding ads. No.——, No.——, and No.——." We are not permitted by advertisers who have their mail sent % AMA to furnish inquirers information of any kind, hence when you wish to correspond with such an advertiser, address the envelope in this manner.



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Rates for display ads. sent upon request

For current issue, ad. must reach us by 4:30 p. m. Monday.

Journal A.M.A., 535 N. Dearborn St. CHICAGO

N. B.—We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation.

APPOINTMENTS

New York Eye and Ear Infirmary

Examinations for the following vacancies will be held at the NEW YORK EYE AND EAR INFIRMARY, Second Avenue and Thirteenth Street, New York City, on Wednesday, Feb. 7, 1917, at 3 p. m.

OPHTHALMIC DEPARTMENT

Junior Assistant to House Surgeon; service sixteen months, with living in the Infirmary.

AURAL DEPARTMENT

Junior Assistant to House Surgeon; service sixteen months, with living in the Infirmary.

The examination will cover the ground of general medicine and surgery.

Candidates having general hospital experience are preferred.

THE NEW YORK EYE AND EAR INFIRMARY is the oldest and largest institution in the city devoted to the special treatment of eye and ear diseases, as is shown by the following statistics:

Average number of eye cases treated annually, 31,000.

Average number of ear cases treated annually, 12,000.

Average number of operations performed annually in the Eye Department, 5,500.

Average number of operations performed annually in the Ear Department, 3,500.

For application blanks address MR. THOS. K. ROBERTSON, Superintendent, 218 Second Avenue, New York City.

(*Continued on page 22*)

Armour's

OLEOMARGARINE

GLENDALE
(Natural Color)

SILVER CHURN
(White)

IN the interest of intelligent economy, the public should be fully informed as to the purity, healthfulness and desirability of Armour's Oleomargarine, which has had so much favorable mention recently.

No food product is more safeguarded in the making, every operation being under government inspection; and science has removed the element of luck and haphazard chance in the manufacture of Oleomargarine. Definite formulas are used. This insures a *uniform* product.

The ingredients are only those used daily in every home, for cooking and baking—highly refined fats, churned with pasteurized milk. In Glendale is contained a good proportion of especially prepared high grade pasteurized creamery butter.

Dietitians and cooking experts agree as to the healthfulness and high food value of this product as a butter equivalent.

The fact that Armour's Oleomargarine meets the housewife's every requirement is evidenced by the increasing use of this product in well-to-do homes. A trial will prove that this popularity is fully deserved.

Glendale and Silver Churn Oleomargarine are marked with the Armour Oval Label, the designation of the best in every line of Armour food products. Other oval label products are Star Stockinet Ham, Star Bacon, Grape Juice, "Simon Pure" Leaf Lard, Cloverbloom Butter, Devonshire Farm Sausage and Veribest Package Foods.

Armour's
QUALITY
PRODUCTS

We welcome investigation by all medical men

ARMOUR AND COMPANY
CHICAGO

1050

A. M. A. ANNOUNCEMENT

(*Continued from page 20*)

ARCHIVES OF INTERNAL MEDICINE

Monthly, $4 a year; to JOURNAL subscribers, $3. Single copy, 50 cents.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Monthly, $3 a year; to JOURNAL subscribers, $2. Single copy, 30 cents.

QUARTERLY CUMULATIVE INDEX TO CURRENT MEDICAL LITERATURE

Issued four times a year, $3.00 per current year

Each number includes all references in the earlier numbers of current year combined in one alphabet and brought up to date of issue. The fourth or last number for the year is bound in cloth for permanent reference.

Authors and subjects are arranged in one alphabet on a true dictionary plan. The citation gives abbreviation of journal, volume, number (in black face type), page, month (day of month if a weekly publication) and year, in order named.

AMERICAN MEDICAL ASSOCIATION,
535 N. DEARBORN STREET, CHICAGO

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

THE PATHOLOGY AND DIFFERENTIAL DIAGNOSIS OF INFECTIOUS DISEASES OF ANIMALS. Prepared for Students and Practitioners of Veterinary Medicine. By Veranus Alva Moore, B.S., M.D., V.M.D., Professor of Comparative Pathology, Bacteriology and Meat Inspection, New York State Veterinary College at Cornell University. Fourth Edition. Cloth. Price, $4. Pp. 593, with 120 illustrations. New York: The Macmillan Company, 1916.

GERIATRICS. The Diseases of Old Age and Their Treatment, Including Physiological Old Age, Home and Institutional Care and Medico-Legal Relations. By I. L. Nascher, M.D., Chief of Clinical Department of Internal Medicine, Mount Sinai Hospital Dispensary, New York. With an Introduction by A. Jacobi, M.D. Second Edition. Cloth. Price, $5. Pp. 527, with 131 illustrations. Philadelphia: P. Blakiston's Son & Co., 1916.

THE PRACTICE OF UROLOGY. A Surgical Treatise on Genito-Urinary Diseases, Including Syphilis. By Charles H. Chetwood, M.D., LL.D., F.A.C.S., Professor of Genito-Urinary Surgery, New York Polyclinic. Second Edition. Cloth. Price, $5.50 net. Pp. 825, with 310 illustrations. New York: William Wood & Co., 1916.

WATER-SUPPLY (CONSIDERED PRINCIPALLY FROM A SANITARY STANDPOINT). By William P. Mason, Professor of Chemistry, Rensselaer Polytechnic Institute. Fourth Edition. Cloth. Price, $3.75 net. Pp. 528, with illustrations. New York: John Wiley & Sons, 1916.

ANNUAL REPORT OF THE SURGEON-GENERAL, U. S. NAVY, CHIEF OF THE BUREAU OF MEDICINE AND SURGERY, TO THE SECRETARY OF THE NAVY, FOR 1916. Paper. Pp. 104. Washington: Government Printing Office, 1916.

A TEXT-BOOK OF HISTOLOGY. By Frederick R. Bailey, A.M., M.D. Fifth Edition. Cloth. Price, $3.75 net. Pp. 652, with illustrations. New York: William Wood & Co., 1916.

PHOTOMICROGRAPHS OF CRYSTALLIZABLE CHEMICAL SALTS. By Arthur W. Doubleday. Cloth. Price, $6. Pp. 235. Boston: Research Publishing Company, 1916.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FOR 1916. Cloth.

The Miner Laboratories
CARL S. MINER
9 S. Clinton St., Chicago, Ill.
W. S. Hilpert, Ph.D., for eight years in the A.M.A. Chemical Laboratory. In charge of the examinations of drugs and medicinal products and problems connected with their manufacture and sale.

WASSERMANN TEST $5.00
(Including Noguchi Control Test)
Expert work and prompt reports assured
Reports telegraphed without extra charge. Fee list and containers mailed on request.
PACIFIC WASSERMANN LABORATORIES
San Francisco, Cal., Pacific Bldg.
Los Angeles, Cal., Hollingsworth Bldg.
Oakland, Cal., Physicians' Bldg.
Seattle, Wash., Green Bldg.

Wassermann Test and its best control Hecht-Weinberg-Gradwohl $5.00
All other tests that are useful in diagnosis. *Free containers.*
Cincinnati Biological Laboratories Co.
A. FALLER, M.D., Director
18 W. Seventh Street Cincinnati, Ohio

DEPENDABLE PRODUCTS
DISPENSE YOUR OWN MEDICINES—There are many advantages in personally supervising the administration of drugs you use. We manufacture and ship direct to physicians in any part of the U. S. everything pharmaceutical, i. e., tablets, lozenges, ointments, etc. Every product is ready for immediate use, easily dispensed. We guarantee them true to label and of reliable potency. Our complete catalog should be in the hands of every physician who dispenses. Mailed free on request.
THE ZEMMER COMPANY
Chemists to the Medical Profession
Forbes Field Pittsburgh, Pa.

RADIUM
SALT
APPLICATORS
PREPARATIONS
U. S. BUREAU OF STANDARDS' MEASUREMENT
THE W. L. CUMMINGS CHEMICAL CO.
WORKS AND LABORATORIES LANSDOWNE NEAR PHILADELPHIA

(*Continued from page 20*)

Massachusetts Charitable Eye and Ear Infirmary
233 Charles Street BOSTON, MASS.

APPOINTMENT OF HOUSE OFFICERS

Examinations for the appointment on February 1st and June 1st, 1917, of two Ophthalmic and two Aural House Officers will be held at this Hospital on Tuesday, January 16th, at 10 A. M. One Ophthalmic and one Aural House Officer to go on duty February 1st, the others to go on duty June 1st.

The service is of 16 months' duration, with residence in the hospital.

Applicants are examined in Anatomy, Physiology, Bacteriology, Pathology, Clinical Medicine and Therapeutics, and Surgery.

Applications must be made before January 9th, 1917. Application blanks can be obtained from the Superintendent at the hospital or will be sent by mail.

The number of patients treated in the wards during the year 1915, was 3,646; 1,794 eye, 1,852 ear. The number of new out-patients was 28,526. The total out-patient attendance was 67,626. By these figures some idea can be obtained of the clinical opportunities offered.

FREDERIC A. WASHBURN, M.D.,
Superintendent.

WANTED — PATHOLOGIST TO TAKE charge of laboratories of the Augusta State Hospital; Class A man; recent school and hospital graduate considered; 60 autopsies last year; salary to start with, $1,200 and maintenance. Add. with references, Dr. F. C. Tyson, Supt., Augusta, Maine. A

ASSISTANTS WANTED

WANTED — ASSISTANT TO DO GENeral laboratory work, give anesthetics, keep records and other work in the general practice of medicine and surgery; must be Protestant, single, total abstainer, able to register in California; advancement good; salary $100 per month. Add. 1471 B, % AMA.

WANTED — A COMPETENT PHYSICIAN who has had experience in diseases of the chest; one who is especially interested in tuberculosis and has a knowledge of x-ray, laboratory and animal research procedures, as assistant superintendent. Add. Dr. Robert Levy, Chairman of Medical Advisory Board, National Jewish Hospital for Consumptives, Denver, Col. B

WANTED — AN ASSISTANT IN WASHington for an eye, ear, nose and throat practice; one that can do laboratory and x-ray work; Class A school; references required; must be absolutely clean; with a view to partnership in the future; married man preferred. Add. 1399 B, % AMA.

PHYSICIANS WANTED

WANTED—YOUNG PHYSICIAN, RECENT graduate of A1 school to take my practice; will sell stock of drugs; will rent 5-room office and equipment; one competitor; 7, 9, 14 and 14 miles to surrounding physicians; splendid territory; American community; references required. Dr. E. O. Onion, Summum, Ill.

WANTED — CHRISTIAN PHYSICIAN TO locate in northwestern town; graduate of A+ school; must have experience in laboratory, x-ray and diagnosis; capable of doing a general practice, including surgery and hard work; no investment but ability; must be ambitious to succeed and cooperate with competitors; give full particulars. Add. 1411 C, % AMA.

WANTED — PHYSICIAN — POLISH OR Lithuanian speaking preferred, to locate in a Chicago neighborhood just vacated by one physician; another physician possibly going away also; splendid opportunity for some one; free to you for the asking; will show you a great future; local druggist guarantees all possible assistance. Add. 1410 C, % AMA.

WANTED — A WOMAN PATHOLOGIST for hospital of 65 beds in southern city; prefer to have one who has had several years' experience and can do satisfactory tissue, Wassermann, blood and vaccine work; salary to start with $150 per month; no maintenance. Add. 1368 N, % AMA.

(*Continued on page 24*)

The diabetic patient offers a problem of no small importance to the practicing physician of today.

Few afflicted with the disease are able or willing to follow out the prescribed regimen—which is so essential to recovery—in the home environment. The patient has no means of determining food values—is seldom prepared even to measure quantities in drams or ounces and has no idea at all about calories of food composition.

Under the favorable conditions afforded by institutional management and the applications of the up-to-date methods, even grave cases may be brought under control and often with surprising promptness. Ordinary cases usually are quickly made sugar free and cases are very rare which may not be substantially benefited by the efficient application of systematic treatment under conditions of perfect control.

A special advantage of institutional treatment in these cases is the opportunity for educating and training the patient in dietetics and in eating habits adapted to his individual requirements, so that when he returns home at the end of a few weeks he is able to establish and maintain a suitable regimen by which he usually may, with the aid of careful watching by his family physician, remain sugar free for an indefinite period.

We will be glad to send further information concerning
the Battle Creek method in diabetes to any physician.

THE BATTLE CREEK SANITARIUM, Box 250, BATTLE CREEK, MICHIGAN

BOOKS RECEIVED

(Continued from page 22)

Gunshot Wounds: How They Are Inflicted, Their Complications and Treatment. By Colonel Louis A. La Garde, United States Army Medical Corps (Retired). Second Edition. Cloth. Price, $4. Pp. 457, with 159 illustrations. Prepared under the Direction of the Surgeon General United States Army and Published by Authority of the Secretary of War. New York: William Wood & Co., 1916.

A Handbook of Surgical Operations Designed for the Use of Students of Surgery. By K. K. Chatterji, F. R. C. S. I., Surgeon, Campbell Hospital, Calcutta, with a Foreword by Lt. Col. R. Bird, I. M. S. Cloth. Price, 7 shillings 6 pence net. Pp. 238, with 26 illustrations. London: Butterworth & Co., 1916.

The Neuro-Muscular Mechanism of the Eyes and Routine in Eye Work. B. G. C. Savage, M.D. Cloth. Price, $1. Pp. 70, with illustrations. Nashville: The Author, 1916.

Transactions of the New Hampshire Medical Society, 1916. Cloth.

The Public Service

Changes for the seven days ended Dec. 20, 1916.

Stimpson, Gen. W. G., asst.-surg., granted 4 days' leave of absence during month of December.

Carter, Gen. H. R., asst.-surg., leave of absence without pay for 2 months from Oct. 20, 1916, amended to cover period October 20 to December 10, 1916.

Pierce, C. C., senior surg., granted 7 days' additional leave from Dec. 23, 1916.

Cobb, J. O., surgeon, proceed to Princeton, Ind., for conference relative suspected case of leprosy.

Warren, B. S., surgeon, proceed to New York City for special temporary duty.

Holt, J. M., surgeon, granted 10 days' leave from Dec. 26, 1916.

Kearny, R. A., P. A. surgeon, granted 15 days' leave from Dec. 21, 1916.

Sweeney, A. R., asst.-surg., relieved at Galveston, Texas, Quarantine. Proceed to St. Louis Marine Hospital for duty.

Derivaux, R. C., asst.-surg., report to Bureau enroute to station from New York for conference on malaria investigations.

Smith, H. F., asst.-surg., upon instructions from Surg. Lavinder, proceed to Wilmington, Del., to collect epidemiologic date necessary in studies of poliomyelitis.

Faget, F. M., asst.-surg., report to Commanding Officer C. G. C. Androscoggin at Boston, Mass., for duty.

Miller, K. E., asst.-surg., proceed via Washington to Edgecombe County, N. C., and other places for investigation of rural health organization and administration.

Prather, D. J., asst.-surg., relieved at Hygienic Laboratory upon completion of special duty under Bureau orders of Oct. 27, 1916, and directed to proceed to Ellis Island, N. Y., Immigration Station for duty.

Bean, W. S., Jr., asst.-surg., to proceed to Spartanburg, S. C., and report to Surgeon Goldberger for duty in investigations of pellagra.

Wagenbach, W. F., asst.-surg., proceed to Spartanburg, S. C., and report to Surgeon Goldberger for duty in investigations of pellagra.

Edmunds, M. C., asst.-surg., to report to Surgeon Goldberger, Spartanburg, S. C., for duty in investigations of pellagra.

Roth, G. B., Technical Asst., attend meetings of American Physiological Society and American Society for Pharmacology and Experimental Therapeutics at New York, Dec. 28-30, 1916.

Seidell, Atherton, Technical Asst., attend meetings of Federation of American Societies for Experimental Biology at New York, Dec. 27-30, 1916.

Chicago Laboratory
CLINICAL—ANALYTICAL
Established 1904

Pathological Tissue Examination

Surgical diagnosis on specimens of tissue may be obtained promptly by frozen section on same day specimen is received.

Send for booklet of instructions how to forward tissue and other specimens for examination.

RALPH W. WEBSTER, M.D., Ph.D.
Chemical Department
THOMAS L. DAGG, M.D.
Pathological Department
C. CHURCHILL CROY, M.D.
Bacteriology Department

Complement Fixation

In chronic arthritic cases a Complement Fixation Test for Gonorrhea is often of value in establishing a correct diagnosis.

Send for containers and instructions how to obtain the blood for this test.

Our names and reputations stand back of our work.

25 E. Washington Street
Phone Randolph 3610
Private Exchange
CHICAGO, ILLINOIS

ASSISTANTS AND PHYSICIANS WANTED

(Continued from page 22)

WANTED — AN ASSISTANT SURGEON in a home containing 800 people, in central Wisconsin; physician must be single; lady physicians are not barred. Add. 1513 B, % AMA.

WANTED — AT ONCE — RECENT GRADUATE as assistant to general practitioner in country town; single man who speaks German preferred; salary $125 per month to begin with. Add. 1515 B, % AMA.

WANTED — ASSISTANT PHYSICIAN IN private sanitarium for mental and nervous diseases; must be unmarried, licensed to practice in the state of New York and have had experience in state hospital or sanitarium; salary $1,000 per annum, with room, board and washing; address in own handwriting, stating age, nativity, religion, experience, references, etc. Add. 1521 B, % AMA

WANTED—BY SURGEON—MAN TO DO laboratory and x-ray work and assist in office emergency and routine; must be able to do Wassermanns; ability to do tissue work desirable, but not essential; will pay $150 a month with advance after the first year; don't write if not qualified; am not running a school for beginners. Add. 1507 B, % AMA.

WANTED — EYE, EAR, NOSE AND throat specialist to locate in town of 15,000 in middle west; sponsorship of hospital staff; almost unlimited territory; must be young man of exceptional ability and personal appearance; Protestant; European training desirable but not essential. Add. 1499 C, % AMA.

WANTED—PHYSICIAN IN AN INLAND country village; large thickly settled farming territory, Protestant and Germans; old established stand, Central Illinois; country level prairie; good roads; good pay; railroad and nearest physician 6 miles; good stores, church, school, office and residence; available immediately; nothing for sale; splendid opportunity; German preferred; state age, experience. Add. 1510 C, % AMA.

WANTED — EXPERIENCED PHYSICIAN for good location; exceptional opportunity for doctor; old town, 450 population; good country; reference. Write, Box 127, Belle Rive, Ill. C

WANTED — HOUSE PHYSICIAN FOR one year in orthopedic hospital of 65 beds; opportunity for clinical work in out-patient department; salary $25 per month; after six months, $50; with room and board. Superintendent, 1919 Madison Ave., New York City.

WANTED—YOUNG MARRIED MAN TO locate in town of 1,000 in middle west; competition light; rich surrounding territory; must be good internist, of good appearance, Protestant and able to mix with people; introduction by retiring physician; nothing to sell. Add. 1498 C, % AMA.

INTERNS WANTED

WANTED—INTERNS — VACANCIES ARE about to occur on the regular house staff of Montefiore Home and Hospital. Applications for appointment should be made at once to Dr. S. Wachsmann, Medical Director, Montefiore Home and Hospital, Gun Hill Road (E. 210th St.), New York City. D

NURSES WANTED

WANTED — GRADUATE, MIDDLE AGED female nurse for a hydrotherapy and electrotherapy department in a modern up-to-date hospital; must be experienced and come highly recommended; answer stating salary expected and enclosing references. Add. 1505 T % AMA.

LABORATORY TECHNICIANS WANTED

WANTED — LABORATORY ASSISTANT by general hospital in Michigan, to assist in general laboratory work, preparation of bacteriological media and tissue work. State previous experience, age and salary desired. Add. 1503 V % AMA.

WANTED—WOMAN LABORATORY TECHnician; good laboratory training essential; must do Wassermanns; other things equal, applicants with X-ray laboratory experience given preference; state fully qualifications and previous experience; surroundings and equipment first-class. Good place in Los Angeles for the right person. State salary expected; give references. Add. 1420 V, % AMA.

(Continued on page 26)

WANTED—LABORATORY TECHNICIAN and radiographer for a Chicago general hospital; salary $150 per month. Add. 1443 V, % AMA.

WANTED — GRADUATE IN MEDICINE, capable of doing general laboratory work, urine, blood, tissues, spinal fluid, cultures, Wassermann; permanent position for competent person; woman preferred; state age, education, experiences, references and salary at start. Add. 1488 V, % AMA.

WANTED—LABORATORY TECHNICIAN, woman; R. N. preferred; one who is capable of doing routine laboratory tests and also has knowledge of x-ray work; state in first letter where trained, reference, scope of work and salary expected. Add. 1409 V, % AMA.

LOCATIONS WANTED

WANTED—WILL PURCHASE CONTRACT or unopposed practice — Colorado, New Mexico; also consider locum tenens work; would travel with wealthy patient; just sold my contract practice; am 32; perfect health; best references; please hustle. Add. 1519 E, % AMA.

LOCUM TENENS WANTED

WANTED — PHYSICIAN TO TAKE charge of my practice for 4 months beginning January 1 or thereabouts; can have what he makes; business averages $200 cash monthly, and must pay running expenses. Dr. J. C. Docter, Drummond, Mont. F

PARTNERS WANTED

WANTED — PARTNER TO TAKE ONE-third interest in incorporated private hospital 80 beds located in Chicago; the advertiser is desirous of selling because of real estate interests in west that needs attention; proposition carries with it position as superintendent and business manager at salary of $2,000 per year; earnings for 1916 over $10,000; large possibilities for expansion; $15,000 cash required. Add. 1473 G, % AMA.

WANTED—LIVE WIRE TO TAKE HALF interest in $8,000 general practice in city of 30,000 in western Connecticut; no dead ones considered. Add. 1467 G, % AMA.

WANTED—INDIANA—HUSTLING YOUNG general surgeon, right in all respects, to become office associate of an ethical progressive, established, middle-aged doctor, doing large general practice in a fine city; intending to work into abdominal surgery and establish private hospital; laboratory work and assistant fees while getting started, optional; no investment; must bear own expenses and build up practicie; right man will build up big thing; short time to prepare; positively no answer unless all details including age, marital condition, health, training, etc., are given in application. Add. 1511 G, % AMA.

SITUATIONS WANTED

WANTED — ASSOCIATION WITH SURgeon; Johns Hopkins graduate; 5 years' hospital experience and sometime instructor in medicine in that institution; desires to associate with well-established surgeon as a diagnostician and internist; eastern or southern city of not less than 50,000 population preferred; living salary and division of consultation fees expected; highest references furnished and required. Add. 1492 I, % AMA.

WANTED—LOCUM TENENS WORK BY graduate Class A school, year 1911; two years' internship; three years' successful private practice; can do general surgery, x-ray and laboratory work; single, German, Protestant; no bad habits; references furnished; Illinois, Iowa or reciprocating state. Add. 1487 I, % AMA.

WANTED — POSITION IN HOSPITAL, sanatorium or physician's office by undergraduate nurse with 5 years' hospital experience; 27 years of age; college graduate; good references; prefer Iowa, southwestern Minnesota or eastern South Dakota; moderate salary accepted. Add. 1495 I, % AMA.

WANTED — POSITION, LABORATORY or institutional, by physician experienced in psychiatry and tropical diseases; 8 years' graduate; 6 years federal service; recent special courses in clinical and histological pathology, bacteriology, serology and X rays; age 40, single, Catholic; speak English, German and Spanish. Add. 1504 I % AMA.

(Continued on next page)

LANGE'S COLLOIDAL GOLD TEST of the Spinal Fluid $5.00

This is perhaps the most valuable test which we now possess for the differentiation of diseases of the central nervous system. The reaction obtained with this test with the fluids of paretics is absolutely pathognomonic of that condition. It differentiates syphilis from other types of lesions of the central nervous system.

WASSERMANN TEST Blood or Spinal Fluid $5.00

We do the classical test. Any of the various modifications will be made upon request without additional charge.

Sterile containers, with needle, gratis upon request.

EXAMINATION OF PATHOLOGICAL TISSUE - - $5.00

Slides of section sent upon request.

MERCURIAL (GREY) OIL - $1.50

One of the New and Nonofficial remedies. A valuable adjunct in the treatment of syphilis. Put up in syringes, each syringe containing 10 doses. Credit of 50c upon return of syringe. Pamphlet sent upon request.

AUTOGENOUS VACCINES - $5.00

in the treatment of:

Pyorrhea
Asthma
Sinus Infections
Throat Infections
Bladder and Urethral Infections
Chronic Bronchitis
Endocarditis
Otitis Media
Skin Infections
Hay Fever

The *exciting* organism is identified and isolated. Cultures are made both aerobically and anaerobically. The vaccine is furnished in a single container or in ampules in graduated doses. Culture media, with sterile swab and directions for collection of specimens, sent upon request.

Send for Fee List

NATIONAL PATHOLOGICAL LABORATORY
(INCORPORATED)

CHICAGO, ILL.
5 S. Wabash Ave.

NEW YORK CITY
18 E. 41st Street

WANTED—ASSISTANTSHIP WITH ACtive competent surgeon; private or small general hospital preferred; am graduate A+ school; seven years' private practice; 31 years of age; object, good surgical training, compensation of secondary importance; good personality; no bad habits; available at once. Add. 1362 I, ℅ AMA.

WANTED — POSITION—ROENTGENOLogist, anesthetician, and assistant surgeon; speak French and English; age 29, unmarried. Former member of faculty of medicine of Paris, faculty of the Sciences of Paris. (No American degree, two foreign diplomas.) Total abstainer; low wages if chance for advancement; 5 years' experience in French hospitals, largely x-ray work; was radiograph doctor in war; know all latest American apparatus; do x-ray diagnosis; do all x-ray work; large experience as assistant to surgeon; at present employed by gynecologist and surgeon. Add. 1036, ℅ F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED — BY SURGEON AND PHYSIcian, position with mining company in Central or South America; graduate Toronto, '07; formerly Mexican government service. Add. 1489 I, ℅ AMA.

WANTED — BY WOMAN, POSITION AS technician in pathological laboratory or with several doctors; have had thorough training in good hospital; can also do efficient stenographic work. Add. 1491 I, ℅ AMA.

WANTED—POSITION AS PEDIATRICIAN with firm of specialists in city by man fourteen years in general practice, lately completed work in pediatrics in New York, Boston and Chicago. Add. 1502 I ℅ AMA ,

WANTED—POSITION—AT PRESENT EMployed in state institution; aged 57, married, no children; height 6 feet; weight 175; desire position with doctor or institution or corporation; registered in Illinois, Indiana, Michigan and reciprocating states; graduate Hahnemann Medical College, graduated 1885, practiced 15 years in Chicago, 3 years abroad in clinics; many years' institutional management; general practice and considerable surgery (minor); references. Add. 976, F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED — JAN. 15, 1917, ASSISTANTship to surgeon or physician doing surgery; opportunity for advancement first consideration; graduate A1 school; 20 months' general practice; one and one-half years' scientific surgical training; routine laboratory and tissue work; aged 28, single, sober, industrious; licensed Virginia and North Carolina; go any reciprocating states; references exchanged. Add. 1412 I, ℅ AMA.

WANTED—INTERN SERVICE IN GENeral hospital by Jan. 1, twelve to eighteen months; fair compensation expected; graduate Class A School, 1915; good anesthetist, surgical assistant, general laboratory work. Want work and experience. Reference given. Age 30. F. G. Riley, M.D., Booneville, Miss. I

WANTED — POSITION WITH INSTITUtion or surgeon, with view to increasing surgical experience, though largely experienced already and 8 years' general practice; total abstainer; married, aged 32; can reciprocate many states; graduated 1907 Atlanta Medical College; fine references. Add. 1055, ℅ F. V. Kniest, Omaha, Neb. I

WANTED — INSTITUTIONAL OR CONtract position by Catholic physician, graduate University of Pennsylvania, A.B. and M.D., 1912; hospital and sanatorium experience; three years' general practice; assistant in large dispensary; instructor in physical diagnosis; single, aged 30, weight 180 lbs.; excellent health, habits and appearance. Add. Physician, 37 North 56th St., Philadelphia, Pa.

WANTED—WOMAN PHYSICIAN, EXPERIenced laboratory technician, desires position in hospital or with group of physicians; prepared to do serological and spinal fluid work, tissue, etc., in addition to all routine work; have working knowledge of roentgenology also; must be in southern states, southwest preferred; best of references. Add. 1408 I, ℅ AMA.

WANTED—POSITION BY WOMAN PHYsician, experienced in eye, ear, nose and throat work; do retinoscopy; anesthetist; some experience in surgery of specialty; desire position with group of general physicians or first-class oculist and aurist or locum tenens work; states reciprocating with Illinois. Add. 1392 I, ℅ AMA.

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WANTED—TO BECOME ASSISTANT TO busy physician or surgeon; graduate Class A school; 22 months' internship; good training in surgery; do laboratory work; 24 years of age, married; at present in private practice, but desire to change; total abstainer from liquors and tobacco; reciprocity 34 states. Add. 1476 I, ℅ AMA.

WANTED — SALARIED POSITION AS surgeon or assistant; competent in major surgery; efficient diagnostician with knowledge of x-ray and laboratory; competent refractionist; would consider position with eye, ear, nose and throat man; hospital graduate, Class A school, 8½ years' experience; competent, reliable, with excellent recommendations and nice appearance; license, West Virginia, Virginia, or reciprocating state. Add. 1451 I, ℅ AMA.

WANTED — LOCUM TENENS WORK DEsired by an ethical and reliable man in South Dakota, North Dakota or Missouri, city or country practice, from Jan. 1, to April 1; state proposition in first letter. Add. 1418 I, ℅ AMA.

WANTED — POSITION IN PUBLIC health, state or city, as medical inspector, tuberculosis or venereal work or health officer, by woman graduate of A+ medical college; A.B. degree; internship in large municipal hospital; willing to take civil service examination; excellent recommendations as to ability and personality. Add. 1407 I, ℅ AMA.

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THE CARTWRIGHT PRIZE OF THE Association of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, New York. This biennial prize of $500, open for universal competition, will be awarded at Commencement, 1917. If no one of the competing essays is deemed sufficiently meritorious, the prize is not awarded.

An essay, in order to be held worthy of the prize, must contain the original investigations made by the writer. This prize is not awarded to an essay which is the work of more than one author, or which is at the same time submitted for another prize, or which has been previously published in any form either in whole or in part. It must be on a medical, surgical or kindred subject. Each competitor is required to send with his essay a statement that these requirements have been complied with. Essays in competition for this prize must be sent to the undersigned on or before April 1, 1917. Competing essays must be in typewriting and they must be in English, marked with a device or motto, and accompanied by a sealed envelope similarly marked, containing the name and address of the author. The payment of the prize money to the successful essayist will be made on his filing with the treasurer of this association a printed copy of the essay. In 1918 the Alumni Prize will be offered. The requirements of this are the same as those of the Cartwright prize, excepting that competition is restricted to P. & S. Alumni. H. E. Hale, M.D., Secretary of the Association of the Alumni of the College of Physicians and Surgeons, 64 West 50th Street, New York City. J

WANTED — PHYSICIAN AND SURGEON of nine years' experience desires to act as medical escort to person desiring to visit Samoa or other islands in the Pacific for his health; am total abstainer from liquors, tobacco; references furnished; no salary expected, but all traveling expenses; can go immediately. Dr. Hottendorf, Paris, Idaho. J

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FOR SALE—IOWA—UNOPPOSED PRACTICE in town of 500 on main line of railroad; high school; large territory; good roads; practice for price of personal property; also will rent my house; have a contract I can turn over; do not write unless you mean business. Add. 1516 N, % AMA.

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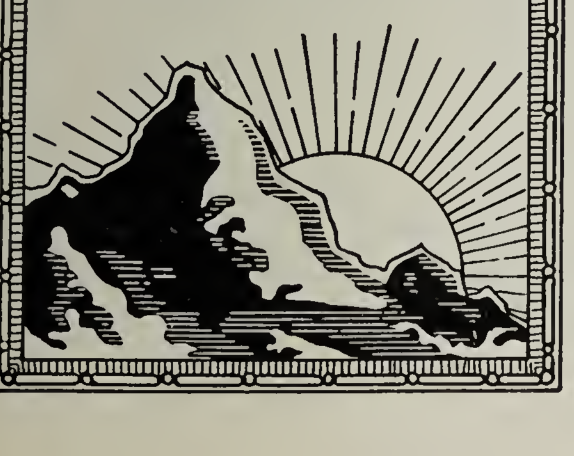

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FOR SALE—WESTERN PENNSYLVANIA—$3,000 unopposed practice; town of 450, main line railroad; fine farming community, schools, churches, lodges; collections good; nearest physicians, 5 and 6 miles; no drug store; use auto all year; $1,000 takes practice, Ford, medicines, introduction. Add. E. K. Riley, 824 Bellaire Ave., Pittsburgh, Pa. N

FOR SALE — PENNSYLVANIA — UNOPPOSED practice; town, 800; on two railroads; nearest physician 7 miles; three churches; living from start; good place for young man; price, $500 cash; do not answer unless you have the money and can come at once; 1916 Ford automobile and good stock of drugs included. Add. 1500 N, % AMA.

FOR SALE—SOUTH DAKOTA—EASTERN central part—A $4,500 to $5,000 cash practice for price of office furniture and fixtures; town, 750; city water, electric light; rich farming community; good roads, collections and churches; accredited high school; competition light, territory large; reason for selling, poor health. Add. 1442 N, % AMA.

FOR SALE — SOUTHEASTERN SOUTH Dakota—$4,000 unopposed practice; town of 350; high school, two churches, water, electric lights, two railroads; large rich territory; two neighboring villages without physicians; $400 includes practice, office and laboratory equipment, supplies, instruments; terms to suit; combined office residence for rent; money maker from start. I have made good. Add. 1518 N, % AMA.

FOR SALE—TEXAS—$4,000 PRACTICE; town, 3,000; large territory; good schools and churches; office well located; drug stock invoice at $400, can affiliate first-class drug store if preferable; first-class equipment; reason for selling, on request; residence and auto optional. Add. 1445 N, % AMA.

FOR SALE—WASHINGTON—PRACTICE—No real estate; contracts $400; private work $350 to $450 per month cash; all can be transferred; price, $5,000; $1,000 cash; balance to suit; competition negligible; live town western Washington; this is the one big opportunity; full particulars, bank reference. Add. 1485 N, % AMA.

FOR SALE—SOUTHERN WISCONSIN—Well equipped office in town of 1,200; electric lights, steam heat, modern toilet; best building in town; competition very light; good country; young man preferable; terms, $300 cash or $175 cash and note for $175. Add. Box 324, Kilbourn, Wis. N

FOR SALE — CENTRAL WISCONSIN — Have collected $15,000 in past three years from my practice, village 1,000; one other physician; electric lights in house and barn; ten-room strictly modern house newly painted and decorated; large spreading elm and hard maple trees; lot 120x240, landscape plot, 9-foot parking; a beautiful house built for a doctor; sale of good will and house at invoice of property, $8,000; cannot be reproduced for $10,000; one of the best propositions in the state; $4,500 cash, balance secured. Add. 1452 N, % AMA.

FOR SALE — CENTRAL WISCONSIN — Village and country practice; town about 400 population; good schools and farming country; collections 95 per cent.; immediate possession and thorough introduction. Practice approximately $5,000 yearly; nearest competitor 10 miles. Price for drugs, office fixture, $500; modern house and large lot also for sale; moving to city. Add. 1512 N, % AMA.

FOR SALE OR EXCHANGE—FINE OPENING for a man who is not very strong and wants to continue moderate work; small hospital and $3,000 practice; tuberculosis almost unknown here; I want location in town above 20,000 in good country with chance for surgery. Add. 1497 N, % AMA.

GENTLEMEN — MY LITTLE $1.75 ADV. brought me 25 replies and I sold my practice for $4,200 in less than one week. How's that for results?

(Continued on next page)

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To secure greatest comfort, shortest period of confinement, best results and health for your

FRACTURES

of leg, knee, thigh, and hip patients. All dealers and direct from us. Wire order. State fracture, which limb, sex. Send for booklet, prices, etc. Recommend it.

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Doctor:—

Order Orthopedic Appliances Direct from Our Factory

Our system of measurement insures correct fitting, even in extreme cases. Scientific workmanship guaranteed consistent with AA-I material and service. Braces for spinal curvature, bow legs, weak ankles and deformities of every description. Elastic stockings, artificial, limbs, trusses, abdominal supporters etc., at factory prices. Our orthopedic department is supervised by an expert who has had over 25 years experience in this special work. We guarantee you best possible therapeutic results and pleased patients. Let us send you blank forms and directions for taking measurements, complete catalog, etc.

The Wolfertz Deformity Appliance & Truss Mfg. Co.
Established 1886—Incorporated 1906
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Sent on Request.

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THE "SANITO" SUSPENSORY

They will not chafe; 3 sizes

The Pouch is deep and anatomically shaped. The Understraps are separated at rear of pouch and avoid any pressure against urethra at that point. The pouch does not reach back under the rectum, and is therefore more sanitary. The "SANITO" fits the parts whether in the standing, sitting or lying posture.

The "SANITO" can be cleansed by boiling without injury to the rubber. After wearing the "SANITO" a few days, one will not notice that he has it on.

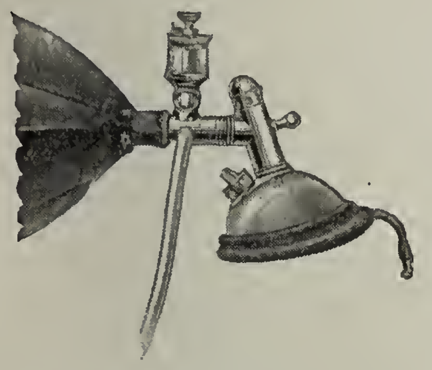
No. 75 is 75c each. No. 35 is 35c each.
20% discount on sales made direct to physicians.

Samples Free to any Physician

THE WALTER F. WARE CO., Dept. K-1, Philadelphia, Pa.

SEE PAGE 20 FOR COST OF CLASSIFIED AND COMMERCIAL ANNOUNCEMENT ADVERTISEMENTS

Flagg Gas-Ether Apparatus



Gas-Oxygen-Ether Apparatus	Accessories
Gas Ether Apparatus	Open and Semi-open Drop Masks
Ether Apparatus	Vapor Masks
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Vapor Apparatus	Rebreathing Tubes
Cylinder Holders	Nasal Tubes
Record Cards	

Catalogue "A" on request

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D&G

DAVIS & GECK, INC.
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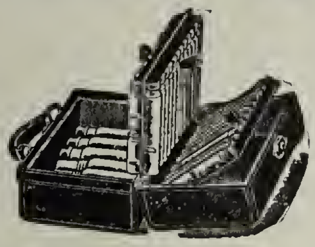

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Showing general and special anatomic regions in normal state. The use of them will systematize your diagnostic observations. **Prices from 50 cts. to $3.00.**

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SEE PAGE 20 FOR COST OF CLASSIFIED AND COMMERCIAL ANNOUNCEMENT ADVERTISEMENTS

HOSPITALS, SANITARIA for SALE

FOR SALE—A SMALL PRIVATE SANITARIUM in Cleveland for the treatment of drug addictions and inebriety for value of furnishings and equipment; business established years; methods and formulae will be given and building can be leased. This is a rare opportunity to obtain an established business by small investment. Add. 1514 O, % AMA.

FOR SALE — HOSPITAL — TWO STORY brick, up to date located on corner, plenty room, fine lawn; twenty beds fully equipped; good for physician; I had to take it under foreclosure; I am not a doctor, out of my line of business. H. T. Hansford, Guthrie, Okla.

FOR SALE—PRIVATE HOSPITAL OF 25 beds, located in one of the best towns in the southwest; population 25,000; 6 railroads; fine schools and churches; also high class general and surgical practice averaging over $10,000 a year for the past ten years; splendid opportunity for a live, up-to-date surgeon; reason for selling, going to city to specialize. Add. 1464 O, % AMA.

FOR SALE — HOSPITAL LOCATED IN central West Virginia; great bargain and favorable terms to right party; accommodation, 30 to 40 patients; owner will retain interest if desired. Add. 1441 O, % AMA.

LOCATIONS FOR SANITARIA

UNUSUAL OPPORTUNITY—FINE CAROLINA city of 5,000 needs hospital or sanatorium; have finely located and adapted brick building for sale at a sacrifice price; value $15,000; cash price, $11,000; terms, $11,500 three years; $12,000 six years; write owner for photograph and particulars. W. A. McMillan, 1331 G St. N. W., Washington, D. C.

FOR SALE — SUITABLE FOR SANITARIUM, country home adjoining thriving Wisconsin city about 2 hours ride from Chicago; 40 acres; modern 15-room residence and large building suitable for dormitory or class rooms; barns and out-buildings; electric light; modern plumbing; 2 blocks to electric cars and river; part level, part rolling; buildings on elevation; beautiful views; price $21,000; worth $40,000. Also, in Chicago Suburbs; 25 rooms, ¾ acre, $15,000; 19 rooms, 5 acres, $15,000; 15 rooms, 1½ acres, $10,000; terms. W. H. Browne, 948 Addison St., Chicago. Phone, Wellington 5129. P

DRUG STORES FOR SALE

FOR SALE — NORTH DAKOTA — ONLY drugstore and practice in town of 250 on a mainline; nearest physician 9 miles; excellent territory; German speaking doctor would have an advantage as there is none within 75 miles; stock of drugs and fixtures invoice $3,000; price of stock takes it; $2,500 cash necessary. Add. 1501 U, % AMA.

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DISEASES OF THE EYE—Refraction, diseases of the eye, ophthalmoscopy, etc., taught practically by individual instruction. Efficient courses. Write for detail, information. Course in Balto. Add. 1522, % A. M. A.

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OPHTHALMOLOGY — SPECIAL COURSES given in refraction, ophthalmoscopy, treatment and surgery; classes are limited and terms reasonable. Add. Walter F. Macklin, M.D., 616 Madison Ave., New York City. CC

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SPECIAL ATTENTION — NATIONAL Clearing House for U. S. for doctors wanting to sell or buy practice. For doctors wanting locum tenens, permanent positions, partnerships. For doctors wanting partners, assistants, nurses, associations, etc. Medical deals handled and furnished. Service likewise for dentists, veterinarians, nurses. Drug positions. Drug stores sold and furnished. If possible come direct to Omaha for consultation, and if service desired, make deposit. Otherwise write F. V. Kniest, R.P., Bee Building, Omaha, Neb. Established 1904.

(Continued on next page)

A Guarantee That Means Something

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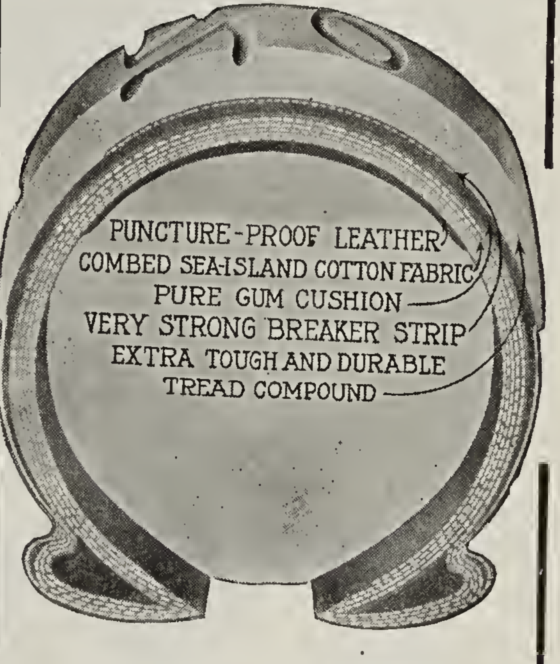
We guarantee Woodworth Trouble-Proof Tires against punctures or blowouts for 5,000 miles. If punctured, we agree that the purchaser may have both the tire and the tube repaired in a first-class manner and we will pay him the cost of such repairs. If Woodworth Trouble-Proof Tires blow-out in less than 5,000 miles, we agree to replace them with new tires, charging for the new tires only one per cent. of the list price for each fifty miles obtained from the tires which have given out. We also guarantee Woodworth Trouble-Proof Tires to outwear any other make of pneumatic tires on the market. If they are used under similar conditions on one side of the machine against any other make on the other side and do not wear longer except when destroyed by accident, we will make a refund on them sufficient to make the cost per mile as low or lower than for the other make of tire.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We guarantee Woodworth Red Rubber Tubes to be perfect in material and construction. If they develop any leaks except in the valves or as a result of punctures or blowouts at any time within one year from date of sale, we will replace them free on their being returned to us.

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Never before has so good a top been offered at so low a price. The frame is of hard wood, covered with best quality 32 oz. rubberized duck. (Sample of material on request.)

The side panels and doors are of glass and are quickly removed in warm weather. The doors slide open, but are adjustable to any position by patented, self-locking devices. They will not rattle.

The windshield is of the newest double-acting, ventilating, automatic type, adjustable to any position — a much better windshield than you got with your car. It will not rattle.

We have been making closed carriages since 1857. We think so much of the "Koupet Top" that we are willing for you to return it after 10 days' use if you are not entirely satisfied with it, and we will refund your money.

Weight of the "Koupet Top" 75 lbs. Shipping weigh 100 lbs. Price, F. O. B. cars Belleville, only $37.50 Send your order, now to

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SIMPLEX SURGEON THE CASE YOU WILL EVENTUALLY BUY

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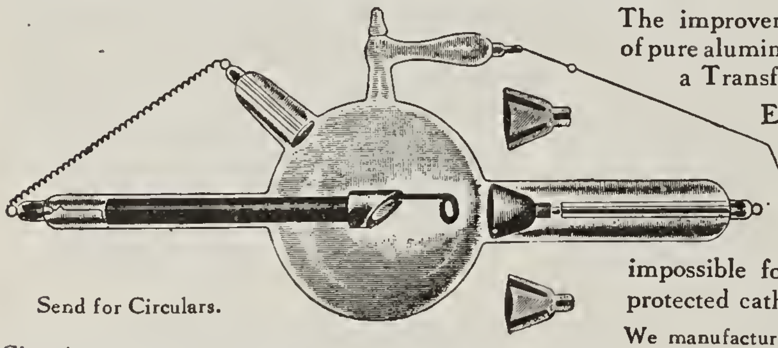
Wandner's Latest Improvement on Transformer and High Frequency Tubes



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Every doctor who has operated an X-Ray Tube with a heavy current has found that the greatest trouble is in the cracking of the tube around the neck. It is impossible for this to happen when using our protected cathode.

We manufacture X-Ray Tubes of all kinds, Chemical Glass Apparatus, and High Frequency Electrodes of all kinds.

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is refined by us from Bradford Crude Oil. It contains No Carbon, has High Fire Test, Low Cold Test and Great Viscosity.

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DOCTOR

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SANITARIUMS, HOSPITALS

A MILD WINTER CLIMATE THAT IS healthful and sunny will be found at Roswell, N. M. The surroundings here are interesting and attractive. You will find our people congenial and friendly. We will send free to any address our booklet "A" which gives full information regarding our city. Add. Health Committee, Roswell, N. M. PP

PUBLISHERS AND PRINTERS

DOCTORS' STATIONERY—OF ALL KINDS —Send for samples and price list. Physicians' labels, size 2 by 3 inches, your name, address, blank lines for directions; noncurling gummed paper; 1,000 prepaid $1; money order, drafts, stamps (no checks). The Fuller Press, 1863 Ogden Ave., Chicago, Ill. GG

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A BRIEF PRACTICAL TEXT ON MATERIA medica is presented in the new edition of "Useful Drugs." Many medical schools and state medical examining boards have adopted this book as a basis for their instruction and examination in materia medica. Unessentials have been sifted out so that your understanding of the subjects will be made clearer and keener. It will help you in prescription writing, making this important feature of medical practice interesting and exact. 174 pages. Cloth. Price, 50 cents postpaid. Amer. Med. Assn., 535 N. Dearborn St., Chicago, Ill. GG

PRESERVATION AND CONSERVATION of life by modern medicine. Every physician who treats an infectious disease renders a service to the individual under his treatment and at the same time he renders a greater service to the community in preventing the spread of disease. What modern medicine has done, is doing and an indication of what it may do for the common good is interestingly explained in the book *"Infection and Immunity"* by Dr. Victor C. Vaughan, Ann Arbor, Mich. We know that science more nearly dominates the world than at any time in the past. Learning permeates the masses more deeply but credulity and ignorance are widely prevalent. In this book it has been the constant aim of the author to present the essential facts of infection and immunity accurately and simply, so that they may be understood by the intelligent, non-professional reader. 238 pp. Cloth cover. Price $1.00. American Medical Association, 535 N. Dearborn St., Chicago. GG

IT IS DANGEROUS TO EMPLOY PREPArations of unknown composition. In many instances proprietary combinations are grossly misrepresented both as to ingredients and indications for use; conditions are about as chaotic in the so-called "ethical proprietary" business as they are in the "patent medicine" industry. Propaganda for Reform in Proprietary Medicines (new edition, just issued) explains what to avoid in proprietaries and why to avoid them. Every physician will find this book interesting, practical and instructive. Over 500 pp. Cloth. Price, $1 prepaid. American Medical Association, 535 N. Dearborn St., Chicago. GG

MISCELLANEOUS COM. ADVTS.

SALVARSAN AND NEOSALVARSAN CAN be secured by physicians and hospitals direct from our distributing office in New York City. There are imitations of these valuable remedial agents offered the profession, many of which are inert or dangerous to administer. To insure obtaining the genuine products, we suggest that orders be mailed direct to us. Additional information regarding these remedies and also other German imported synthetics are given in our adv. on page 33, this issue. Farbwerke-Hoechst Co., 111 Hudson St., New York City. KK

LOOK AT THE RECORD BEHIND THE claims when you select a microscope. It is easy to claim quality and nearly every manufacturer's claims sound alike. Proof that Spencer Microscopes really are to be classed as leaders in quality, accuracy and durability is evidenced by the fact that they are preferred by discriminating microscopists and are in use in the leading medical and agricultural colleges. Our model No. 44H which sells for only $67.50 is described in our adv., page 48, this issue. At this price every practitioner can afford to be equipped to accomplish all the important microscopic examinations. Illustrated booklet on request. Spencer Lens Co., Buffalo, N. Y. KK

(Continued on next page)

GOLDFISH—MOST HEALTHFUL, INTERESTING, least troublesome of pets; imported Japanese fish; aquarium plants; beautiful artistic metal aquariums, suitable for home or office; illustrated circular free. Pioneer Aquarium Fisheries, Racine, Wis.

IN CUTTING SPECIMENS FOR MICROSCOPIC examination, the laboratory technician must have a microtome which is minutely accurate yet simple to operate. In our adv. on page 51, this issue you will find illustrated one of our latest microtome models. Price, $40. We will gladly send free to the profession a circular which describes the different models of microtomes which we manufacture. Bausch & Lomb Opt. Co., 400 St. Paul St., Rochester, N. Y. KK

AS A MEANS OF DESTROYING MALIGNANT tissue, naevi, infectious dermatoses and all conditions where destructive cutaneous effect is therapeutically indicated, Carbon Dioxid Ice therapy will give good results. During the past ten years valuable clinical evidence has been accumulating which attests the decided efficiency of this method. We have just issued an instructive clinical booklet on CO_2 Ice Therapy. It is very interesting and well illustrated and we will be glad to mail copies free to physicians on request. Add. Alda Mfg. Co., 223 W. Huron St., Chicago, Ill. KK

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IN TRANSFERRING 1916 CLINICAL records and correspondence you will be interested in reading our new folder which explains how to transfer the physician's office data safely and easily. With our art metal sectional steal equipment you will obtain steal protection at practically the cost of wood. Folder of information mailed promptly and postpaid on request. Art Metal Constr. Co., 512 Gifford Ave., Jamestown, N. Y.

RESUSITATION OF ASPHYXIATED OR comatose patients. Under these conditions manual artificial respiratory motions become tedious and fatiguing. To have at hand a mechanical resuscitation device is a convenience, quick in action and reasonably certain of favorable results when life is not absolutely extinct. On page 19, this issue, you will find the Lungmotor described. If you desire complete data we will send you illustrated circulars free. Add. Life Saving Devices Co., 179 N. Market St., Chicago, Ill. KK

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WINTER AUTO TOPS—AT SMALL COST you can convert a Ford, Buick or Oakland auto into a comfortable glass-walled limousine or coupé. Our tops are thoroughly standard in quality and will give your auto the appearance of a luxurious high-grade car. Our adv. on page 33 illustrates the winter top as applied to a Ford Roadster. Full descriptions and prices mailed free on request. Anchor Buggy Co., Dept. MJ., Cincinnati, Ohio. II

THE SUBMARINE DEUTSCHLAND

brought a shipment of PYRAMIDON, ALBARGIN, ANAESTHESIN, ORTHOFORM, ANTIPYRIN, SUPRARENIN and HOLOCAIN, which is now ready for distribution. Owing to the largely increased cost of importation, due to this unusual and hazardous method of transportation, prices have been advanced. Orders are being sent out pro-rata in accordance with time of receipt.

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For large (hospitals) quantities of ½ and 1 per cent. Novocain-Suprarenin solutions we recommend Tablets "A" and "B"; for small (office) quantities, Tablets "E" and "T"; for pure Novocain solutions, Tablets "D" and "F" respectively.

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SALVARSAN and NEOSALVARSAN

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FARBWERKE-HOECHST COMPANY
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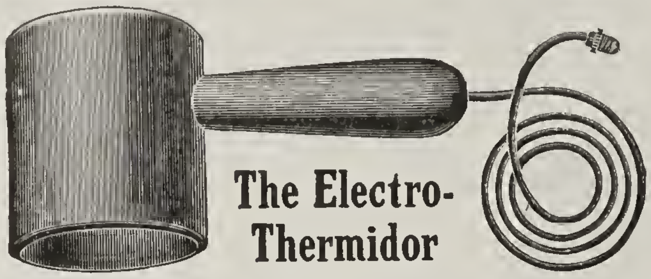
Relieve Pain Without Drugs



The Electro-Thermidor

Applies heat quickly and conveniently to any part of the body through the medium of dry air. It makes possible the use of higher temperatures than can be applied by other methods.

The heat is generated electrically within the shell, but the shell itself does not get hot—only comfortably warm. As no hot solid or liquid, but only dry air comes in contact with the body, a high degree of heat can be applied without burning or injuring the parts under treatment.

Applied directly to the skin, or through the clothing. Diameter of shell, 4 inches, heating area, 12 square inches.

An efficient and convenient means of relieving pain without the administration of drugs. Used in the office and at the bedside. Well worth the price several times over to a physician in any line of practice.

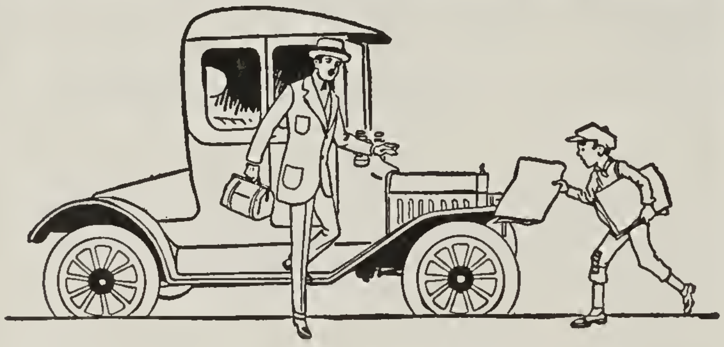
Designed by DR. JOHN ROBERTSON, inventor of the Robertson Compressed Air and Vacuum Machines, Nebulizers, Massage Machines, etc.

Price complete with electric cord ready for use, $6.00. Attaches to any electric lamp socket.

Send your check for $6.00 and we will forward the Electro-Thermidor promptly, all charges prepaid. If not satisfied send it back and get your money by return mail.

Descriptive circular on application

The Robertson Mfg. Co.
422 E. 8th St. -:- Cincinnati, Ohio



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FORD TOURING CARS or ROADSTERS
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Make your car comfortable as well as useful the year round. An Anchor Top at small cost will convert any of above cars into a beautiful glass-walled limousine or coupe. Anchor Tops are more attractively and substantially made than any others and they cost no more. Write today for full description and prices.

THE ANCHOR BUGGY CO. Dept. MJ CINCINNATI, O.

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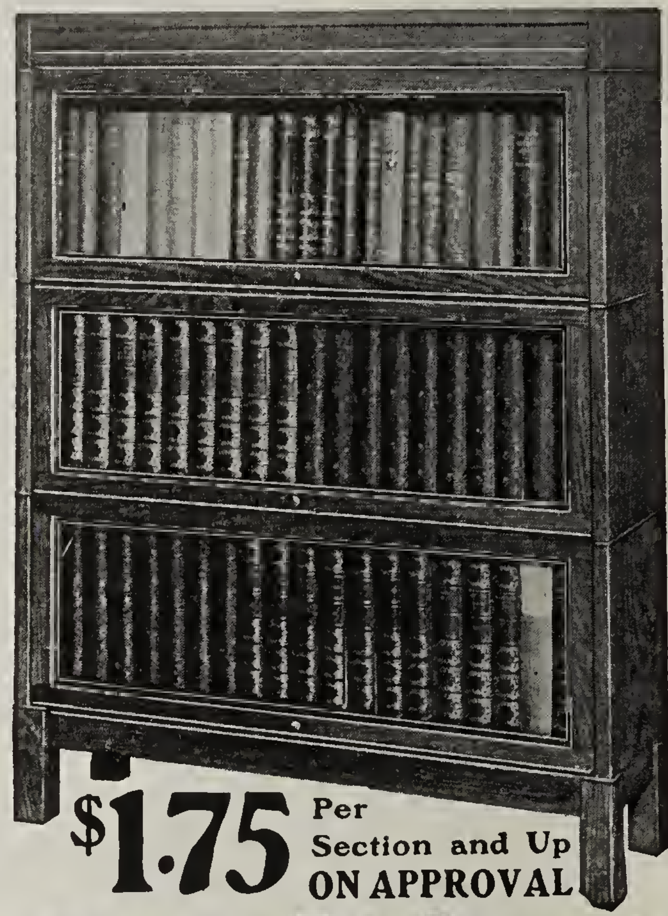

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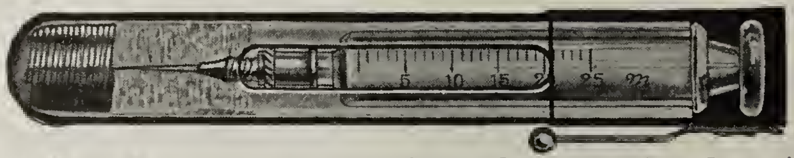

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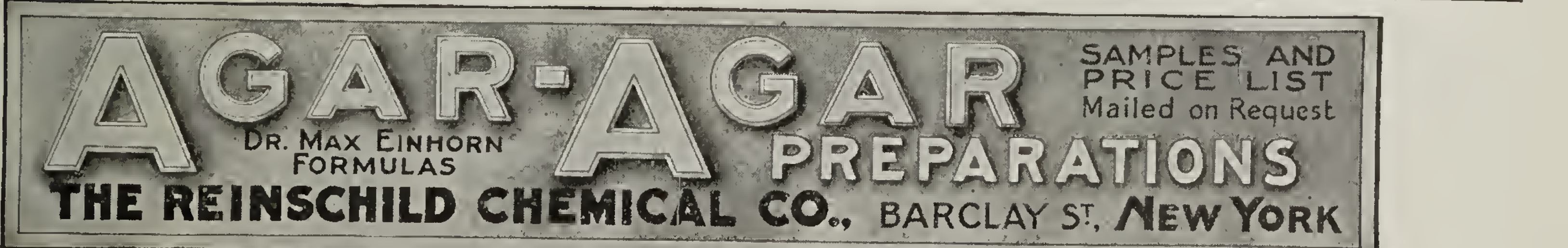
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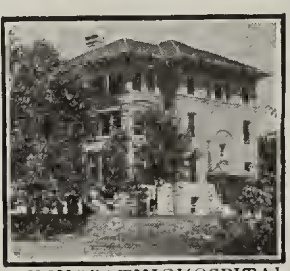
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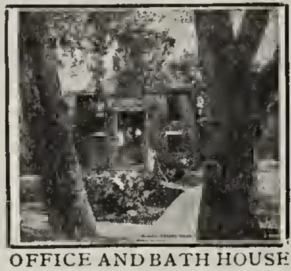
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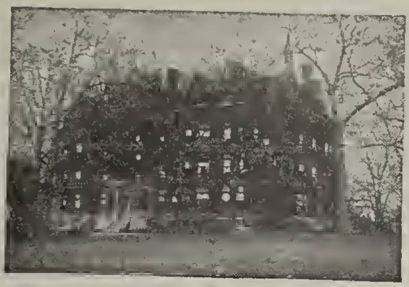

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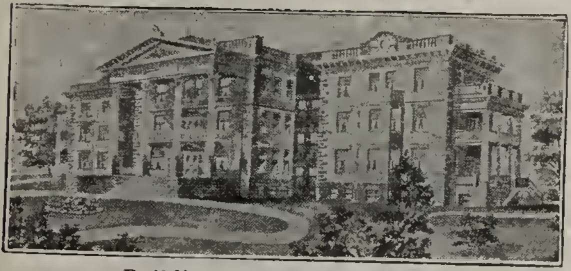

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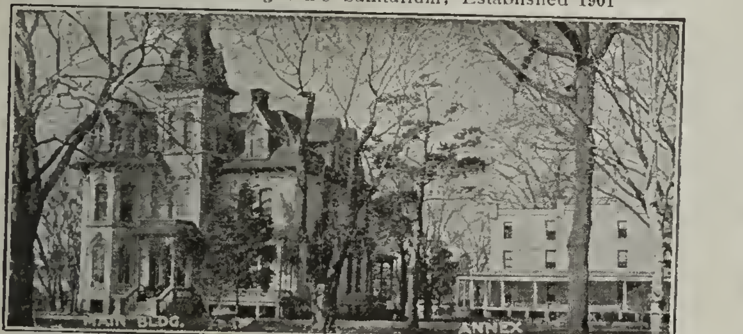

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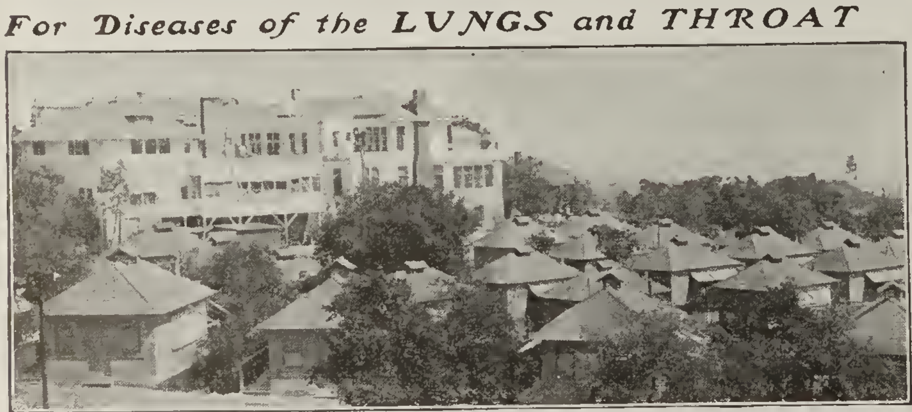

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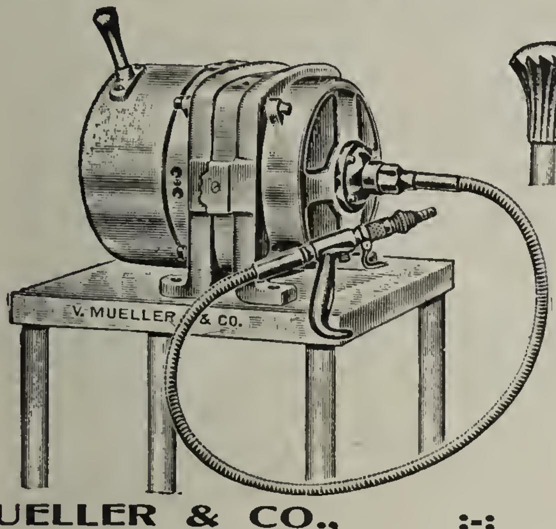
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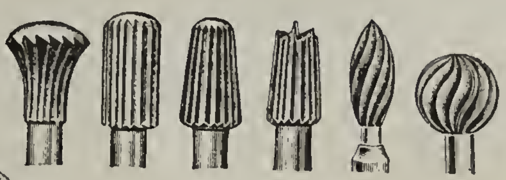

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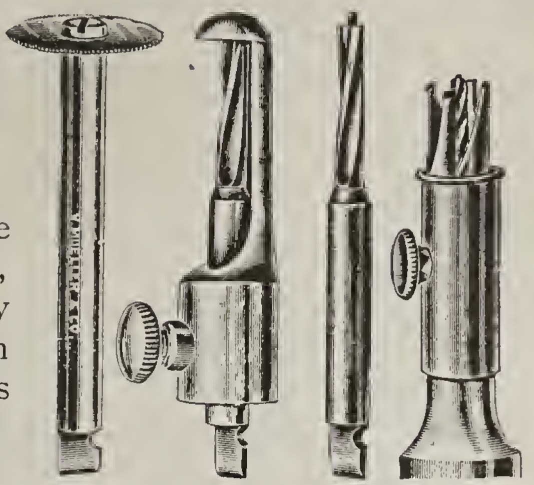

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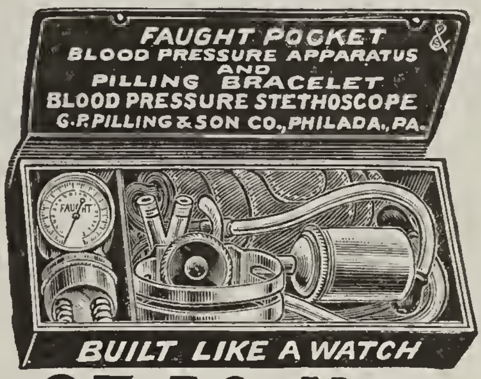
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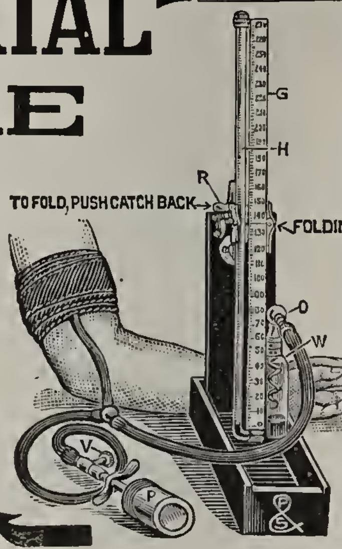
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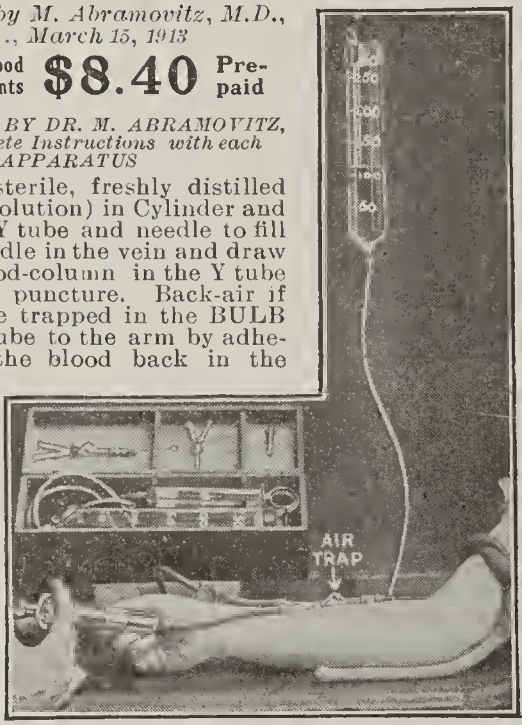

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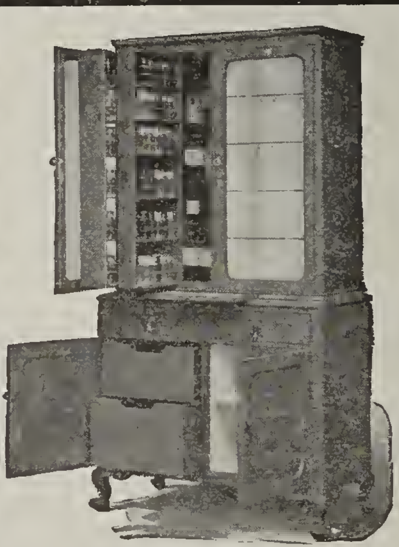

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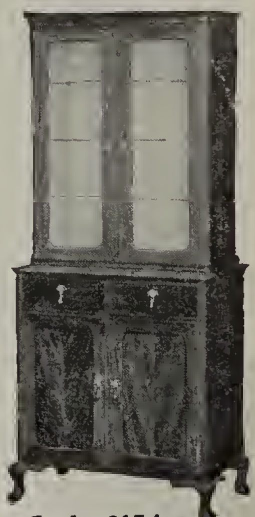

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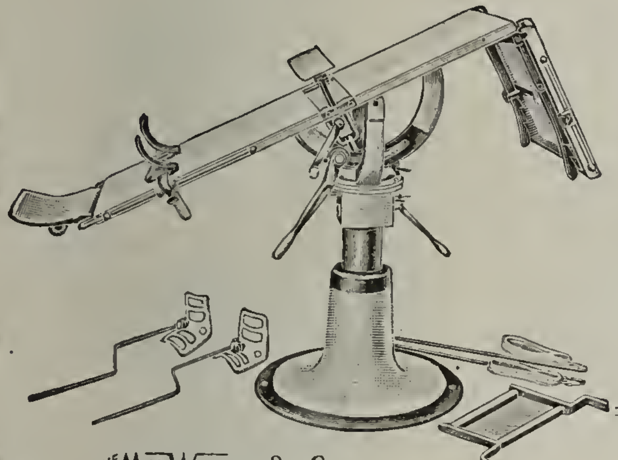
The Wocher-Murphy Simplex Pedestal Operating Table



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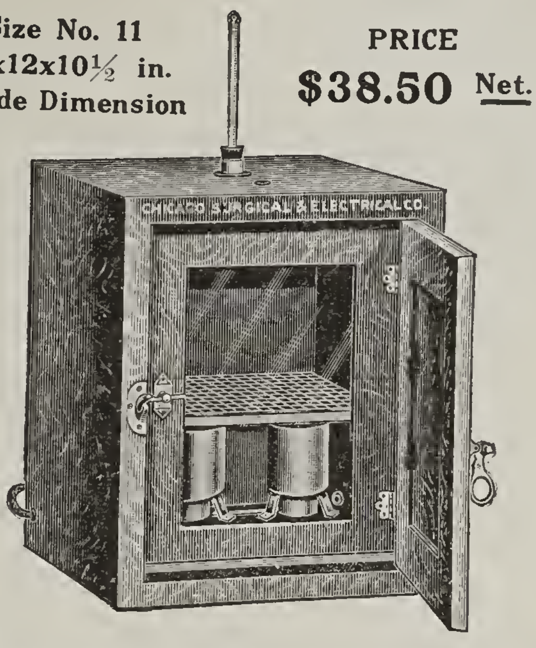

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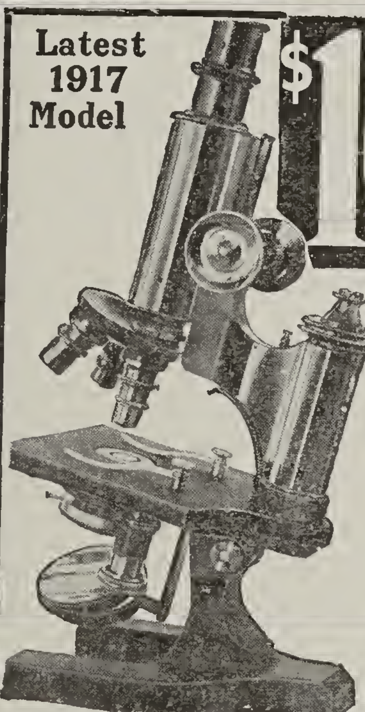

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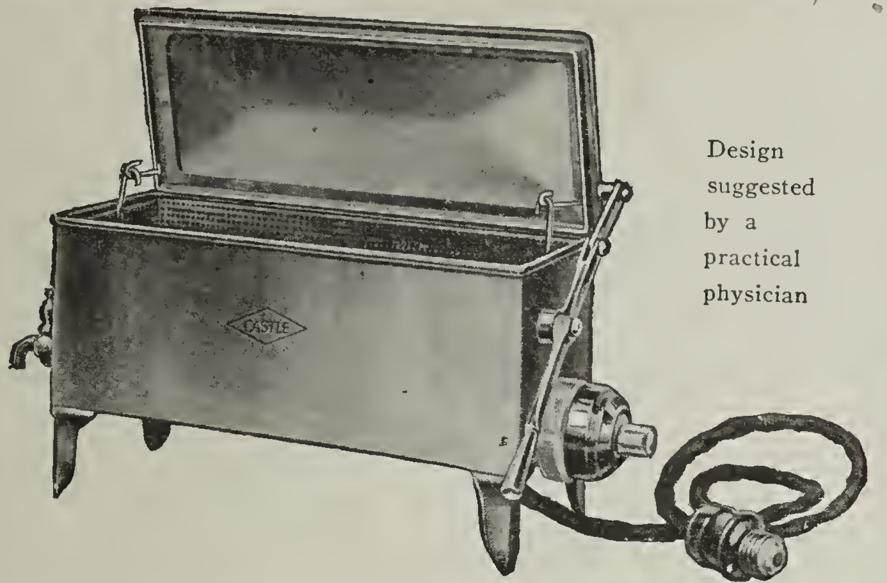

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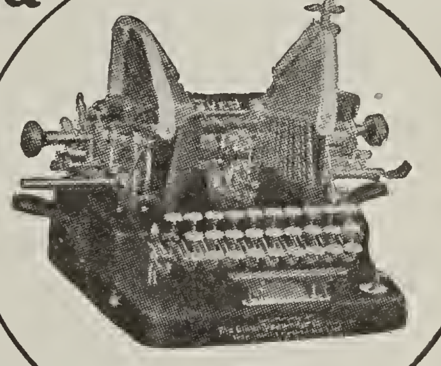

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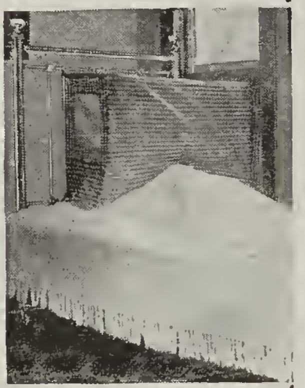

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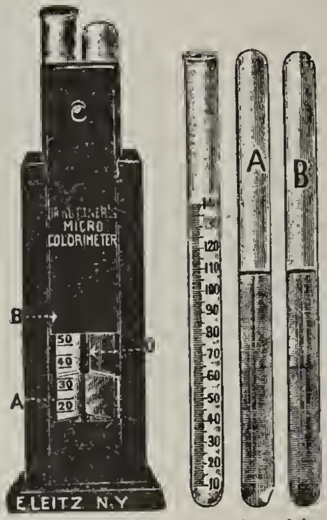

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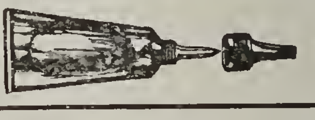
OUR  TUBE

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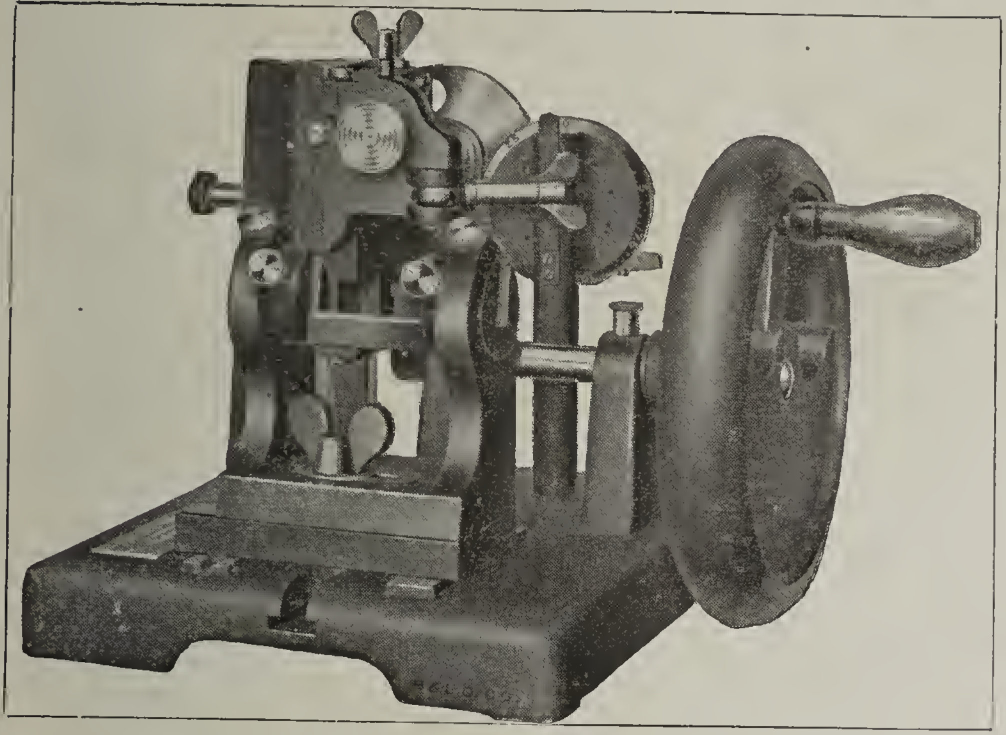

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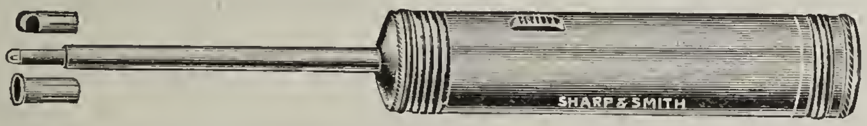

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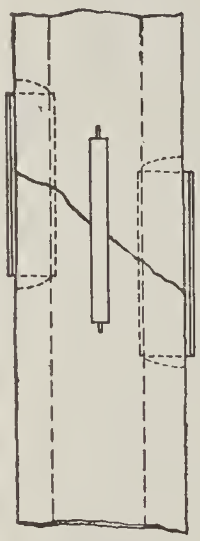

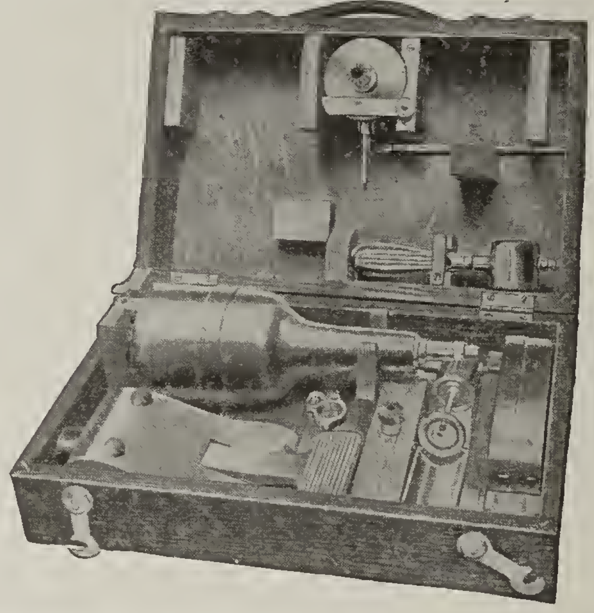

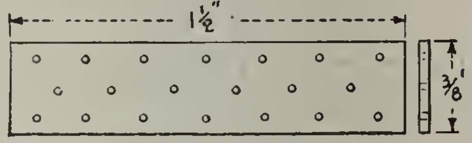

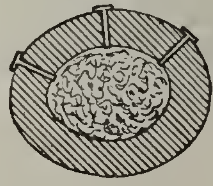

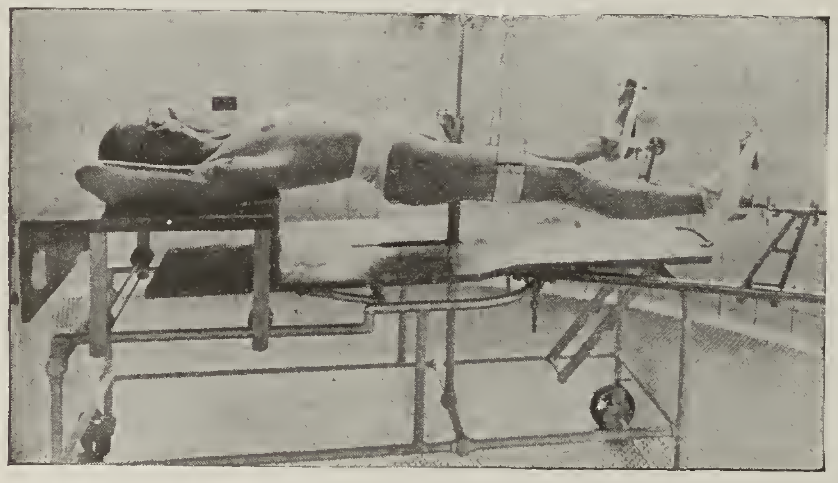

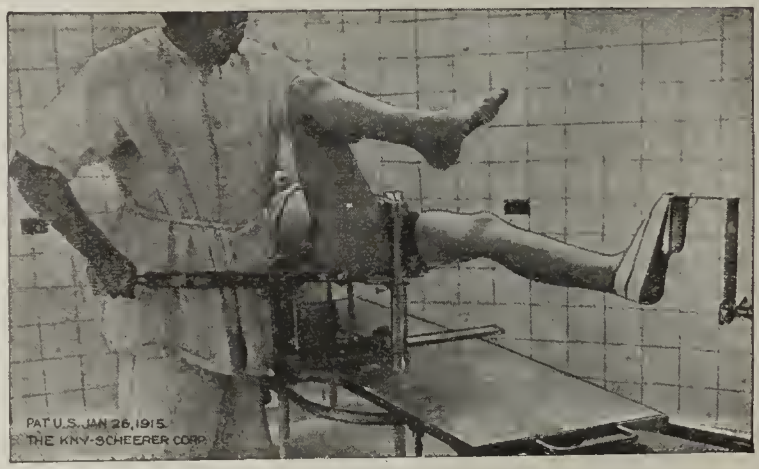

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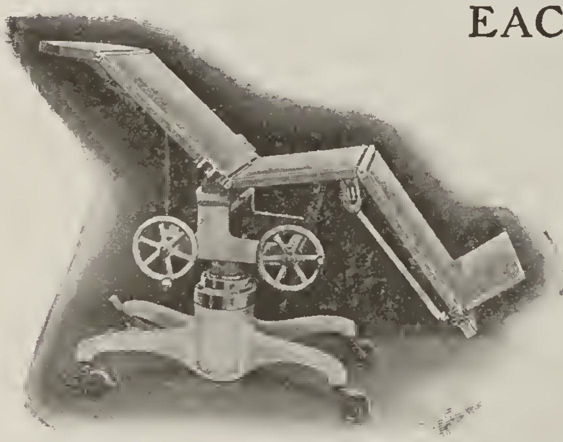

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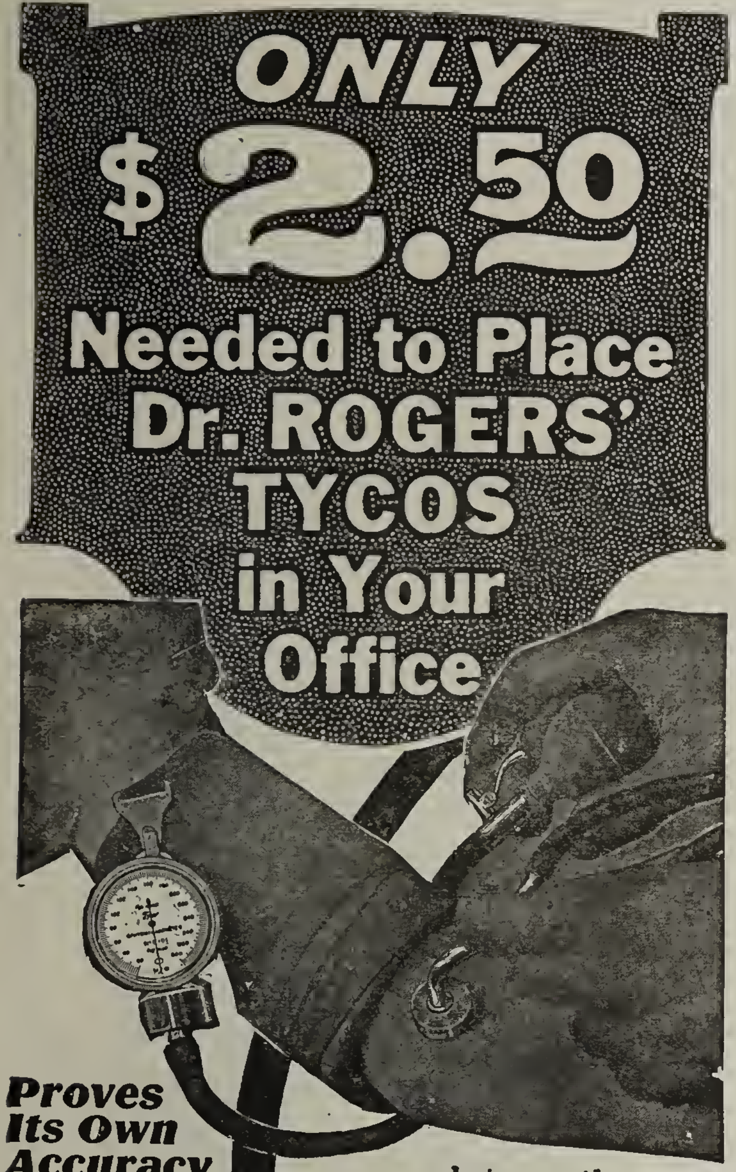

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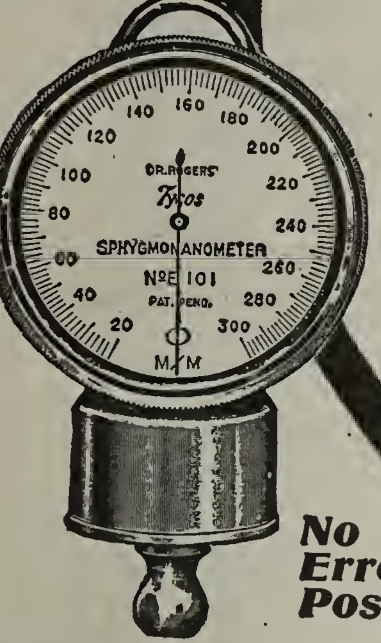

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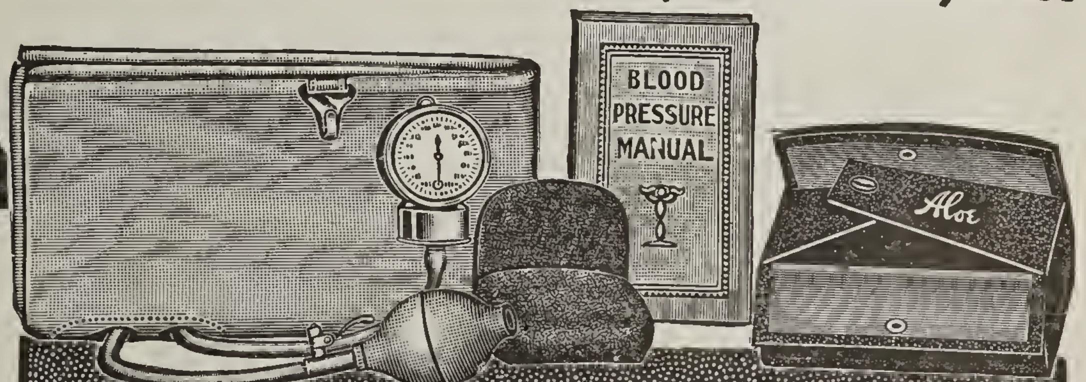

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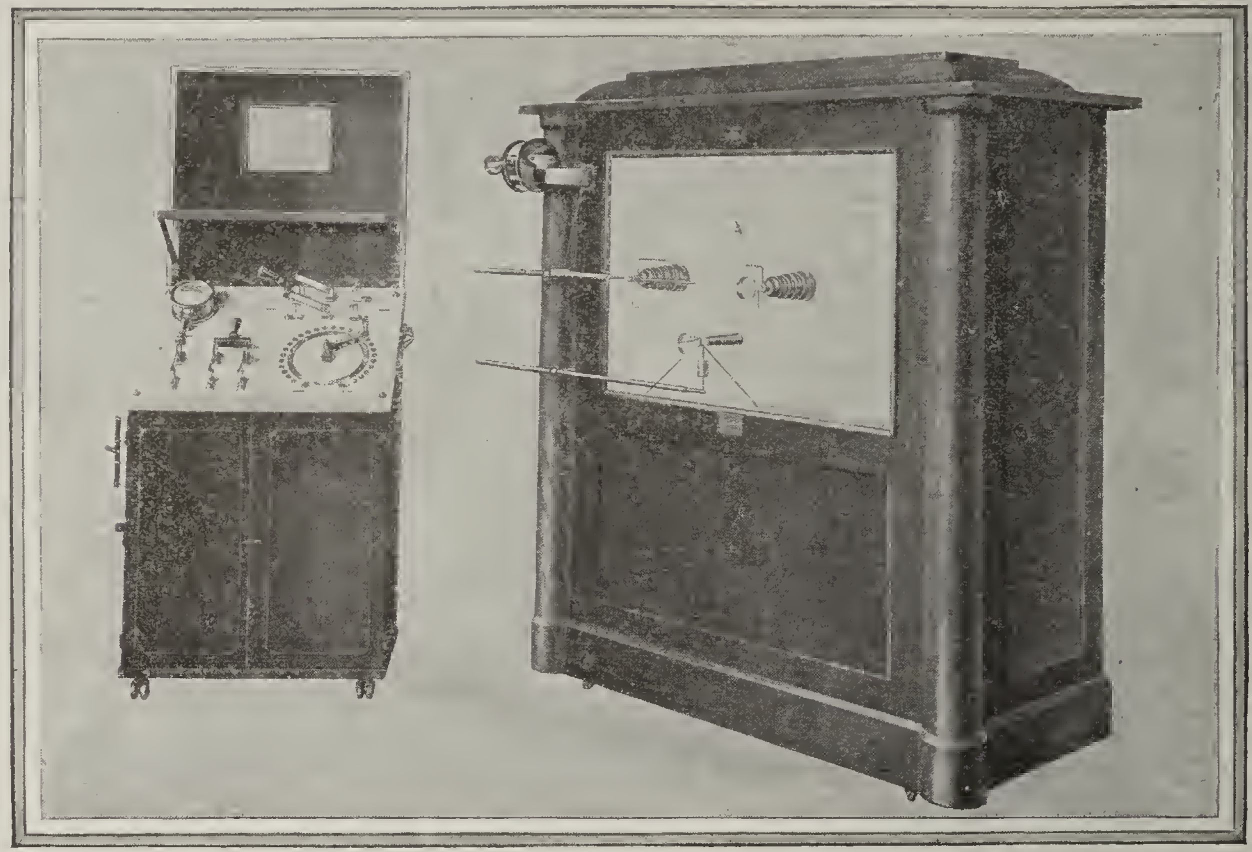

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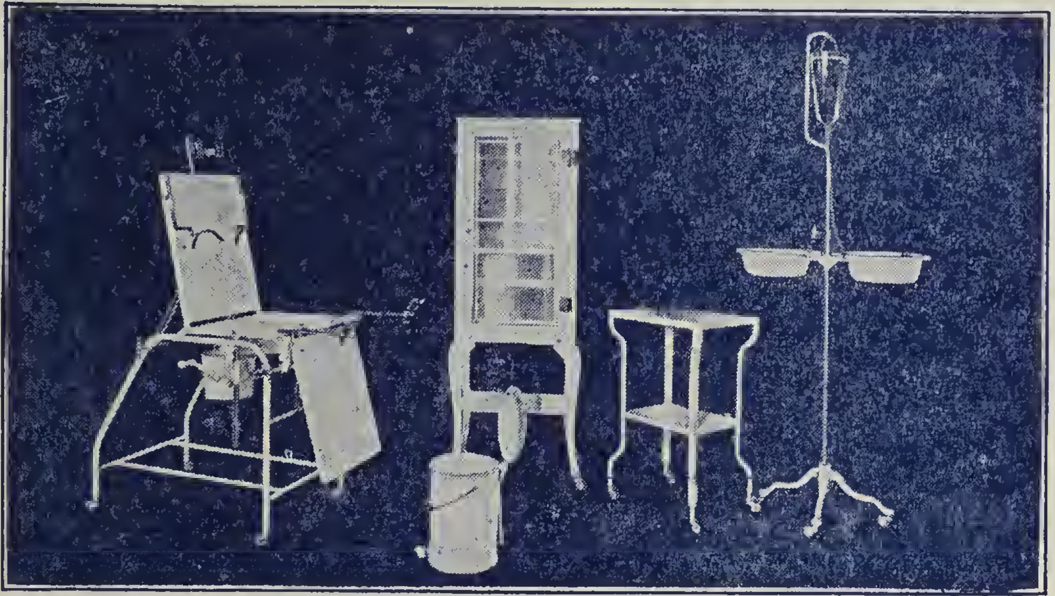

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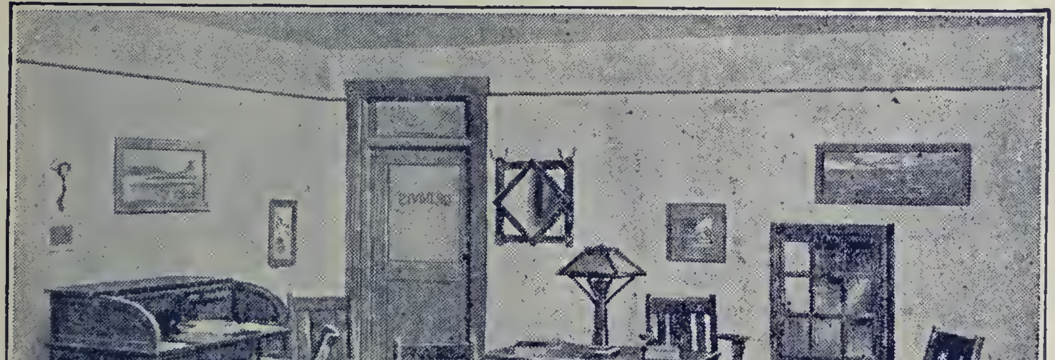

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